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ABSTRACTS

Indian Society of Gastroenterology

Plenary Session

PLE-01

Monocyte HLA-DR expression, neutrophil oxidative burst capacity and cytokine analysis in patients with decompensated cirrhosis with and without acute-on-chronic liver failure

Sandeep Satsangi, *Ajay Duseja, Meenakshi Sachdeva, Shallu Tomer, Sunil Arora, Sunil Taneja, Radha K Dhiman, Yogesh K Chawla*
Departments of Hepatology, and Immunopathology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Introduction Patients with acute-on-chronic liver failure (ACLF) are at increased risk of infection due to a dysregulated immune response. Comparative data on presence of such "immune-paresis" in patients with ACLF and decompensated cirrhosis without ACLF is not available.
Aim of the present study was to compare the immunological functions in patients with decompensated cirrhosis with and without ACLF.
Methodology In a prospective study, 96 patients with decompensated cirrhosis with (n=38, males=35) and without (n = 38, males=29). ACLF were evaluated for monocyte HLA-DR expression, neutrophil oxidative burst (NOB) activity and serum cytokines. The diagnosis of ACLF was made as per APASL definition and grades of ACLF were assessed as per CANONIC study. Patients with evidence of recent infection/sepsis (<1 month) were excluded.
Results There was no significant difference in mean percentage of monocytes with HLA-DR expression (42.61±26.56 % vs. 43.10±20.98 %) (p=0.91), mean density of HLA-DR expression on the surface of cells (30.34±29.32 vs. 41.71±52.13) (p=0.42) and quantitative increase in NOB after stimulation with PMA (16.55±11.91 vs. 17.24±16.18) (p=0.47) amongst patients with and without ACLF. Patients with ACLF had significantly higher pro-inflammatory (pg/mL) [IL-1 (3.50±2.67 vs. 0.35±1.12), IL-6 (220.9±611.2 vs. 16.5±16.52), IL-8 (781.7±865.1 vs. 48.85±62.06), IL-12 (0.98±1.14 vs. 0.10±0.27), TNF-±(3.27±2.94 vs. 0.35±1.12) and anti-inflammatory (pg/mL) [IL-10(3.28±3.68 vs. 0.45 ±0.62] (p<0.0001) cytokines in comparison to patients with decompensated cirrhosis without ACLF.
Conclusion Patients with decompensated cirrhosis with and without ACLF have similar impairment in HLA–DR expression and NOB capacity. Both inflammatory and anti-inflammatory cytokines are increased in patients with ACLF in comparison to decompensated cirrhosis without ACLF.

PLE-02

An aberrant SUMOylation dependent sub-programming of inflammatory gene expression triggers inflammatory bowel disease

Salman Ahmad Mustfa, ***Mukesh Singh****, Aamir Suhail, Gayatree Mohapatra, Smriti Verma, Debangana Chakravorty, Ritika Rampal, Atika Dhar, Sudipto Saha, Vineet Ahuja, C V Srikanth*
Regional Centre for Biotechnology, 3rd Milestone Gurgaon Faridabad Highway, Faridabad, India, Manipal University, Madhav Nagar, Near Tiger Circle, Manipal 576 104, India, All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India, Bose Institute Kolkata, P 1/12, C.I.T Road, Kankurgachi, Kolkata 700 054, India, and National Institute of Immunology, New Delhi, India

Background and Aims Post translational modification (PTM) pathways are integral to all cellular processes and tissue homeostasis with slightest perturbations leading to adverse outcomes. We investigated the possible involvement of SUMOylation, a PTM mechanism, in inflammatory bowel diseases (IBD) specifically at the epithelium.
Methods DSS-colitis mice and human epithelial cell lines were used for gene expression analysis, label free comparative proteomics by mass-spectrometry and cytokines ELISAs. The studies were further substantiated in actual human IBD patient biopsy samples (n=66) collected from Gastroenterlogy Department of AIIMS hospital, New Delhi. We also used molecular approaches in primary epithelial cells to study mechanistic details of SUMOylation dependent modulation of IBD.
Results Dextran-sulphate-sodium induced colitis in mice (DSS-mice) resulted in alteration of global SUMOylation with significant lowering of E2-SUMO enzyme, Ubc9. DSS-mice with severely downregulated Ubc9 displayed exacerbation of disease and a distinct colonic SUMO-proteome. Dramatic alteration of SUMOylated forms of key cellular regulators, particularly SUMOylated-Akt1 was observed. Experimental lowering of Ubc9 in various cell lines and murine primary-epithelial cultures led to lowered Akt1 activity and increased proinflammatory signalling. In line with this, a significant lowering of colonic SUMOylation-status was also seen in IBD patient biopsies. Patients with maximum disease indices were accompanied with severely lowered SUMOylation status with reduced SUMOylated-Akt1.
Conclusion Colitis is accompanied with an impaired SUMOylation in intestinal epithelium. Decrease in Ubc9 is a major cause of SUMOylation alteration and onset of inflammation. In human IBD, Ubc9 fine-tunes the epithelial homeostasis via SUMOylation/phosphorylation dependent activity of Akt1. Overall these results point towards a novel paradigm in IBD-pathophysiology involving SUMOylation and Akt1.

PLE-03

Role of hypertonic saline versus mannitol in the management of raised intracranial pressure in patients with ALF: A randomized open label study

Chetan R Kalal*, Rakhi Maiwall, Abby Cyriac, Guresh Kumar, Shiv K Sarin*
Departments of Hepatology, and Clinical Research, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Background and Aims Raised intracranial pressure (ICP) due to cerebral edema (CE) forms the core of HE development and poor patient outcome in ALF. Earlier studies have shown improvement in CE with mannitol (MT) albeit with nephrotoxicity. Hypertonic saline (HS) induced hypernatremia has been shown to improve CE. We undertook to compare the efficacy and adverse effects of HS and MT in ALF.
Methods In a randomized, prospective study, 42 ALF with CE randomized1:1 to receive either 2 ml/kg of 3 % HS or 5 mL/kg 20 % mannitol. Primary end-point was reduction of ICP defined as optic nerve sheath diameter (ONSD) <5 mm or middle cerebral arterial pulsatility index (PI)

<1.2 with any of the following-normal pupillary reaction, absence of Cushings's reflex, tonic posturing, flexor plantar reflex or reversal of HE at 12 h. Secondary end points, reduction in ICP at 6 and 24 h, length of ICU stay, transplant-free survival at 28 days and adverse effects.
Results Forty-two ALF (aged 31.6±10.5 years, 35.7 % males) hepatitis E (33.3 %) median jaundice to HE time 8 (1–16) days were randomized to HS (n=21) or MN (n=21). Both groups were comparable at baseline, baseline ICP indices, hemodynamics (MAP:91.7±12.8 vs. 95.1±12.2 mmHg) disease severity scores [KCH >2: 33.3 % vs. 42.8 %; MELD: 33.8±5.3 vs. 32.4±5.2). Reduction of ICP indices was more frequent, albeit insignificant, at all time points in HS compared to MT [12 h {14 (66.6 %) vs. 12 (57.1 %}; 6 h {10 (47.6 %) vs .7 (33.3 %)}; 24 h {12 (61.9 %) vs. 9 (42.8 %)}]. Rebound increase in ICP indices was noted in 5 (23.8 %) patients in MT and none in HS group and side effects were more frequent in MT group vs. HS group [new onset acute kidney injury, 4 (19 %) vs. 0] [pulmonary edema, 1 (4.7 %) vs. 0; p<0.05] respectively. Length of ICU stay (8.0±6.38 vs. 9.0±7.78, p=0.9), and 28-day transplant free survival (38 % vs. 33.5 %, p=0.75) were not different between the two groups.
Conclusions MT and 3 % HS have similar reduction in ICP and short-term survival with significantly reduced rebound CE with the later. 3 % HS is a better modality for management of raised ICP in ALF patients.

PLE-04

Cystatin C predicts acute kidney injury and mortality in cirrhotics: A prospective cohort study

Awinash Kumar, ***Rakhi Maiwall****, Guresh Kumar, Shiv Kumar Sarin*
Departments of Hepatology, and Clinical Research, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Background and Aims Early detection of acute kidney injury (AKI) by biomarkers can improve survival in cirrhotics. We in a large prospective cohort of cirrhotics (n=392) evaluated the efficacy of serum cystatin C (CyC) as a biomarker.
Methods Patients were enrolled as Group A (n=234) with normal serum creatinine(sCr) and Group B (n=158) with AKI.
Results Gr. A (age 51.20±11.3, 80 % males, MELD: 12.46±6.1) and Gr. B (age 52.41±10.0, 88 % males, MELD: 25.59±9.8) were followed. A total of 178 episodes of new AKI were noted [Gr A: 74 episodes in 52 patients and Gr B: 104 episodes in 63 patients] at a median time of 43 days (IQR 16–142) in Gr B and 193 days (IQR 107–263) in Gr.A. On multivariate analysis, sCyC was a better predictor when compared to sCr to predict development of first AKI (AUROC 0.69 vs. 0.59; p<0.05) and AKI progression [OR, 3.45 (2.1–5.6) vs. 2.19 (1.46–3.28)] respectively. A predictive score was developed (CyBAC-Del: 0.039* T bilirubin −0.697* Albumin+1.117* Cystatin+ 0.817* Creatinine) which had a better AUC (0.776) when compared to sCyC (0.69) and sCr alone (0.59) (p<.001) for prediction of first AKI. Further, combination of CysC into the components of MELD score the ("MELD Cystatin":10* (1.1*Log (INR)+1.378*Log (Cystatin)+0.486*Log (Bilirubin)+0.833*Log (creatinine) +0)+0.5) improved it's prognostic accuracy (C-Index 0.86 vs. 0.84; p<0.001).
Conclusion Cystatin C is superior to serum creatinine for predicting development and recovery from AKI. Scores incorporating CysC i.e. CyBAC-Deland MELD cystatin can predict first AKI as well as mortality in patients with cirrhosis with great accuracy.

PLE-05

Endoscopic "step-up approach" using dedicated bi-flanged metal stent reduces the need for direct necrosectomy in WON

Sundeep Lakhtakia, *Jahangeer Basha, Rupjyoti Talukdar, Rajesh Gupta, Zaheer Nabi, Mohan Ramchandani, B V N Kumar, Partha Pal, Jagadeesh Singh, Rakesh Kalpala, P M Manohar Reddy, Manu Tandan, G V Rao, D Nageshwar Reddy*
Asian Institute of Gastroenterology, 6-3-661, Somajiguda, Hyderabad 500 082, India

Background EUS guided drainage using plastic stents may be inadequate for treatment of WON. Recent studies report variable outcomes even using covered metal stent.
Aim To evaluate the efficacy of a dedicated covered bi-flanged metal stent (BFMS) when adopting endoscopic "step-up approach" for drainage of symptomatic WON.
Methods We retrospectively evaluated consecutive patients with symptomatic WON who underwent EUS guided drainage using BFMS over a 3-year period. Re-assessment was done between 48 and 72 h for resolution. Endoscopic re-interventions were tailored in non-responders in a stepwise manner. *Step 1*: de-clogging of the blocked lumen of BFMS. *Step 2*: nasocystic tube (NCT) placement via BFMS with intermittent irrigation. *Step 3*: direct endoscopic necrosectomy (DEN). BFMS were removed between 4 and 8 weeks follow up. The main outcome measures were technical success, clinical success, adverse events and need for DEN.
Results Two hundred and five WON patients underwent EUS guided drainage using BFMS. Technical success was achieved in 203 patients (99 %). Peri-procedure adverse events occurred in 8 patients (bleeding 6, perforation 2). Clinical success with BFMS alone was seen in 153 (74.6 %). Re-intervention adopting 'step-up approach' was required in 49 (23.9 %) patients. Incremental success achieved in 10 patients with step1, 16 patients with step 2, and 19 patients with step 3. Overall clinical success was achieved in 198 (96.5 %) patients, with DEN required in 9.2 %. Four patients failed treatment and required surgery (2) or percutaneous drainage (2).
Conclusion Endoscopic step-up approach using BFMS was safe, effective and yielded successful outcomes in majority, reducing the need for DEN.

PLE-06

Anti-tubercular therapy leads to stricture resolution in a minority of patients with intestinal tuberculosis

Piyush Aggarwal, ***Saurabh Kedia****, Raju Sharma, Sawan Bopanna, K S Mashusudhan, Dawesh P Yadav, Sandeep Goyal, Saransh Jain, Venigalla Pratap Mouli, Govind Makharia, Vineet Ahuja*
Departments of Gastroenterology and Radiodiagnosis, All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India

Background Intestinal tuberculosis (ITB), an endemic disease in India frequently presents as structuring disease. Only one study done three decades back has looked at resolution of strictures in ITB and it showed a high degree of resolution. The present study was aimed to assess the frequency of stricture resolution after anti-tubercular therapy (ATT) in ITB patients.
Methods This prospective study included consecutive patients of ITB (January 2004 to December 2015) with radiologic/endoscopic evidence of strictures who received ATT for >6 months. Patients were assessed clinically every 2 months while on ATT and resolution of stricture was assessed after completion of ATT by radiology or endoscopy.
Results Of 286 ITB patients, 128 were found to have a stricturing lesion, 106 were finally included [63 males, median age: 35 years]. Stricture was diagnosed endoscopically in 18 (17 %), radiologically in 14 (13.2 %) and by both techniques in 74 (69.8 %) patients. Sixteen (15.1 %) patients had multiple strictures and 16.7 % had long segment involvement. Almost equal numbers of strictures were ileocecal (31.1 %), colonic (34.9 %) and proximal small intestinal (29.2 %) in location. After a median of 6 (6–9) months of ATT, 66 % patients improved symptomatically where as stricture resolved only in 25 (23.6 %) patients. Colonic strictures had the least resolution rate (5.4 %) followed by ileocecal (24 %) and proximal small intestinal site (42 %).

Conclusions Although two thirds of patients with tubercular intestinal strictures have symptomatic improvement with ATT, stricture resolution does not occur in three fourths of ITB patients and is dependent on disease location.

Young Investigator Award

YIA-01

Noninvasive biomarkers for assessment of villous abnormalities in patients with celiac disease and other enteropathies: An alternative to mucosal biopsies

***Alka Singh**, Anil K Verma, Prasenjit Das, Gaurav Jindal, Shyam Prakash, B Nayak, Siddhartha Datta Gupta, Lalit Kumar, Vineet Ahuja, Govind K Makharia*
Departments of Gastroenterology and Human Nutrition,Pathology, Laboratory Medicine, All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India, Department of Medical Oncology, BRA Rotary Cancer Institute, All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India, and Laboratory of Metabolic Disease, Department of Pediatrics, Università Politecnica delle Marche, Ancona, Italy

Introduction Villous atrophy is the hallmark of celiac disease (CeD). There is a need of non-invasive biomarker both for diagnosis and monitoring of CeD.
Methods Levels of citrulline (synthetic marker for enteropathy) and intestinal fatty acid binding protein (I-FABP) (marker for enterocytic injury) in plasma and serum Reg1α (marker of enterocyte regeneration) were estimated in healthy controls (n=209), disease controls (n=103), patients with celiac disease at baseline (n=110) and 6-months after gluten-free diet (n=43) and other enteropathies (n=46). The tissue expression (immunohistochemistry) and gene-expression (quantitative PCR) of I-FABP and Reg1α were also done in duodenal biopsies. To further confirm utility of above markers, a human model was selected having cycles of enterocyte injury and recovery such as patients with hematological malignancies receiving high-dose chemotherapy for HSCTs (n=70) and their samples were obtained at four timepoints i.e. pre and post transplantation.
Results Plasma citrulline was significantly lower in CeD compared to controls (p<0.001), which got increased significantly after GFD (p<0.001). I-FABP was significantly higher in CeD as compared to controls (p<0.001) and level decreased after GFD. Serum Reg1α also decreased in CeD after 6 months of GFD (p<0.003) compared to baseline value. In a human model of enteropathy, sequential decrease and then increase in citrulline occurred, following a pattern of enterocyte injury and recovery, which corresponded to total leukocytes count in peripheral blood.
Discussion The consistent changes in all above experimental groups in plasma citrulline suggest that plasma citrulline is a reliable marker for estimation of enterocyte mass for diagnosis and monitoring of villous abnormalities.

YIA-02

Higher efficacy of sequential therapy with pegylated interferon-alpha 2b and tenofovir compared to tenofovir monotherapy in HBeAg positive chronic hepatitis B patients

***Ankur Jindal**, Manoj K Sharma, Shiv Sarin*
Department of Hepatology, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Introduction Monotherapy with PEG-Interferon (PEG-IFN-α) or nucleos(t)ide analogues (NA) are largely ineffective in chronic hepatitis B (CHB) patients. A sequential combination therapy may have better therapeutic effects by sustained viral suppression combined with immunomodulation.
Methods One hundred and twenty-six treatment naïve HBeAg (+) CHB patients with moderately elevated alanine aminotransferase (ALT) (48–200 IU/mL) received tenofovir 300 mg/day for 72 weeks with PEG-IFN-a2b 1.5 mcg/kg per week added after first 12 weeks (lead-in-period) for 24 weeks (sequential combination therapy; ST) or tenofovir monotherapy; 300 mg/day for 72 weeks (TM). Primary end point was rate of HBeAg loss. Biochemical and virological responses were assessed at weeks 12, 36, 48 and 72 weeks. Combined virological response (CVR) [HBeAg loss and HBV DNA <2000 IU/mL at week 72] was also determined.
Results At week 72, HBeAg loss occurred in 35.8 % in ST group and 17 % in TM group (p=0.028; OR: 2.73, 95 % CI: 1.09 to 6.79). Combined virological response (CVR) was seen in 20.8 % and 11.3 % (p<0.05), respectively. No patients on ST group had HBeAg seroreversion at last follow up. At week 72, undetectable HBV DNA was seen in 77.4 % (ST group) vs. 71.7 % (TM group); (p=0.51) and normal ALT was seen in 62.3 % and 52.8 % (p=0.32), respectively. Significantly more patients on ST group had >3Log HBV DNA reduction at week 36 (92.5 %) compared to TM group (66 %) (p=0.001). Four (7.5 %) patients on ST achieved HBsAg loss compared with MT (1 patient, 1.8 %) by week 72. No patient had treatment related major adverse effect requiring discontinuation of therapy.
Conclusion Twenty-four weeks of PEG-IFNa2b as add-on sequential regimen to TDF is safe and resulted in more HBeAg and HBsAg loss, when compared to TDF monotherapy in selected HBeAg (+) chronic hepatitis B patients. Long-term follow up trials are needed to assess for sustained durable response.

YIA-03

Immune markers for hepatitis B surface antigen spontaneous seroconversion in hepatitis B e antigen negative chronic hepatitis B patients

***Ashish Kumar Vyas**, B C Sharma, Ankur Jindal, S K Sarin, Nirupma Trehanpati*
Molecular and Cellular Medicine, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Background Incidence of HBsAg spontaneous seroconversion (SC) is 0.5 % to 1 %, much lower in HBeAg negative patients. The immune mechanisms regulating this seroconversion are not well understood. IL-21 secreting T follicular helper (TFH) cells regulate B cell maturation and HBeAg seroconversion. We undertook to investigate the role of IL-21, IL-17 and TNF-±secreting TFH cells, check space plasma B cells and dendritic cells (DCs) in HBsAg seroconversion.
Methods Untreated HBeAg-ve chronic hepatitis B patients (n=131) with raised ALT (>40 IU/mL), were followed up for HBsAg SC. Patients, who seroconverted (Gr.I, n=11) were compared with a matched group who did not seroconvert, and had high (Gr. II,>2000 IU/mL, n=10) or low (Gr.III, <2000 IU/mL, n=10) HBV DNA. Serum IL21 levels by Elisa, cell phenotypes (dendritic, B and TFH cells) were measured in PBMCs by Flowcytometry. TNF-α and IL-17A secreting cells were studied after stimulation with HBsAg (207-339) and HBcAg (340-388) overlapping pooled peptides.
Results Of 131, eleven patients (Gr.1) seroconverted with appearance of anti-HBs >10 IU/mL and HBV DNA loss. All had HBV DNA>2000 IU/mL at baseline. In Gr.I, compared to Gr.II and III, check space serum IL-21 levels (865 vs .276 vs. 111, p<0.0001), CD4+CXCR5 (12.3 vs. 4.0 vs. 2.2, p=0.001), CD4+CXCR5+ICOS+TFH cells (20.0 vs. 10.0 vs. 15.5, p=0.001) HBsAg specific IL-17 (9.0 vs. 3.0 vs. 1.9, p=0.001) and TNF-α producing TFH17 cells (82 vs. 1.0 vs. 1.1, p=0.001), plasma B cells; CD19+ CD38+ (15.0 vs. 5.5 vs. 6.0, p=0.001) myeloid (14.1 vs. 7.1 vs. 7.2, p=0.001) and plasmocytoid DCs (2.6 vs. 0.18 vs. 0.01, p=0.001) were significantly

increased in Gr.1 compared to Gr. 2 and 3. IL-21 and plasma B cells correlated with anti-HBs titters in seroconverters (R2=0.52, p=0.003) (R2=0.9, p=0.01) in Gr.1 than Gr.2 and 3.
Conclusions Functional TFH cells and potent anti-HBs producing plasma B cells play a major role in HBsAg seroconversion. High levels of IL-21 regulate this seroconversion and can serve as a new therapeutic immune modulatory tool.

YIA-04

Evaluation of the quality of mesenchymal stem cells from chronic liver cirrhosis patients for autologous transplantation

***Smitha Mathews**, Mithun Sharma, Ganesh Jaishetwar, M Sasikala, P N Rao, D Nageshwar Reddy*
Institute of Basic Science and Translational Research, Asian Healthcare Foundation, 6-3-661, Somajiguda, Hyderabad 500 082, India, Asian Institute of Gastroenterology, 6-3-661, Somajiguda, Hyderabad 500 082, India and Yashoda Hospital, Durga Nagar, Somajiguda, Hyderabad 500 082, India

Liver transplantation is the gold standard therapy for patients with chronic liver disease (CLD). With ever-growing demand and long waiting period on the transplant lists worldwide, cell based support therapies had emerged as a bridge to the liver transplantation. Mesenchymal stem cell transplantation is considered beneficial due to their immunomodulatory and regenerative properties. The objective of this study was to characterize the suitability of MSCs derived from bone marrow of CLD patients for autologous transplantation. Bone marrow was obtained from cirrhosis patients and MSCs were isolated and cultured. Passage three cells were characterized for MSC markers (CD90,73,105) and differentiation potential to osteoblasts, adipocytes and chondrocytes. They were assessed for doubling time, proliferation, senescence and genetic stability. The cells isolated showed MSC like morphology, specific marker profile and differentiation potential. The MSCs from different patients showed variation in doubling time proliferation rate, senescence and differentiation potential. Micronucleus assay for genetic stability demonstrated increased micronuclei and nuclear blebs in the samples which showed higher doubling time, lower proliferation and differentiation potential and increased senescence. Our results indicate that the MSCs need to be assessed for their suitability for transplantation.

YIA-05

Primary organ failure and secondary organ failure due to infected pancreatic necrosis cause mortality differentially in acute pancreatitis and should be distinguished

***Saransh Jain**, Rajesh Kumar Padhan, Samagra Agarwal, S Harikrishnan, K Padmaprakash Vadiraja, Sanatan Behera, Sushil Kumar Jain, Rajan Dhingra, Nihar Ranjan Dash, Peush Sahni, Pramod Kumar Garg*
Departments of Gastroenterology, and Gastrointestinal Surgery, All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India

Background Early primary organ failure (OF) due to acute pancreatitis (AP) per se and secondary OF due to infected pancreatic necrosis (IPN) induced sepsis have not been distinguished and their relative contribution to mortality is not known.
Objective Our objective was to study the development and relative contribution of primary and secondary OF to mortality in AP.
Methods All consecutive patients with AP were included in an observational study. AP was characterized as interstitial or necrotizing. OF was categorized as primary if it occurred early in the first week and secondary if it occurred late due to IPN. Primary outcome was relative contribution of primary OF, secondary OF and IPN to mortality.
Results Of 614 patients (mean age 38.82+14.57 years; 430 males), 274 patients developed OF with 152 having primary OF. Two hundred and eighty-three patients developed IPN and 208 of them had OF: 111 had primary OF preceding the onset of IPN and 97 developed late secondary OF due to sepsis. Primary OF caused early mortality in 15.8 % and was a risk factor for IPN in 76 % patients. Mortality in those with primary OF and IPN was 49.54 % vs. 36 % in those with IPN and secondary OF (p=NS) and 4 % in those with IPN but without OF (p<0.001). The mortality in primary OF was significantly higher vs. late secondary OF (46.05 % vs. 8.97 %; p<0.001). Similar results were obtained in the validation study.
Conclusion Primary and secondary OF contributed to mortality independently and must be distinguished because they are distinct in their timing, window of opportunity for intervention, and treatment.

YIA-06

Altered expression of Ubiquitin editing complex during ulcerative colitis and negative correlation of TNFAIP3 expression with disease severity

***Ishani Majumdar**, Saurabh Kedia, Vineet Ahuja, Jaishree Paul*
School of Life Sciences, Jawaharlal Nehru University, New Mehrauli Road, Munirka, New Delhi 110 067, India and Department of Gastroenterology, All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India

Introduction Ulcerative colitis (UC) is an inflammatory disorder of the colon characterized by NFB hyper activation. The ubiquitin editing molecule TNFAIP3 is an important NFB feedback inhibitor and forms ubiquitin editing complex (UEC) with its partners ITCH, RNF11 and Tax1BP1 to maintain homeostatic NFB activation. In this study, we aimed to determine expression of UEC in inflamed colonic tissues.
Methods Inflamed colonic mucosal biopsies were collected from 30 UC patients including with active disease (mild, moderate) and in remission and 10 control individuals. Real-time PCR was used to determine mRNA expression. TNFAIP3 protein expression was evaluated using immunohistochemistry.
Results TNFAIP3 mRNA expression significantly increased in inflamed colonic mucosa of UC patients as compared to controls (p<0.01). ITCH and Tax1BP1 expression decreased across all groups of UC patients (both p<0.05). Decrease in RNF11 mRNA levels was significant only in UC patients with proctitis (p=0.0151) compared with controls. Further, TNFAIP3 showed a significant negative correlation with disease activity (r=−0.6269, p=0.0143). Amongst the UEC members, RNF11 and Tax1BP1 showed a positive correlation in expression pattern (r=0.5408, p=0.002). TNFAIP3 protein exhibited a decreased level of expression in colonic mucosal biopsies.
Conclusions This study shows that mRNA expression of UEC members is altered during UC and possibly contributes to severity of the disease.

Presidential Posters

PP-01

Determining the normal values by posture for high resolution esophageal manometry (HREM) in healthy South Indian volunteers

***M Srinivas**, P Bawane, V Jayanthi*
Department of Medical Gastroenterology, Global Health City, Chennai 600 100, India

Background High resolution esophageal manometry (HREM) has replaced conventional manometry. The Chicago Classification used for standardized reporting derives its normal values from western volunteers using solid state catheters.
Aim Determine normal values for 16-channel water perfused HREM catheter (commonest system used in India) using 5 mL water swallows in upright and supine positions in healthy South Indian volunteers.
Methods After ethics approval and informed consent, 30 volunteers (15 men) with no gastrointestinal (GI) symptoms or medications affecting GI motility underwent HREM by standard protocol (10 × 5 mL water swallows in upright followed by supine positions). Age, gender, BMI and manometry parameters analyzed using Trace 1.3.3 software were collected. Statistics: Student t test, Wilcoxon test.
Results **See Table.** Peristaltic breaks: Higher proportion of >5 cm breaks in both proximal and distal zones in upright compared to supine (14.7 % vs. 4.6 % and 9.7 % vs. 1.7 %). No procedure related complications.
Conclusions First reported Indian data on normal HREM values using 16-channel water perfused catheter suggests that basal LES pressure, IRP and DCI are lower in Indians. While we conform to the Western normal distal break (<5 cm), the transition zone break seems to be much larger (up to 13 cm). Further multiregional normal Indian data is needed to develop an Indian standard for HREM reporting.

Results Table Normal values for high resolution esophageal manometry in healthy Indian volunteers

Gender (M/F)	15/15		
Age: Mean±SD (Range)	29.7±7.7 (20 to 50)		
BMI: Mean±SD (Range)	24.7±3.7 (17.2 to 32.8)		
No. of Swallows: 300 each	Upright	Supine	*p*
Basal LES pressure: 5th–95th percentile			
Inspiration	14.0–64.0	18.7–75.1	NS
Expiration	6.0–26.4	6.0–38.2	NS
EGJ-CI: Mean±SD (SEM)	52.6±20.9 (3.8)	52.3±27.0 (4.9)	NS
IRP: Median (Range)	6.85 (1.1 to 20.6)	6.3 (0.7 to 19.0)	<0.01
<95th percentile (normal)	<13.6	<13.0	
Mean DL: Mean±SD (SEM)	6.0±1.1 (0.1)	6.5±1.0 (0.1)	<0.001
>5th percentile (normal)	>4.6	>5.4	
Mean DCI: Mean±SD (SEM)	1336±1090 (63)	1583±1038 (60)	<0.01
5th–95th percentile (normal)	157–3311	102–3400	
Peristaltic break size (cm): < 95th percentile			
Proximal (normal)	<11	<13	NS
Distal (normal)	<5	<3	<0.01

PP-02

Pneumonia outcome score in cirrhotics accurately predicts mortality due to pneumonia with cirrhosis

Kapil Dev Jamwal*, Amrish Sawhney, Rakhi Maiwall, Guresh Kumar, Shiv Kumar Sarin*
Departments of Hepatology, and Clinical Research, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Introduction Pneumonia in cirrhosis is known to be associated with poor outcome, however there are no studies which have identified predictors of mortality in these patients.
Methods We developed a pneumonia outcome score in cirrhotics (POSIC) for prediction of 28-day mortality in hospitalized patients with cirrhosis (n=583) and validated in prospective cohort (n=522) of cirrhotics with pneumonia. The score was developed using multiple logistic regression analysis.
Results One thousand one hundred and five of 3609 (31 %) cirrhotics were admitted with pneumonia (n=296, 26 %) or developed pneumonia (n=809, 74 %). The mortality of patients with pneumonia was higher 617 (55.8 %) vs. 751 (30.1 %), p<0.001 respectively. Sixty-one (40 %) were culture-positive with 85 % (GNB), 7.5 % gram positive with same 7 % being fungal. mechanical ventilation was required in 235 (26 %). Factors considered for univariate analysis included age, gender, variceal bleed, creatinine, acute-on-chronic liver failure (ACLF), infection with multidrug resistant organism (MDR), nosocomial pneumonia, etiology of cirrhosis, comorbidities, encephalopathy, respiratory rate, PaO2/FiO2 ratio, circulatory failure and presence of multiple site infection. Factors significant on multivariate analysis were ACLF (2.64, 1.72-4.04), creatinine ≥2 mg/dL, nosocomial pneumonia and multidrug resistant bacteria. AUROC of derivation cohort was 0.82 with a sensitivity and specificity of 72.8 and 73.1 % respectively. AUROC of validation cohort was 0.83, with sensitivity and specificity of 83.9 and 75.5 respectively. The mortality prediction by POSIC was better than the MELD, MELDNa and CTP scores.

Conclusion One third of hospitalized patients with cirrhosis had pneumonia and high mortality. POSIC score can stratify cirrhotic patients with pneumonia who are likely to have worse outcomes.

PP-03

Organ failures associated with acute kidney injury in critically Ill cirrhotics have a major influence on disease progression and outcome

Rakhi Maiwall*, R Moreau, Shivendra Singh Chandel, S K Sarin*
Department of Hepatology, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India, Inserm, U1149, Centre de Recherche sur l'Inflammation (CRI), Clichy and Paris, France, UMRS1149, Université Paris Diderot-Paris 7, Paris, France, Département Hospitalo-Universitaire (DHU) UNITY, Service d'Hépatologie, Hôpital Beaujon, Assistance Publique-Hôpitaux de Paris, Clichy, France, and Laboratoire d'Excellence Inflamex, PRES Sorbonne Paris Cité, Paris, France

Background/Aims Currently, there are no studies evaluating whether AKI alone or associated with extra-renal organ failures (E-OF) in critically ill cirrhotics is associated with mortality. We addressed this question in a large prospective cohort of cirrhotics admitted to liver intensive-care.
Methods Patients were prospectively followed from admission until death, recovery or liver transplant for prevalence, development and progression of AKI and it's association with extra-renal organ failures (E-OF) (i.e. cerebral failure, circulatory failure and respiratory failure).
Results A total of 189 patients with cirrhosis, aged 48.8±11 years, 85 % males, with mean MELD of 29±8; were included of which only 43 (22.8 %) were alive at 1 month. AKI at admission was present in 123 (65 %), (Stage I:II:III in 11.6 %: 14.8 %: 38.1 % respectively); 152 patients (80.2 %) had at least one E-OF. At day 7, 59 % had AKI progression with peak AKIN stage III:II:I in 80 (66 %): 31 (25 %):11 (9 %) respectively. Presence of any E-OF was strongly associated with both development of new AKI (p=0.004, OR 6.7, 95 % CI 1.86–24.1) and progression of AKI (p=0.04, OR 2.28, 95 % CI 1.01–5.1). This risk further increased with increase in the number of E-OFs (p=0.001, OR 1.41, 95 % CI 1.2–1.7). Further, AKI at admission alone was not associated with mortality, but predicted mortality together with any E-OF (p<0.001, OR 5.5, 95% check space CI 2.1–14.8).

Conclusion Extra-renal organ failures are commonly associated with AKI in critically ill patients with cirrhosis which determine both development and progression of AKI as well as mortality. Presence of AKI alone is not associated with worse outcome in critically ill cirrhotics.

PP-04

Management of refractory variceal bleed with Dannis-ella stent in patients with acute-on-chronic liver failure

Rakhi Maiwall*, Kapil Jamwal, Manoj Kumar Sharma, Guresh Kumar, Ajeet Singh Bhadoria, Ashok K Chowdhury, Ankur Jindal, S M Shasthry, Lovkesh Anand, Amrish Sahwney, Awinash Kumar, Shiv Kumar Sarin*
Departments of Hepatology, and Clinical Research, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi, 110 070, India

Background and Aims Almost, 10 % of the bleeding episodes are refractory to combination of vasoactive agent and endotherapy, and are associated with a mortality up to 50 %. Severity of liver disease and high portal pressure are mainly responsible for it. In patients with acute- on-chronic liver failure (ACLF), due to high MELD score and severe coagulopathy, TIPS can not be used. Self-expandable DE (DE) stents could be an effective option for control of refractory variceal bleeds.
Methods ACLF patients (n=88, mean age 47.3±10.9 years.) with refractory variceal bleeds received either DE stent (Gr. A, n=35) or continued with repeat endotherapy and vasoactive drug (Gr. B, n=55). Matching by propensity risk score (PRS) was done to avoid selection bias. Competing risk Cox regression analysis was done to identify event specific i.e. gastrointestinal bleed-related death.
Results Majority (78.4 %) of the patients were alcoholic with a MELD score of 45.9±20. Patients in the two groups had significant differences with respect to baseline MELD and the CTP scores which were not evident in the PRS matched cohort. Control of initial bleeding (89 % vs. 37 %, p<0.001) and bleed related death (26 % vs. 64 %; p=0.006) was significantly lower in the DE stent group as compared to controls. In a multivariate competing risk Cox model, patients who underwent DE stenting had reduced mortality in both the pre-match (HR 0.24, 95 % CI 0.09–0.64) and PRS-matched cohorts (HR 0.09, 95 % CI 0.01–0.74).
Conclusions Self-expandable DE stents are very effective in control of refractory variceal bleeding and improve mortality in patients with severe liver failure.

PP-05

Accuracy of imaging features on computed tomography in differentiating intestinal tuberculosis from Crohn's disease: Systematic review with meta-analysis

Saurabh Kedia*, Raju Sharma, Vishnubhatla Sreenivas, K S Madhusudhan, Sawan Bopanna, V. Pratap Mouli, Rajan Dhingra, Rajesh Padhan, Dawesh P Yadav, Govind Makharia, Vineet Ahuja*
Departments of Gastroenterology, Radiodiagnosis, and Biostatistics, All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India

Background Computed tomography (CT) abdomen can non-invasively image the entire intestine and assess extraintestinal features which are important in differentiating Crohn's disease (CD) and intestinal tuberculosis (ITB).
Aim The present meta-analysis pooled the results of all studies on the role of CT abdomen in differentiating CD and ITB.
Methods We searched Pubmed and Embase for all publications in English language that analyzed the features differentiating CD and ITB on CT abdomen. The features included were comb sign, necrotic lymph nodes, asymmetric bowel thickening, skip lesions, fibrofatty proliferation, mural stratification, ileocecal area, long segment, and left colonic involvement. Sensitivity, specificity, positive and negative likelihood ratio, and diagnostic odds ratio (DOR) were calculated for all the features. Symmetric receiver operating characteristic (SROC) curve was plotted for features present in >3 studies. Heterogeneity and publication bias was assessed and sensitivity analysis was performed by excluding studies that compared features on CECT abdomen instead of CT enterography (CTE).
Results Six studies (4 CTE, 1 CECT abdomen, 1 CTE+CECT abdomen) involving 417 CD and 195 ITB patients were included. Necrotic lymph nodes had highest diagnostic accuracy (sensitivity: 23 %, specificity: 100 %, DOR: 30.2) followed by comb sign (sensitivity: 82 %, specificity: 81 %, DOR: 21.5) and skip lesions (sensitivity: 86 %, specificity: 74 %, DOR: 16.5). Asymmetric thickening, fibrofatty proliferation and left colonic involvement had good specificity but poor diagnostic accuracy because of poor sensitivity. Mural stratification, ileocecal area and long segment involvement had the worst performance. On sensitivity analysis, except for asymmetric thickening, the diagnostic accuracy of other features remained similar.
Conclusions Necrotic lymph nodes and comb sign on CT abdomen had the best diagnostic accuracy in differentiating CD and ITB.

PP-06

Do additional colonoscopic biopsies increase the yield of acid-fast bacilli culture?

Vatsal Mehta, ***Devendra Desai****, Philip Abraham. Anand Joshi, Tarun Gupta, Ramesh Deshpande, Camilla Rodrigues*
Division of Medical Gastroenterology and Departments of Pathology and Microbiology, P D Hinduja Hospital and Medical Research Centre, Veer Savarkar Marg, Mahim, Mumbai 400 016, India

Introduction Isolation of acid-fast bacilli (AFB) is vital for differentiating. Intestinal tuberculosis (ITB) from Crohn's disease (when histopathology is not diagnostic) and for diagnosis of multi drug resistant tuberculosis. The current yield of colonoscopic biopsy AFB culture (<50 %) is not satisfactory.
Aim To study if more number of colonoscopic biopsies could increase the yield of AFB culture.
Methods In this prospective study, patients who underwent colonoscopy for suspected ITB, 4 biopsies were taken for AFB culture (labelled as bottle 1) and 4 additional biopsies for AFB culture (labelled as bottle 2). AFB culture was done by Mycobacterium growth indicator tube (MGIT) 960. A patient was considered to have ITB if biopsies AFB culture was positive, there was unequivocal histopathological evidence of TB or there was unequivocal evidence of tuberculosis elsewhere in the body in absence of other diagnosis.
Results Of 190 [96 (51.53 % women; mean age 37.5 (SD 17.2) years] patients, 70 (36.8 %) patients were diagnosed as ITB. Twenty-nine of 70 (41.4 %) patients had TB culture positive on the basis of only one (first) bottle. Additional 4 biopsies in bottle 2 resulted increased AFB culture positivity by 8 (27.5 %) patients (confidence interval+6.35; range 21 to 34). This improved AFB culture positivity from 29/70 (41.4 %) to 37/70 (52.8 %) patients.
Conclusion Additional 4 (total 8) colonoscopic biopsies improved yield of AFB culture positivity by 27.5 %. The AFB culture positivity in colonoscopic biopsies (without surgical biopsies) has crossed 50 % for the first time.

PP-07

Clinical utility of thiopurine metabolite measurement in patients with inflammatory bowel disease

Suruchi Parkar, Alap Dherai, ***Devendra Desai****, Tester Ashavaid*
Department of Laboratory Medicine and Division of Gatroenterology, P D Hinduja Hospital, Veer Savarkar Marg, Mahim, Mumbai 400 016, India

Introduction Thiopurine remains important 2nd line drugs in the treatment of inflammatory bowel diseases (IBD). Up to 60 % of patients do not respond to conventional thiopurine dosing and 30 % suffer adverse effects to these agents. Optimal use of thiopurines may increase improve their efficacy by 15 % to 30 %.
Aim To study the clinical utility of thiopurine metabolites in Indian patients with IBD with respect to patient management.
Methods Thiopurine metabolite status was studied in 44 IBD patients (24 women; median age 35.5 (IQR 25). Twenty-one Crohn's disease, 23 ulcerative colitis and 1 undetermined) for the following indications: active Crohn's disease (17 patients) and active ulcerative colitis (13) to look for the feasibility of increase in thiopurine dose, ulcerative colitis in remission (10), Crohn's disease in remission (3) and IBDU in remission (1) to assess feasibility of reducing thiopurine dose, resistant pouchitis (1). Thiopurine metabolite levels and change in dose of thiopurine were noted.
Results 6-TG levels were sub-therapeutic in 23/44 (52.2 %) patients, normal in 10/44 (22.7 %) and supra therapeutic in 10/44 (22.7 %). One patient was non compliant (absent 6-TG and 6-MMP). Thiopurine dose was changed in 19/44 (43.18 %) patients: increased in 9/44 (20.45 %) patients, reduced in 8/44 (18.18 %) patients, stopped in one patient, one patient was advised about non-compliance.
Conclusions Thiopurine levels were low in about half and high in about a fourth. Thiopurine dose was modified in 43 % of patients. Optimizing thiopurine may improve clinical efficacy and avoid adverse effects due to drugs.

PP-08

Effect of exercise on nonalcoholic fatty liver disease and its risk factors: A comparison of moderate versus low intensity exercise

Preetam Nath*, Manas Kumar Panigrahi, Manoj Kumar Sahu, Ranjan Kumar Sahoo, Satya Swarup Jena, Jimmy Narayan, Arun Kumar Patnaik, Anjan Jena, Ananya Apurba Patra, Shivaram Prasad Singh*
Department of Gastroenterology, S C B Medical College, Dock Road, Manglabag, Cuttack 753 007, India, Departments of Gastroenterology and Radiodiagnosis, India, Institute of Medical Sciences and Sum Hospital, Bhubaneswar, Shampur, Bhubaneswar 751 003. India, and Biju Pattnaik State Police Academy Dispensary, Bhubaneswar, India

Introduction Lifestyle modification is mainstay of treatment for nonalcoholic fatty liver disease (NAFLD). There is paucity of data on comparison of exercise of different intensity in NAFLD management.
Aim To compare effect of moderate vs. low intensity exercise in NAFLD.
Methods The study was performed in Department of Gastroenterology at S C B Medical College, Cuttack and Biju Pattnaik State Police Academy, Bhubaneswar. Subjects were police trainees [32 in moderate intensity group (MIG) and 26 in low intensity group (LIG)] for a 6-month physical training course (241 K calories, 3.6 MET in MIG and 168 K calories, 2.1 MET in LIG). NAFLD was diagnosed by ultrasonography with exclusion of secondary causes of steatosis. All participants were evaluated by anthropometry, blood-pressure, biochemical investigations (blood-glucose, LFT, lipid-profile, serum insulin) and subjected to ultrasonography before and after 6-months' physical training; the results were compared.
Results Both groups had similar BMI, FPG, AST, ALT, GGT, Insulin and HOMA-IR ($p>0.05$) but LIG subjects were older, had higher TG and lower HDL than MIG. There was significant reduction in BMI (27.0 ±2.1 to 26.8±2.0; $p=0.001$), FPG (106.7±21.6 to 85.8±19.0, $p<0.001$), triglyceride (167.5±56.7 to 124.6±63.5 $p=0.017$), cholesterol (216.8 ±29.2 to 196.7±26.6; $p=0.037$), serum AST (39.3±32.2 to 30.9±11.4, $p<0.001$), ALT (56.6±28.7 to 33.0±11.3; $p<0.001$), HOMA-IR (2.63 ±2.66 to 1.70±2.59; $p<0.001$) in MIG. However, changes in these parameters in LIG were non-significant. Hepatic steatosis regressed in 7 of 10 NAFLD subjects in MIG whereas 5 out of 19 in LIG ($p=0.030$).
Conclusion Moderate rather than low intensity physical activity causes significant improvement in BMI, serum-triglyceride, cholesterol, serum-transaminases, HOMA-IR and regression of fatty change in NAFLD.

PP-09

Endothelial dysfunction an early marker of atherosclerosis is independent of metabolic syndrome in non-alcoholic fatty liver disease

Shivaram P Singh, ***Jimmy Narayan****, Pradeep K Padhi, Preetam Nath, Prasanta K Parida, Girish K Pati, Ayaskanta Singh*
Department of Gastroenterology, S C B Medical College, Cuttack 753 007, India and Institute of Medical Sciences and Sum Hospital, Bhubaneswar, Shampur, Bhubaneswar 751 003, India

Introduction Non-alcoholic fatty liver disease (NAFLD) is a hepatic component of metabolic syndrome (MS). The study was designed to assess cardiovascular risk factors FMD %, CIMT in NAFLD patients.
Methods One hundred and twenty-six NAFLD subjects and 31 chronic hepatitis B (CHB) controls were studied. Prevalence of atherosclerosis was studied by measuring the CIMT on ultrasound and by measuring the flow mediated dilatation % (FMD %) on brachial artery doppler ultrasound. The risk of cardiac events at 10 years (ROCE 10) was estimated by PROCAM score.
Results Fifty-eight of NAFLD have metabolic syndrome. Mean CIMT was 0.73+0.041 mm among NAFLD with MS, 0.66+0.016 mm among NAFLD without MS and 0.66+0.037 in CHB patients. FMD % in NAFLD with MS was 10.43+3.134 %, but was 8.56+3.581 % in NAFLD without MS and 17.78+6.051 % in controls. PROCAM score of NAFLD with MS was 46.95+6.509 while in NAFLD without MS was 38.2+3.738. Controls have PROCAM score of 38.13+5.755. ROCE 10 in NAFLD with MS was 13.64+ 8.568 while NAFLD without MS was 5.55+1.949. Controls have a ROCE 10 of 5.95+3.973. ANOVA analysis showed significant difference between groups for CIMT, FMD %, PROCAM, and ROCE 10. Post hoc analysis showed CIMT was dependent upon MS while FMD % was independent of metabolic syndrome.
Conclusion CIMT, PROCAM, FMD % and ROCE 10 were significantly higher in NAFLD. FMD % the earliest marker of endothelial dysfunction was independent of MS.

PP-10

Explant liver opening a pandora's box !

Mayank Jain*, V Jayanthi, Mukul Vij, S Shruthi, Chandan Kumar Kedarishetty, Joy Varghese, Kavya Harika, Mohamed Rela*
Institute of Liver Disease and Transplantation, Global Hospital, 439, Cheran Nagar, Perumbakkam, Chennai 600 100, India

Introduction Transplantation provides an opportunity to study the explanted liver for corroborating the clinical pre transplant diagnosis, an insight into the pathogenesis of the disease and at times even a change in diagnosis. There are few studies that have correlated the explant liver findings with a preoperative diagnosis. The present study is an attempt to acknowledge the changes noted on 251 explants liver specimens and to identify the changes and additional information, if any, in explant livers.
Methods Explant liver specimens were from cirrhotic and non cirrhotic patients (including overseas patients). All explants are routinely stained for copper and iron. Concordence was determined with pretransplant and histopathological diagnosis. Details of copper and iron deposit, and presence of steatosis and granulomas if any were noted.
Results Concordance for diagnosis was 89.2 %. Of the 37 specimens with pre transplant diagnosis of cryptogenic cirrhosis, 34.78 % had non alcoholic steatohepatitis, and 26.08 % autoimmune hepatitis. Of the 17

patients with non alcoholic fatty liver disease, 3 had cryptogenic cirrhosis. Thus the overall prevalence of cryptogenic cirrhosis in this series was 6.7 %. Almost all explants liver specimens had copper and or iron. Five patients with cryptogenic cirrhosis had high iron overload suggestive of hemachromatosis. Nineteen had granulomas, five of whom had features of tuberculosis; the rest were seen in hepatocellular carcinoma and patients receiving TACE.
Conclusion Concordance of explant diagnosis is high (89.2 %). Prevalence of cryptogenic cirrhosis is 6. 7 %. The incidental presence of high copper and iron in explants liver needs meaningful interpretation.

PP-11

Global prevalence of celiac disease: Systematic review and meta-analysis

Prashant Singh, Ananya Arora, Tor A Strand, Daniel Leffler, Carlo Catassi, Peter H Green, Ciaran P Kelly, Vineet Ahuja, ***Govind K Makharia***
Department of Gastroenterology and Human Nutrition, All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India, Department of Medicine, Massachusetts General Hospital, Boston, USA, Medical Services Division, Innlandet Hospital Trust, Lillehammer, Norway, Division of Gastroenterology, Beth Israel Deaconess Medical Center, Boston, MA, USA, Department of Pediatrics, Università Politecnica delle Marche, Ancona, Italy, Department of Clinical Medicine, Columbia University, New York, New York, USA

Introduction Celiac disease (CD) has emerged as a major public health problem all around the world. Once reported from countries with predominant Caucasian population, it is now reported from other parts of world as well. The exact global prevalence of CD is not known. We conducted a systematic review and meta-analysis to estimate the global prevalence of CD.
Methods On search of literature, we found 3843 articles, of which 101 articles were included in the systematic review. Diagnosis of CD was based on European Society of Pediatric Gastroenterology, Hepatology and Nutrition guidelines.
Results Pooled global seroprevalence of CD was 1.4 % (95 % CI 1.1 %, 1.6 %) in 296,583 individuals based on positive anti-tissue transglutaminase and/or anti-endomysial antibodies. Pooled global prevalence of biopsy confirmed CD was 0.7 % (95 % CI 0.5 %, 0.8 %) in 145, 170 individuals. Pooled prevalence of CD ranged from 0.3 % in South America, 0.5 % in Africa and North America, 0.6 % in Asia and 0.8 % in Europe and Oceania. The prevalence of CD was higher in females compared to males (0.6 % vs. 0.4 %, $p<0.001$). Similarly, children had significantly higher prevalence of CD than adults (0.9 % vs. 0.5 %, $p<0.001$).
Conclusions CD is a global disease and global sero-prevalence and prevalence of CD are 1.4 % and 0.7 %, respectively. Based on estimated global population of 7.4 billion, 37–59 million individuals have CD globally. The prevalence of CD varies with gender, age and geographic location. There is a need for population-based prevalence studies in many countries to properly estimate the global burden of CD.

PP-12

Oral tobacco use and smoking do not affect disease outcomes in Indian patients with Crohn's disease

Umang Arora, Ashwin Ananthakrishnan, ***Saurabh Kedia****, Sawan Bopanna, V Pratap Mouli, Dawesh Yadav, Govind Makharia, Vijay Yajnik, Vineet Ahuja*
Department of Gastroenterology, All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India, and Gastrointestinal Unit, Massachusetts General Hospital, Boston, USA

Introduction Smoking has been linked with adverse outcomes in Crohn's disease (CD). There is no data on effect of oral tobacco on disease outcomes in these patients. The study aimed to assess the effect of smoking and oral tobacco (OT) on outcomes in CD.
Methods Retrospective data analysis was performed on prospectively maintained records of CD patients with history of smoking and tobacco use from 2004 to 2016. The effect of smoking and oral tobacco was assessed in relation to disease characteristics at baseline (location, behavior, age at onset, perianal disease, extra-intestinal manifestations), course pattern and outcomes (surgery, hospitalizations, immunomodulator or biologics use, and steroid requirement).
Results Four hundred and thirty-six patients were included (mean age: 40.3; 60 % males; median follow up: 68 months). Forty patients were ever OT users and 59 were ever smokers. OT use was associated with male sex and smoking. Both OT use and smoking had no effect on baseline characteristics, but upper gastrointestinal disease was less common in ever smokers. Course pattern with initially mild symptoms followed by flare several years later was associated with OT use. Both OT use and smoking did not have any effect on surgery, hospitalizations, immunomodulator and biologic use when assessed independently. There was interaction ($p=0.01$) between OT use and smoking to increase need for immunomodulators but not for any other outcome.
Conclusion Oral tobacco use and smoking had no significant detrimental effect on disease characteristics and outcomes in CD in Indian patients, affirming other non-caucasian studies that found lack of effect of smoking.

PP-13

Epidemiology of colorectal cancer in ulcerative colitis in Asia: A systematic review and meta-analysis

Sawan Bopanna*, Ashwin N Ananthakrishnan, Saurabh Kedia, Vijay Yajnik,Vineet Ahuja*
Department of Gastroenterology, All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India, and Massachusetts General Hospital, Crohn's and Colitis Center, 165 Cambridge St., Boston, MA, USA

Introduction The increased risk of colorectal cancer (CRC) in ulcerative colitis (UC) is well known but is primarily derived from studies from the West. Despite the growing burden of UC in Asia, precise estimate of risk of CRC in this population is unknown as individual studies have been small and underpowered.
Methods We searched MEDLINE for all relevant studies determining prevalence and risk of CRC in UC from population in Asia. A random effects pooled meta-analysis was performed to determine pooled prevalence of CRC in UC patients from Asia. Cumulative risks were calculated at 10, 20, and 30 years after diagnosis where data was available. Meta-regression was performed to identify influential variables and publication bias was assessed.
Results Our meta-analysis included a total of 30 studies, comprising 25, 399 patients with UC among whom a total of 338 colon cancers were reported. The random effects pooled prevalence of CRC was 1.37 % (95 % confidence interval (CI) 0.97–1.78). The cumulative risk of CRC at 10, 20, and 30 years after diagnosis was 0.01 %, 5.09 % and 12.7 %. Subgroup analyses did not reveal a significant regional variation within Asia and no secular decline in CRC risk over the past five decades.
Conclusion In a meta-analysis of 30 studies from Asia, we found a similar or only modestly lower risk of CRC compared to western cohorts. There is an important need to devote resources for surveillance in this population.

PP-14

Endothelial Nitric oxide synthase gene 27-bp VNTR polymorphism is associated with gastric cancer

D Krishnaveni, *P Shravan Kumar, M Umadevi, M Ramanna, Pratibha Nallari, A Venkateshwari*
Department of Gastroenterology, Gandhi Hospital, Secunderabad 500 003, India, Institute of Genetics and Hospital for Genetic Diseases, Osmania University, Hyderabad 500 016, India

Introduction Gastric cancer (GC) is a complex and multifactorial disorder mediated by genetic, epigenetic and environmental risk factors. The 4a/b polymorphism of the 27-bp VNTR in 4th intron of endothelial nitric oxide synthase (eNOS) was reported to play an important role as an antioxidant and pro-oxidant in various diseases including cancers.
Aim To investigate the association of eNOS 4 b/a 27 bp VNTR polymorphism with gastric cancer in south Indian population.
Methods A total of 314 controls and 160 GC patients were considered for the study. Genomic DNA was extracted from blood samples by salting out method. Genotyping of 4a/b 27 bp VNTR polymorphism in intron 4 of the *eNOS* was carried by polymerase chain reaction (PCR). Hardy-Weinberg Equilibrium (HWE), odds ratio (OR) and 95 % confidence intervals (95 % CI) were also calculated to measure the strength of association between eNOS 27 bp VNTR polymorphism and GC.
Results Risk factor profile of the patients disclosed that advanced age i.e. ≥50 years, male gender, consumption of non-vegetarian diet, addiction to smoking or alcohol, consanguinity, and *H pylori* infection were the epidemiological risk factors ($p<0.05$). The statistical analysis revealed 2.6 fold enhanced risk for the (*a/a vs b/a+b/b*; $p=0.0017$) than those with other genotypes. Interaction analysis by SNPstats showed that a/a genotype individuals are at risk 6.35 fold with male preponderance, smokers exhibited 11 fold risk and alcoholics 14 fold risk. The a/a genotype in combination with consanguinity or *H pylori* infection revealed 2.89 fold risk.
Conclusion The a/a genotype of the 4a/b polymorphism of eNOS gene is significantly associated with increased risk of developing GC, which strengthens the interaction of epidemiological variables.

PP-15

EUS guided gallbladder drainage in severe liver disease: Are we ready for EUS interventions in these critically ill patients

Kapil Dev Jamwal*, Manoj Kumar Sharma, Rakhi Maiwall, B C Sharma, S K Sarin*
Department of Hepatolgy, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Introduction Acute calculous cholecystitis with impending gall bladder (GB) perforation in presence of severe liver disease is difficult to manage. In such patients emergency cholecystectomy has high mortality and percutaneous gallbladder drainage is difficult to perform due to presence of ascites. EUS guided cholecystogastrostomy (EUS-CCG) can be used as a life saving technique in such group of patients with severe liver disease.There are no reports of EUS-CCG in patients with severe liver disease.
Methods We present four cases of severe liver disease with acute calculous cholecystitis who underwent EUS guided gallbladder drainage as a life saving maneuver.
Results Four cases of ACLF with MELD score of 24, 25, 24 and 26 respectively presented with acute cholecystitis and systemic sepsis (TLC 20430, 24317, 19876 and 23543 mm3) respectively, their INR were 2.3, 2.7, 2.1 and 2.6 respectively and two had shock requiring inotropes. USG abdomen showed GB stones, hugely distended GB with moderate ascites and abdominal wall collaterals. All were high risk for percutaneous drainage, two cases who had severe ascites were taken up for EUS guided GB drainage and rest two were taken for a percutaneous GB drainage followed by rendezvous and transpapillary stenting. All the patients recovered with a mean hospital stay of 7 days in ERCP group and 5 days in EUS group
Conclusion EUS guided biliary procedures in severe liver disease are challenging but life saving and hence expanding the role of EUS in these patients is to be explored.

PP-16

Ischemic hepatitis following acute variceal bleed is ameliorated by N-acetyl cysteine (NAC) in cirrhotics: A prospective randomized controlled trial

Awinash Kumar*, Rakhi Maiwall, Ajeet Singh Bhadoria, Ankur Jindal, Guresh Kumar, Ankit Bharadwaj, Kapil Dev Jamwal, Manoj Kumar Sharma, Shiv Kumar Sarin*
Departments of Hepatology, and Clinical Research, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Background Ischemic hepatitis (IH) following acute variceal bleed (AVB) in cirrhotics is a consequence of hypotension and hepatic ischemia and carries an ominous prognosis. N-acetylcysteine (NAC), a potent anti-oxidant may prevent IH by improving tissue oxygen delivery. We investigated the efficacy of NAC in the prevention and amelioration of IH and survival.
Methods Consecutive cirrhotics with AVB were randomized in a prospective open label study (NCT02015403) to receive either standard of care (SOC) plus NAC [Group A (GrA), $n=107$) or SOC alone [Group B (GrB), $n=107$].
Results Patients in Gr.A and B had similar baseline clinical and lab parameters. Twenty-two patients (10.28 %) developed IH (Gr A: 10 and Gr B:12, $p=0.65$) and these patients had higher baseline MELD scores (26.5 ±10.5 vs. 21±8.9, $p=0.02$), plasma lactate (8.1±2.5 vs. 4.1±2.6 mmol/L, $p<0.001$) and lower mean arterial pressure (54.6±7.3 vs. 78.0 ±14.5 mmHg, $p<0.001$) than others. Incidence of IH increased with severity of liver disease ($p=0.002$). Patients with IH had less severe IH with lower peak AST, ALT, LDH, lactate, bilirubin and INR levels compared to Gr B ($p<0.05$) with markedly decreased incidence of AKI [Gr A,19.6 % vs. Gr B, 33.6 %, $p=0.02$]. The mortality was higher in patients who developed IH than others (63.6 % vs. 13.02 %, $p<0.001$) but was similar in Group A (17.7 %) and Group B (18.7 %, $p=0.85$).
Conclusions IH develops in about 10 % of cirrhotic patients following AVB more in Child's C and associated with higher mortality. NAC therapy significantly ameliorates the development of severe IH and decreases the incidence of AKI post-bleed, but does not influence mortality.

PP-17

Thymosin β 4 level as a biomarker of prognosis in acute-on-chronic liver failure

Gireesh Kr Dhaked*, Premashis Kar, P C Ray, Suresh Kumar, Sanjay Pandit*
Departments of Medicine, Gastroenterology, and Biochemistry, Maulana Azad Medical College, University of Delhi, Bahadur Shah Zafar Marg, New Delhi 110 002, India

Introduction Acute-on-chronic liver failure (ACLF) is an acute deterioration of liver function in patients with cirrhosis, either secondary to superimposed liver injury or due to extrahepatic precipitating factors such as infection culminating in the end-organ dysfunction. There are many prognostic markers/models are available to predict the outcome of patients with ACLF. Recent findings suggested that thymosin 4 could be beneficial for the treatment of chronic liver disease (CLD) as it upregulates the expression of HGF and downregulates the expression of PDGF-receptor in human hepatic stellate cells. HGF could induce apoptosis of hepatic stellate cells and hepatocyte regeneration.

Methods This was an prospective observational study included a total of 50 cases of acute-on-chronic liver failure admitted in Lok Nayak Hospital (LNH), New Delhi, during the period from October 2014 to October 2015.
Results Out of 50 patients 37 (74.0 %) were male and 13 (26.0 %) were female with the mean age of 51.7±11.54 years. During 6 months of follow up, 30 (60.0 %) patients were died and 20 (40.0 %) were alive and thymosin 4 level was found to be significantly higher in survivors as compared to expired group (p value <0.05).
Conclusion Serum thymosin 4 levels can be used to identify ACLF patients with poor prognosis and consider them for liver transplant.

PP-18

Antibiotic resistance-A challenge in chronic liver disease

***Mayank Jain**, V Jayanthi, Joy Vargese, Chandan Kumar Kedarishetty, Balaji, Tom Michael, Mohamed Rela*
Institute of Liver Disease and Transplantation, Global Health City, Chennai 600 100, India

Aim The study was undertaken to determine the prevalence of antibiotic resistant infections and type of infection acquired in patients with cirrhosis of liver at a tertiary referral centre in South India.
Methods A prospective study was undertaken in the Institute between January 2011 to December 2013. All cirrhotic patients irrespective of Child-Pugh status admitted with fever, or deterioration in general condition, or with focus of infection were included in the study. Details of previous admission and antibiotics if received were noted. In culture positive infections, the source of infection (ascites, skin, respiratory tract: sputum/endotracheal tube aspirate, pleural fluid; urine and blood) and microorganisms isolated and their antibiotic susceptibility was noted.
Results A total of ninety-two patients had 240 culture positive samples in the study period. Majority were Klebseilla followed by E coli and enterococcus in nosocomial and health care associated infections. However, enteroccocus was followed by E coli and Klebsiella in community acquired infections. The antibiotic sensitivity pattern was analyzed for the major causative organisms- E coli, Klebsiella and enterococcus. Most common resistant strains were- Extended spectrum beta lactamases (ESBL) followed by Carbapenemase producing Klebsiella (CPK) and Methicillin resisitant Staphylococcus aureus (MRSA).
Conclusion Noscomial infection is the most common type, with Klebseilla and E coli predominating with a significant rise in drug antibiotic resistant organisms-ESBL.

PP-19

Long-term outcome after acute severe ulcerative colitis in India

***Saransh Jain**, Saurabh Kedia, Tavpritesh Sethi, Sawan Bopanna, Dawesh Prakash Yadav, Sandeep Goyal, Rajesh Padhan, Pratap Mouli Venigalla, Peush Sahni, Govind Makharia, Vineet Ahuja*
Departments of Gastroenterology, and Gastrointestinal Surgery, All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India, and Indraprastha Institute of Information Technology, Okhla Industrial Estate, Phase III, Near Govind Puri Metro Station, New Delhi, Delhi 110 020, India

Background Knowledge of long-term outcome after an episode of acute severe ulcerative colitis (ASUC) can help in informed decision making at time of acute exacerbation. We aimed to identify predictors of long-term colectomy after first episode of ASUC.
Methods All patients hospitalized with ASUC between January 2003 to December 2013 satisfying Truelove and Witts criteria were followed up at single centre; AIIMS, New Delhi. Patients avoiding colectomy at Index admission were divided into complete (≤3 non-bloody stool per day) and incomplete responder on basis of response to intensive regimen (IV hydrocortisone) at day 7. Primary outcome were to identify predictive markers of long-term colectomy during follow up.
Results Of 1731 patients of UC followed in our outpatient clinic 179 had index episode of ASUC, 19 (11 %) underwent colectomy at index admission. Among those avoiding colectomy 42/160 (26 %) underwent colectomy over median follow up of 56 (1–159) months. Incomplete responder to IV steroids at day 7 of intensive regimen had HR of 3.6 (1.7–7.5) (p=0.001) of colectomy in follow up in comparison to complete responder. Using 4 variables; steroid use during 1st year of diagnosis, duration of disease prior to ASUC, number of EIM present and response to IV steroid at day 7 of intensive regimen random forest models were able to predict colectomy with accuracy of 77 %.
Conclusions Clinical features at Index ASUC can predict colectomy with reasonably high accuracy, thus identifying those patients at high risk of adverse outcome and requiring more proactive management.

Esophagus

E-01

Prevalance of esophageal eosinophilia at a tertiary care centre

***Ganapathi S Kini**, Sudeep Khanna, S B Kulkarn, Rajiv Baijal, R K Tandon*
Pushpawati Singhania Research Institute, Sheikh Sarai Phase 2, Press Enclave Marg, New Delhi 110 017, India

Background The aim of this study was to determine the prevalence of esophageal eosinophilia as little is known about the prevalence of esophageal eosinophilia (EE) or eosinophilic esophagitis (EoE) in the Indian population.
Methods A prospective single centre observational study was conducted to look for the prevalence of EE and its association with history, peripheral eosinophilia and endoscopic appearance of esophagus, in patients undergoing EGD at a tertiary care centre. Presence of 15 eosinophils/HPF in esophageal biopsy (EB), without any esophageal dysfunction or PPI/H2 blocker therapy, was defined as EE. EE with either esophageal dysfunction or PPI/H2 blocker therapy was defined as probable EoE. EE with esophageal dysfunction and PPI/H2 blocker therapy was defined as definite EoE. For statistical analysis, patients with EE were taken as the cases and those without EE as controls.
Results One hundred and twenty-two patients (44 females) underwent EB, of whom 2 (1 female) had EE and both were cases of definite EoE (prevalence: 1.64 % (0.2 % to 5.8 %, 95 % CI). There was no association of EE with age, presenting symptoms, smoking, alcohol intake, allergic disease, peripheral eosinophilia or endoscopic esophageal finding.
Conclusion In this study, prevalence of definite EoE was 1.64 %. There is no Indian prevalence study on EE/EoE. In a similar study by Sealock et al. the prevalence of EE was 2.4 %.

E-02

A unusual esophageal foreign body - Case report

***Rajan Mittal,** P Padmanabhan, P Bibin*
Meenakshi Medical College, Enathur, Karrapettai Post, Kanchipuram, Tamil Nadu 631 552, India

Esophageal foreign bodies are common in gastroenterological practice with a incidence more commonly seen in pediatrics and less commonly in adults. Here we report a patient who ingested unusual foreign body.
A 62-year-old male presented with complaints of acute onset (1 day) absolute dysphagia after a bout of alcohol intake and had no recollection of the events that took place the night prior. Urgent endoscopy was done and it revealed a large chunk of tissue impacted at distal esophagus. The mass was removed using rigid endoscopy as repeated attempts with flexible endoscope resulted

in mass getting stuck at cricopharynx and getting relodged in esophagus. It was found to be eye of the animal. On further probing it was revealed the patient had ingested a raw goat's eye. Based on the review of the literature, goats eye is considered a delicacy in some cultures but this practice of consumption in India is unusual and its presentation as a foreign body in esophagus is in itself a rarity.

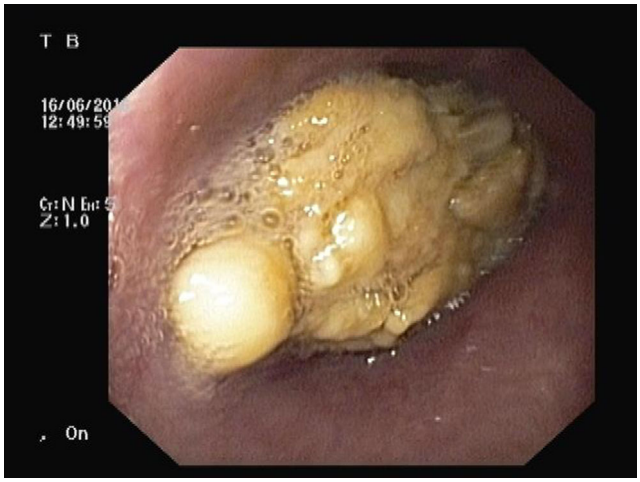


Fig. 1 Showing the mass lodged in the distal esophagus

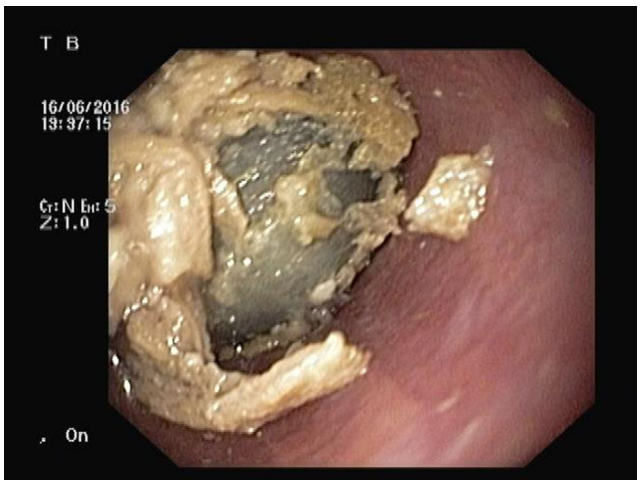


Figure Underlying eye visible after some debridement

E-03

High accuracy of I-scan endoscopy in the diagnosis of gastroesophageal reflux disease with minimal change disease

Vijay Sharma*, Suresh Saini, Sri Chand Saini, Richa Sharma*
Department of Gastroenterology, and Endoscopy Unit, Manipal Hospital, Sector 5, Main Sikar Road, Vidhyadhar Nagar, Jaipur 302 013, India, and Department of Public Health, Regional Institute of Health, Medicine and Research, Jaipur, India

Background and Aims The association of minimal change esophagitis with gastroesophageal reflux disease (GERD) is controversial. We aimed to assess the efficacy of I-scan in detecting MCE in patients with GERD symptoms.

Methods Prospective pilot study, tertiary care centre. After informed consent and filling validated GERD questionnaire in Hindi, patients underwent UGIE. No control group, no 24 h Ph metry done. Distal esophagus examined by high definition white light endoscopy followed by I-scan on tip of Pentax endoscope sequentially. GERD diagnosed by Los Angeles classification, nonendoscopic reflux disease (NERD), followed by I-scan imaging under tone enhancement. Patients with subtle distal esophageal mucosal changes without definite erosions, like blurring of Z-line (B), mucosal coarseness (C), hyperemic or purplish discoloration (D), erythema (E), ectopic gastric mucosal islet (I) , superficial cracks in mucosa (CM) and mixed type were classified as minimal change esophagitis (MCE) with minimal change lesions (MCL).
Results N=270, male 192 (71 %), erosive reflux disease in 92 (34.07 %) and nonerosive reflux disease in 178 (65.92 %). Number of minimal change increased from 87 (32 %) by white light endoscopy; 13 B, 11 C, 21 D, 14E, 15I, CM 0, 13 mixed type to 143 (52.96 %) by I-scan endoscopy; 21B, 16C, 29D, 21E, 19I, CM 10, 27 mixed type. Fourteen with single type lesion converted to mixed type after I-scan. Fifty-six of 178 patients (31.46 %) were upgraded after I-scan endoscopy, chi-square 8.3596, *p*-value 0.003837. Significant number of NERD patients becomes MCE after I-scan.
Conclusions I-scan endoscopy significantly improves the identification and classification of minimal change esophagitis.

E-04

Multiple neck abscesses with middle esophageal carcinoma: A rare case report

Vijay Sharma*, Ankur Agarwal, Pankaj Verma, Richa Sharma*
Department of Gastroenterology, Pathology, Radiodiagnosis,Manipal Hospital, Sector 5, Main Sikar Road, Vidhyadhar Nagar, Jaipur 302 013, India, and Department of Public Health, Regional Institute of Health, Medicine and Research, Jaipur, India

Deep neck infections and neck abscesses are commonly seen at otorhinolaryngology field. Common causes for deep neck infections are intravenous drug abuse, dental infection and pharyngotonsillitis.
Because an infection coexistent with malignancy is not common, the clinical picture may be complicated and this may lead to a delayed diagnosis, may show recurrences due to underlying head and neck cancer. We report a case with esophageal squamous cell carcinoma that presented with a multiple neck abscesses

Case Report

A 50-year-old male presented with twelve day history of a sore throat, painful generalized right neck swelling, and dysphagia. He also had a high fever and a leukocyte count of 18.900/μL, with neutrophil predominance. Patient's provisional diagnosis was neck abscess. The abscess was aspirated and specimens were obtained under local anaesthesia. The results of microbiological and cytological investigations were negative. We treated with an intravenous Amoxicillin clavulanic acid and supportive medicine.
Patient was seen by physician, advised antibiotics, planned for incision and drainage. Contrast enhanced computed tomography (CECT) neck revealed multiple cystic lesions with a necrotic centre and lots of pus in the right and left neck and vascular space. Patient responded well to antibiotics, fever subsided, counts normalized. Due to dysphagia referred for endoscopy which revealed soft tissue formation at mid esophagus 28 to 31 cm from incisor teeth, narrowing the esophageal lumen. Endoscopic biopsies taken. CECT, chest and abdomen done to stage and grade the possible malignancy, which revealed mass in and around mid esophagus involving all the layers of esophageal wall with invasion of lung parenchyma, no metastasis seen in abdomen and lung. Histopathology report revealed well differentiated squamous cell carcinoma.

As the mass infiltrated the prevertebral fascia and muscular layer, patient was determined as inoperable. Therefore, he was referred to the Radiation Oncology Department for radiotherapy.
Discussion Malignant lymph node metastases presenting as neck abscesses are uncommon. Therefore, a detailed review of the patient history and examination should be made in order to elucidate the underlying cause of infection. A surgical drainage, needle aspiration and incisional biopsy may be necessary for detecting the originally hidden malignancies.

E-05

Fascin-1 is a potential tissue biomarker in esophageal squamous cell carcinoma

Md. Raghibul Hasan*, Sidhartha Datta Gupta, Ranju Ralhan, Shyam S Chauhan, Anoop Saraya*
Departments Biochemistry; Pathology; and Gastroenterology and Human Nutrition, All India Institute of Medical Sciences, New Delhi 110 029, India

Background Esophageal cancer (EC), usually have very poor survival, and biomarkers that predict esophageal squamous cell carcinoma (ESCC) patients are urgently needed to differentiate it from dysplastic or normal esophageal epithelium. A major unmet need in esophageal cancer is the ability of biomarkers to allow for early characterization of absent in most normal epithelia but expressed in many human carcinomas. Recent study reported Fascin-1 is a novel biomarker for aggressive, metastatic carcinomas. The aim of this study was to determine whether Fascin-1 in esophageal biopsy specimens were useful for diffrentiation of dysplasia vs. neoplastic esophageal epithelia.
Methods Immunohistochemical analysis (IHC) of Fascin-1 was done to investigate whether Fascin-1 could serve as an early marker for identification ESCCs. IHC was carried out in esophageal tissue microarray (TMA) having 52 ESCC, 27 dysplastic and 47 histological normal esophageal tissues using specific anti- Fascin-1 antibody (Abcam, Cambrige, UK).
Results Fascin-1 overexpression was found in 94 % (49/52) ESCCs compared to the normal tissues ($p<0.001$). Normal esophageal tissues did not show detectable Fascin-1 immunostaining in epithelial cells (0/47). Chi-square trend analysis showed significant increase in Fascin-1 expression in different esophageal tissues (normal, dysplasia and ESCC; ptrend <0.001).
Conclusions Our results suggest that Fascin-1 may be used a potential tissue biomarker for differentiating ESCC from dysplastic and normal esophageal epithelia and the pathophysiology of this needs to be further investigated.

E-06

Expression of circulating Micro RNA-21 and Micro RNA-18a in esophageal squamous cell carcinoma and effect of chemoradiotherapy on their expression

Nivesh Seehra*, Mohd Talha Noor, Pranav Raghuvanshi, Sunil Jain, Bhagwan Singh Thakur*
Department of Gastroenterolgy, Sri Aurobindo Medical College and Post Graduate Institute, Indore 453 555, India

Introduction Esophageal squamous cell carcinoma (ESCC) is one of the commonest and aggressive gastrointestinal malignancy. Role of micro RNAs (miRNAs) is emerging in the field of cancer. Studies have shown that miRNAs are abundant and stable in circulation. Although few studies have demonstrated the overexpression of miRNA in tissues of ESCC, there is limited data for circulating miRNA. We studied the expression of circulating microRNA-21 (miR-21) and circulating microRNA-18a (miR18-a) in patients of ESCC and effect of chemoradiotherapy (CRT) on expression of these miRNAs.
Methods We studied expression of miR-21 and miR-18a in serum samples of 30 ESCC patients and 30 healthy controls by using real-time RT-PCR. We also evaluated the changes in the expression of miR-21 and miR-18a in 16 of these patients of ESCC who completed CRT.
Results We found that ESCC patients had significantly higher expression of serum miR-21 (p <0.0001) and miR-18a (p<0.0001) than healthy controls. Expression levels of miR-21 positively correlated with tumor invasion (p=0.004), lymphatic metastasis (p=0.011), distant metastasis (p=0.038) and tumor stage (p=0.001). However no such association was observed with miR-18a expression. A significant reduction in the expression of serum miR-21 (p<0.0001) and miR-18a (p<0.0001) was observed in the post-chemoradiotherapy samples as compared to pre-chemoradiotherapy samples. Post CRT reduction of miR-21 was significantly associated with tumor responsiveness (responders vs non responders; p=0.001).
Conclusion Serum miR-21 and miR18-a were significantly overexpressed in patients of ESCC and their expression significantly reduced after chemoradiotherapy.

E-07

Lost in the giant diverticulum- A turn in time of need

Ashish Kumar Jha*, Uday Kumar, Vishwa Mohan Dayal, Sanjeev Kumar Jha*
Department of Gastroenterology, Indira Gandhi Institute of Medical Sciences, Shiekhpura, Patna 800 014, India

Background Large Zenker's diverticulum (ZD) forms in a midline (posterior to esophagus) and compress the esophagus. Therefore, visualization of the esophageal inlet (EI) is sometimes not possible doing endoscopy in left lateral decubitus position. Under direct vision the catheter/guidewire can be advanced through the endoscope into the EI followed by insertion of endoscope over the catheter/guidewire (where the EI is visualized). Swallow-assisted advancement of catheter/wire blindly into EI followed by insertion of endoscope has been described in case of non-visualization of EI.
Aim To describe a novel technique of esophageal intubation in a patient of giant ZD.
Methods and Result A 70-year-old female presented with dysphagia, weight loss and cachexia. Barium swallow and CT-scan demonstrated a massive ZD (size 10.18 × 6.52 cm) that reached up to the level of aortic arch. Endoscopy attempts were unsuccessful due to preferential passage of endoscope into the diverticulum. The patient was then turned to the supine position and the slight angulation of endoscope and gentle pull back manoeuvre (nearly similar to ileocecal valve intubation) in the diverticulum was done to locate EI. We succeeded in visualization of EI and esophageal intubation. We didn't use sedation to reduce risk of aspiration. A nasogastric tube was inserted (over a guidewire) into the stomach.
Conclusion We described is a simple technique (without fluoroscopic assistance) for esophageal intubation in one of the largest reported case of ZD. This method should be tried first. Compression of the esophagus is reduced in supine position and thus facilitates visualization of EI.

E-08

The Z-Line appearance grading and its significance among Indian patients with gastroesophageal reflux disease

Nikhil Sonthalia, *Vinay Pawar, Ashok R Mohite, Samit S Jain, Ravindra G Surude, Suhas Udgirkar, Pravin M Rathi, Qais Contractor*
Department of Gastroenterology, Topiwala National Medical College and B Y L Nair Hospital, Mumbai Central, Mumbai 400 008, India

Backgrounds and Aims Endoscopic assessment of Z-line appearance (ZAP grading) has been traditionally correlated to presence or absence

of Intestinal metaplasia.The aim was to determine clinical usefulness of ZAP grading in patients of gastroesophageal reflux disease (GERD), especially in Non-erosive reflux disease (NERD).
Methods In this study 40 consecutive patients of GERD are prospectively recruited. The symptom characteristics were collected by interviewing with a structured GERD questionnaire. Upper gastrointestinal endoscopy was performed to identify the ZAP grade and biopsy was collected from lower esophagus, Z-line, cardia, gastric corpus and antrum. Also, Los Angeles grading was done in erosive reflux disease (ERD) cases.
Results The mean age was 40.8 years and the mean duration of symptoms was 7.5 months. ZAP grade II was seen in 10 (62.5 %), grade I in 6 (37.5 %) and grade III in 1 (6.25 %) ERD cases. ZAP grade I was commonest in NERD seen in 16 (66.66 %) patients. There was no significant correlation between symptom severity and the ZAP score. There was significant correlation between the ZAP score and the presence of microscopic features of GERD on histology in patients with NERD (Spearmen correlation factor: 0.362). In ERD the ZAP score correlated significantly with LA grading (Spearmen correlation factor: 0.472). There were only 2 patients of intestinal metaplasia.
Conclusions ZAP grading correlates well with other grades of mucosal injury in patients of ERD. ZAP classification may be applied for diagnosing GERD, especially NERD. This is an ongoing study and further patients are being recruited.

E-09

Experience of endoscopic dilatation of esophageal stricture from a single centre of central India

Mohd Talha Noor, ***Pranav Kumar Raghuwanshi****, B S Thakur, Sunil Jain*
Department of Gastroenterolgy, Sri Aurobindo Medical College and Post Graduate Institute, Indore 453 555, India

Background and Aim Esophageal strictures are not an uncommon entity encountered in clinical practice in central India. Any process that induces inflammatory or fibrotic changes in the esophagus can result in strictures. Major complications of strictures are malnutrition, aspiration and fistula. Currently standard of care for management of dysphagia and its complications are various endoscopic procedures. There is a lack of data regarding endoscopic dilation of esophageal stricture from central India.
Methods A prospective study was conducted in SAMCPGI, Indore (M.P.), Department of Gastroenterology over a period of 3 years from 2013 to 2016. Thirty-seven patients of esophageal stricture, including peptic and radiation induced strictures, underwent serial endoscopic dilatations under fluoroscopic guidance using Savary-Gillard dilators. Treatment success was guided according to improvement in dysphagia.
Results In our study, there were 17 males (45.94 %) and 20 females (54.05 %). Mean age of patients was 50.3±15.0 year. There were 19 peptic (51.35 %) and 18 radiation (48.64 %) induced strictures. Mean length of the peptic strictures was 3.89±1.24 cm whereas in radiation induced it was 9.75±2.08 cm (p<0.0001). Mean number of dilatations to reach esophageal diameter of 15 mm were 2.32±0.61 and 4.17±0.78 (p<0.0001) in peptic and radiation induced strictures respectively. We did not observe any major complications except mild chest discomfort.
Conclusion Endoscopic dilatation is an effective and safe procedure for the treatment of benign esophageal strictures of diverse etiology, patients with radiation induced stricture required more sessions of endoscopic dilatation as compared to peptic strictures.

E-10

Characteristics of lower esophageal sphincter function and esophageal motility in patients with reflux disease

Rajiv Baijal*, Mayank Jain*
Pushpawati Singhania Research Institute (PSRI) and Hospital, Press Enclave Marg, Sheikh Sarai II, New Delhi, Delhi 110 017, India, and Choithram Hospital and Research Centre, 14, Manik Bagh Road, Indore 452 014, India

Background Gastroesophageal reflux disease (GERD) is defined as pathological retrograde movement of gastric contents into the esophagus. Reflux esophagitis (RE), non-erosive reflux disease (NERD) are subtypes of GERD. The aim of this study was to analyze the characteristics of esophageal motility and lower esophageal sphincter (LES) function, which are important to prevent gastroesophageal reflux.
Methods This retrospective study was done at two centers - PSRI Hospital, New Delhi and Choithram Hospital, Indore. All patients who underwent esophageal manometry for reflux symptoms from April 2014 to June 2016 formed the study group. They were divided into two groups based on the esophagogastroduodenoscopy (EGD) reports RE and NERD. High resolution manometry was done in supine position using 16-channel water perfusion systems. Basal LES pressures were recorded for 1 min. Esophageal peristalsis was recorded for ten swallows of 5 mL water each. Analysis was done using Chicago classification version 3.
Results Ninety-eight patients formed the study group (70 males, mean age 44 years). Details are mentioned in Table 1.
Conclusion Patients with RE have signifcantly lower LES pressures and show abnormal peristaltic patterns more often, as compared to patients with NERD.

Table 1 Comparison between non-erosive reflux disease and reflux esophagitis groups

	NERD (n=32)	RE (n=66)
Male: Female	21:11	49:17
Mean age (years)	42	46
Mean LES pressure (mmHg)	12	8.4
EGJ morphology		
Type 1	8 (25 %)	23 (34.84 %)
Type 2	16 (50 %)	23 (34.84 %)
Type3a	4 (12.5 %)	9 (13.63 %)
Type3b	4 (12.5 %)	11 (16.66 %)
Peristalsis		
Normal	20 (62.5 %)	38 (57.57 %)
Hypertensive	0	2 (3.03 %)
Weak peristalsis	10 (31.25 %)	16 (24.24 %)
Frequent failed peristalsis	1 (3.125 %)	4 (6.06 %)
Absent peristalsis in distal 2/3	1 (3.125 %)	6 (9.09 %)

E-11

Fully covered self-expanding metallic stent (FC-SEMS) placement is effective for dilatation of benign refractory non-corrosive esophageal strictures

Deepak Gupta, ***Vinit Kahalekar****, Abhishek Sadalage, Pratin Bhatt, Abhinav Jain, Amit Gupte, Akash Shukla, Shobna Bhatia*
Department of Gastroenterology, Seth G S Medical College and K E M Hospital, Parel, Mumbai 400 012

Aims Treatment options for benign refractory esophageal stricture are limited. We retrospectively analyzed 11 patients who underwent FC-SEMS placement for refractory benign esophageal stricture at our institute.
Methods Refractory benign esophageal stricture was defined as inability to dilate a stricture to a diameter of 14 mm after minimum 5 sessions at 2-weekly intervals, or inability to maintain diameter of 14 mm for at least 4 weeks. Eleven patients with refractory benign esophageal stricture

(corrosive-6, peptic-3, post-sclerotherapy-2) underwent FC-SEMS placement. The stent was removed after 4–6 weeks as per manufacturer's recommendation. Patients were followed up for 1 year.
Results Three patients with peptic strictures [length of stricture 2, 3 and 3 cm] and 2 patients with post sclerotherapy stricture [length 2 and 1.5 cm] had complete response. 2/6 patients with corrosive stricture (10 cm, 14 cm) developed recurrence of symptoms within 1 month of stent removal, and 2 after 2 months (5 cm, 3 cm). One patient with corrosive stricture (8 cm) had recurrence after 6 months and responded to single session of dilatation. One patient with corrosive stricture is asymptomatic for last 8 months. Three stents migrated. Three patients developed severe retrosternal pain following stent placement, which was managed with analgesics. There were no serious adverse events after placement of stent and removal of stent.
Conclusions Fully covered SEMS is safe and effective for refractory benign non-corrosive esophageal strictures.

E-12

Carcinoma esophagus-A single center retrospective study of 20 years from a tertiary care hospital from western India

***Dhaval Choksi**, Vikas Pandey, Ruchir Patel, Prateik Poddar, Kaivan Shah, Meghraj Ingle, Prabha Sawant*
Department of Gastroenterology, Lokmanya Tilak Municipal Medical College and Lokmanya Tilak Municipal General Hospital, Sion, Mumbai 400 022, India

There is paucity of literature on the epidemiology of esophageal carcinoma from India in recent times. We conducted a retrospective study in the Department of Gastroenterology, Lokmanya Tilak Municipal Medical College and General Hospital, Mumbai. It was a single center, single departmental study. All the patients who had presented to our department from 1st January 1995 to 31st December 2015 were included. We studied 476 patients. The age ranged from 25 to 89 years. The most common age group (27 %) was 41–50 years. The male to female ratio was 1.58:1. Most of the patients (87 %) belonged to urban area. Majority of the patients (32 %) presented with symptom duration of 1 month. Fifty-six percent of the patients were addicted to tobacco, 35 % to smoking and 31 % to alcohol. The most common histology was squamous cell carcinoma, about 86 %. The most common site was lower esophagus, about 36.5 % followed by middle esophagus, about 36 %. Even in the lower esophageal malignancy, the predominant histology was squamous cell carcinoma. When the data was split into 2 study period of 10 years each, there was no significant difference in the location and the histology of esophageal carcinoma over the time trend of 20 years.

E-13

Anti-reflux mucosectomy for refractory gastroesophageal reflux disease- Initial clinical experience

*Amol Bapaye, **Nachiket Dubale**, Mahesh Mahadik, S S R Gangireddy, Rahul Lokhande, Rajendra Pujari, Suhas Date*
Shivanand Desai Center For Digestive Disorders, Deenanath Mangeshkar Hospital and Research Center, Erandawne, Pune 411 004, India

Introduction PPI therapy is the mainstay for gastroesophageal reflux disease (GERD), however laparoscopic fundoplication is recommended in refractory patients. Various endoscopic methods have been attempted with variable success. Anti-reflux mucosectomy (ARMS) is a recently introduced endoscopic therapy for refractory GERD. Here we present our initial clinical experience of ARMS.

Method: Eight patients with refractory GERD (GERD symptoms >=1 year, daily PPI usage >=6 months) and absence of hiatus hernia >3 cm on esophagogastroduodenoscopy (EGD) underwent ARMS using a cap endoscopic mucosal resection (EMR) technique from March to June 2016. Pre ARMS evaluation included EGD, esophageal manometry and 24-hour ambulatory esophageal pH studies. Follow up was at 4 to 6 weeks postprocedure. Prospective data included pre and post ARMS symptom scoring using GERD-HRQL questionnaire and Deemester scores, Hill's grading of gastroesophageal valve on EGD, PPI requirement and procedure related adverse events (AE).
Results: Mean GERD-HRQL score improved significantly after ARMS from 40 to 12. Mean Deemester score (pre)=28; post=9. Mean Hill's valve grade (pre)=2.6; post=1.6. Two AE's both muscle injury, treated by endoclips. No dysphagia. At 4 weeks follow up, 5/8 patients (62.5 %) had discontinued PPI, 2/8 (25 %) had 50 % reduction in PPI dosage.
Conclusions The current study shows impressive short-term results for ARMS. Symptom resolution and acid exposure reduction occurred in all patients; 7/8 patients could discontinue or reduce PPI usage. AE's were minor. Larger randomized studies with longer-term follow up are recommended.

E-14

A simple mathematical equation for reliable prediction of the gastroesophageal junction (GEJ) through the sub mucosal tunnel during per oral endoscopic myotomy - A proof of concept pilot study

***Amol Bapaye**, Jay A Bapaye, Nachiket Dubale, Rajendra Pujari, Viral Vyas, Mahesh Mahadik, Suhas Date*
Shivanand Desai Center for Digestive Disorders, Deenanath Mangeshkar Hospital and Research Center, Erandawne, Pune 411 004, India, and Smt. Kashibai Navale Medical College, 49/1, Off Mumbai - Pune Bypass, Narhe, Pune 411 041, India

Background Estimation of distance to gastroesophageal junction (GEJ) through tunnel during per oral endoscopic myotomy (POEM) is challenging. Errors may prolong procedure time or result in incomplete myotomy.
Hypothesis and Aim Additional distance through tunnel is directly proportional to esophageal diameter; can be calculated by equation X = Y + CZ (X, Y, Z and C = GEJ distance through tunnel, through lumen, max. esophageal diameter and arithmetic constant respectively). This study evaluates accuracy of this hypothesis.
Methods N=59: Gr. I - 12 retrospective patients; Gr. II-47 prospective scheduled for POEM. Y recorded during EGD. Z measured on barium swallow. In Gr. I, X measured during POEM and mean C calculated. This mean C used in equation in Gr. II to prospectively calculate predicted X (X1). X1 values blinded from operator. During POEM, operator recorded true X (X2). X1 and X2 compared.
Results POEM successful in all. Group I (*n*=12, 4 - sigmoid) - mean X, Y and Z=42.58, 39.83 and 4.39 cm respectively. Mean C (Gr. I data)=0.63 (+/− 0.11). Group II (*n*=47, 3-sigmoid) mean Y, Z, X1 and X2=40.55, 4.90, 43.64 (36.69–51.10), 43.69 cm (38–51) respectively. X1/X2 correlation coefficient=0.98, $p<0.01$.
Conclusions Disparity in distance to GEJ through lumen and tunnel is proportional to esophageal diameter. Equation X = Y + CZ can be used to accurately predict GEJ distance during tunneling. Further studies are warranted.

E-15

A study of spectrum of reflux esophagitis at a tertiary hospital in North India

***Swati Srivastava**, S Khanna, S Mazumder, A Garg, J Singh, D Singh, Y Batra, J C Vij*

Department of Gastroenterology, B L K Super Speciality Hospital, Pusa Road, Rajinder Nagar, New Delhi, Delhi 110 002, India

Purpose Gastroesophageal reflux disease has long been considered a disease of the Western world and there is paucity of data from India. This study was conducted to study the spectrum of erosive esophagitis in the Indian population.
Methods We conducted a study on 100 patients of endoscopically proven reflux esophagitis. We used the GERD Questionnaire for symptom scores, Los Angeles classification for endoscopic severity, Prague classification for Barrett's esophagus and Esohisto score for histological severity.
Results We found that male:female ratio was 2:1. Maximum patients were in the age group of 40–60 years and heartburn (88 %) was a commoner symptom than regurgitation. Equal distribution of LA Grade A, B and C esophagitis were seen whereas LA Grade D esophagitis was seen in 6 % patients. Histologically proven Barrett's esophagus was seen in 14 % patients. Hiatus hernia was seen in 21 % patients with esophagitis and 64 % patients of Barrett's esophagus. Smoking and increased BMI were found to be significant risk factors for esophagitis and Barrett's esophagus. Significant correlation was seen between the endoscopic and histological severity (p=0.00) while no such correlation was seen between the clinical and endoscopic severity and the clinical and histological severity of esophagitis.
Conclusions This is the first study from India which gives an insight into the patients of erosive esophagitis. Esophagitis is more common in males, smokers and the obese. Significant correlation exists between endoscopic and histological severity of esophagitis. Prevalence of Barrett's esophagus in India is less than that seen in the West (14 %).

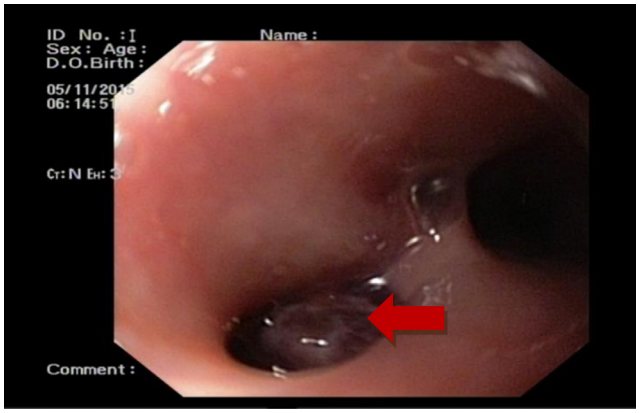
E-16

Two interesting cases of massive hematemesis

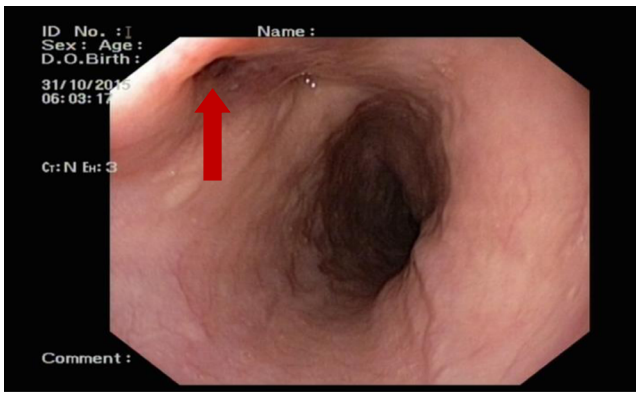
Sujit Chaudhuri, Sudipta Ghosh, Susmit Bhattacharya, Siddhartha Mukherjee, ***Ayusmati Thakur****, Agnibha Dutta*
Amri Hospital, JC-16- 17, Salt Lake City Block-A, Scheme-L11 Salt Lake City, Bidhannagar, West Bengal 700 098, India

Introduction Aortoesophageal fistula (AEF) is rare but life-threatening cause of upper gastrointestinal bleeding (UGIB). We report 2 cases of AEF, who presented with a massive UGIB. A diagnosis of AEF was made based on computed tomography and endoscopic findings. Surgical intervention was undertaken and both the patients were given a course of anti-tubercular therapy.
Case Scenario The first case was a 52-years-old non-diabetic, non-hypertensive lady, presenting with massive hematemesis and the second case was a 48 years old, hypertensive, non-diabetic gentleman with CAD, with similar presentation. There was no history suggestive of chronic liver disease, acid peptic disorder or syphilis in both. The lady had recurrent cough for 1 year and low grade fever for 3 months. There was no history of relevant medications. Laboratory investigations were acceptable except for low Hb levels in both the patients.
In the first case, upper gastrointestinal endoscopy revealed an opening in posterior wall of lower third of esophagus with inflammatory changes. CECT scan revealed erosion of the pouch in the aorta, suggestive of AEF. In the 2nd case, UGIE revealed a large depressed ulcer with red spot and a diverticulum in the lower end of ulcer in the middle third of the esophagus. CECT thorax revealed saccular aneurysm distal to Left SCA eroding onto the esophagus. Histopathology was suggestive of a tubercular etiology.
In both these cases, surgical intervention was undertaken. A course of anti-tubercular therapy was given. Both the patients have been doing well on follow up of 6 months.
Conclusion The rarity of AEF (tubercular etiology) causing a massive UGIB, merits a report of both these cases.

Case 1



Red arrow–esophageal opening
Case 2



Red arrow–esophageal opening

E-17

Gastroesophageal reflux disease after per oral endoscopic myotomy for achalasia cardia

Radhika Chavan*, Zaheer Nabi, Mohan Ramchandani, Rakesh Kalapala,Nageshwar Reddy, Santosh Darisetty*
Asian Institute of Gastroenterology, 6-3-661, Somajiguda, Hyderabad 500 082, India

Background Peroral endoscopic myotomy (POEM) is an established treatment option for achalasia cardia. There is limited data regarding the prevalence of gastroesophageal reflux after POEM.
Aim The aim of present study was to analyze the prevalence of GERD after POEM.
Methods The data of patients who underwent POEM (from January 2013 to June 2016) for achalasia cardia was prospectively collected and analyzed. Gastroesophageal reflux (GER) was assessed using 24 h pH metry and esophagogastroduodenoscopy (EGD).
Results A total of four hundred and eight patients (mean age 40 years, range 4–77 years) underwent POEM during the specified period. POEM could be successfully completed in 396 (97 %) patients. Clinical symptoms of GER were detected in 44 out of 261 patients (16.8 %). 24 h pH metry was available for 92 patients at 3 months after POEM. De Meester score of >14.7 suggestive of GER was found in 26 patients (28.3 %). EGD detected erosive esophagitis in 42 patients (18.5 %; 42/227). Most of these patients had mild esophagitis (LA grade A-26, LA grade B −11). Severe esophagitis

(LA grade C and D) was found in 5 patients. Proton pump inhibitor was prescribed in all the patients with symptoms and esophagitis (18 %).
Conclusions The prevalence of GERD by pH study is comparable to that of Heller's myotomy and pneumatic balloon dilatation. However, fewer patients develop esophagitis and clinical symptoms.

E-18

Esophageal foreign bodies leading to serious complications -A case series

***Lalit Bharadia**, Sanjay Choudhary, Shyam Sundar Sharma*
Fortis Escorts Hospitla, Jawaharlal Nehru Marg, Near World Trade Park, Malviya Nagar, Jaipur 302 017, India

Background and Aim The majority of foreign bodies that reach the gastrointestinal tract will pass spontaneously. However, 10 % to 20 % will require nonoperative intervention, and 1 % or less will require surgery. Foreign bodies which get lodged in esophagus for more than 24 h can cause serious complications. Authors report four cases of esophageal foreign bodies which lead to serious complications.
Methods Records of pediatric endoscopy done for gastrointestinal foreign bodies during past two years (January 2011 till December 2012) were analyzed and those involving esophageal foreign body leading to complication were short listed.
Results Out of total 96 cases with gastrointestinal foreign bodies, four met complications due to esophageal foreign bodies Table 1. Summary of four cases of esophageal foreign bodies leading to complications is attached separately.
Conclusion Foreign body in an esophagus is an emergency. All complications arose in situation where the foreign body was left in the esophagus for prolonged period. No foreign body should be allowed to remain in esophagus for more than 24 h.

E-19

To assess the prevalence and identify clinical and endoscopic predictors of eosinophilic esophagitis in patients with various upper gastrointestinal symptoms: A prospective study

*Gopal Goyal, **Sudhakar Paandey**, Kumar Shwetanshu Narayan, Sandeep Nijhawan*
Department of Gastroenterology, Sawai Man Singh Medical College, J L N Marg, Jaipur 302 004, India

Background and Aims Eosinophilic esophagitis (EoE) is characterized by eosinophilic infiltration of the esophagus, increasingly recognized as an important cause of dysphagia in adults. The purpose of this prospective study was to determine the prevalence and clinical predictors of EoE in patients with various upper gastrointestinal (UGI) symptoms.
Methods We enrolled 115 consecutive adults (mean age, 33.8±7.57 year) who presented with various UGI symptoms and underwent UGI endoscopy from October 2015 to March 2016 at a tertiary care hospital Jaipur, Rajasthan. All endoscopic findings were noted. Eight biopsies were obtained from proximal and distal esophagus and were reviewed by a blinded pathologist. Suspected patients of EoE on initial biopsy were given a 2 week proton pump inhibitor (PPI) trial, If they were non responsive to PPI with persistent histologic finding (>15 eosinophils/high-power field) then labeled as EoE.
Results The prevalence of EoE in this study was 2.60 % (3/115) (95 % confidence interval, 0.56 % to 7.77 %). All EoE positive patients were male, younger than 45 years with history of dysphagia. Compared with EoE negative patients, EoE positive patients had more likely asthma (33.33 % vs.10.71 %) and food impaction (66.66 vs. 8.92) . Twenty percent patients had endoscopic findings suggestive of eosinophilic esophagitis.
Conclusions The prevalence of EoE in patients with upper GI symptoms is 2.60 %. Dysphagia is the main presenting symptom of EoE. The characteristic findings of EoE patients included male gender, history of asthma, food bolus impaction.

E-20

Treating refractory corrosive stricture- Mitomycin C a new kid on the block

***Neeraj Nagaich**, Radha Sharma, Sandeep Nijhawan*
Department of Gastroenterology, Fortis Escorts Hospital, Jawaharlal Nehru Marg, Malviya Nagar, Jaipur 302 017, India, Department of Gastroenterology, M G Medical College, Riico Institutional Area, Sitapura, Tonk Road, Jaipur 302 022, India, Department of Gastroenterology, S M S Medical College, Jawaharlal Nehru Marg, Gangawal Park, Jaipur 302 004, India and Department of Pathology, R U H S College of Medical Sciences, Sector-18, Kumbha Marg, Pratap Nagar, Jaipur 302 033, India

Introduction Increasingly frequent dilation may become a self-defeating cycle in refractory stricture as recurrent trauma enhance, scar formation, and ultimately recurrence and potential worsening of the stricture.
Methods In twelve patients of caustic induced esophageal stricture, who failed to respond despite rigorous dilatation regimen for more than one year, a trial of topical mitomycin-C application to improve dilatation results was undertaken, considering the recently reported efficacy and safety of this agent. A cotton pledget held by endoscopic forceps was soaked in a 0. mg/mL solution of mitomycin-C and was then applied topically under direct vision, by front-loading the pledget in a standard cap used for band ligation of varices attached to the end of the endoscope. Mitomycin C was applied for 2 to 3 min at the strictured esophageal segment after dilation with wire guided Savary Gilliard dilator. NBM for 2–3 h. Repeated at 4 week interval along with scheduled dilatation sessions every week. Dysphagia score and periodic dilation index (number of dilations required per month) before and after MC application was calculated.
Results After 4–6 sessions of Mitomycin-C treatment resolution of symptoms and marked improvement in dysphagia score was seen in all 12 patients. The PDI calculated for 12 weeks following MC application also decreased significantly in all the patients.
Conclusion Mitomycin-C, topical application may be a useful strategy in refractory corrosive esophageal strictures.

E-21

Outcomes of endoscopic dilatation in caustic esophageal strictures

***Neeraj Nagaich**, Radha Sharma, Anshuman Kaushal, Sandeep Nijhawan*
Department of Gastroenterology, Fortis Escorts Hospital, Jawaharlal Nehru Marg, Malviya Nagar, Jaipur 302 017, India, Department of Gastroenterology, M G Medical College, Riico Institutional Area, Sitapura, Tonk Road, Jaipur 302 022, India, Department of Gastroenterology, S M S Medical College, Jawaharlal Nehru Marg, Gangawal Park, Jaipur 302 004, India and Department of Pathology, R U H S College of Medical Sciences, Sector-18, Kumbha Marg, Pratap Nagar, Jaipur 302 033, India

Objective To determine the outcome and safety of esophageal dilatation and assess role of Injection Triamcinolone or topical Mitomycin C application in refractory strictures.
Methods This descriptive study was conducted to evaluate the safety and efficacy of endoscopic dilataion in corrosive esophageal stricture. Patients with caustic esophageal strictures presenting between 2010 and 2016 and

above 03 years of age were included. Savary Gilliard plastic dilators of increasing sizing were employed. Repeated sessions were performed fortnightly till a 15 mm (45 Fr) lumen size was achieved. Follow up session were arranged whenever dysphagia developed. In patients with refractory stricture Injection Triamcinolone or topical Mitomycin C application was done during dilatation session.
Results Out of 320 patients, 192 patients (60 %) were more than 12 years of age. Mean age is 20.25 ranging from 5 to 64 years. There were 185 males (58 %) and 135 females (42 %). Total dilatations were 4822. Successful dilatation up to a lumen size of 15 mm could be achieved in 211 patients (66 %). In 48 patients (15 %) with refractory stricture application of triamcinolone or Mitomycin C lead to success. In 108 patients (34 %) satisfactory dilatation could not be achieved and were referred for surgery. Nine patients (2.8 %) had perforation with an incidence rate of 0.30 %.
Conclusion Caustic Stricture is more common in adolescent and adults in our population. Endoscopic dilatation of esophageal strictures is a relatively safe procedure with good results and low rate of complications. Triamcinolone and topical Mitomycin may act as rescue therapy in refractory stricture.

E-22

Severe esophageal injury caused by accidental button battery ingestion in a child

***A Keerthi**, P Shravan Kumar, Umadevi, Ramanna*
Department of Gastroenterology, Gandhi Hospital, Bhoiguda Road, Musheerabad, Secunderabad 500 003, India

Background Over the last few years there is a rise in use of button batteries in various toys and other electronic gadgets. Easy availability and small size of these batteries pose a significant risk of ingestion in small children. Button battery ingestion can lead to serious health hazards very rapidly.
Case Report A healthy five-year-old girl was referred to our institution due to accidental button battery ingestion. She presented with abdominal pain . Chest X-ray image showed a circular 20 mm foreign body in esophagus. Endoscopy was performed and a 20 mm button battery was found at lower end of esophagus at gastroesophageal junction. It was covered in debris and stuck to esophageal mucosa, which presented a 3 cm burn along 2/3 of the esophageal circumference. Button battery was removed and exploration completed without evidence of further damage. Treatment with PPI and sucralfate was established. Six hours later, the patient started oral intake without any incidence. She underwent control endoscopy, four weeks after the event and esophageal stenosis was found. It was treated by balloon dilatation without complications.
Conclusion Incidence of button battery ingestion is increasing now a days and the early diagnosis when they become lodged in esophagus, is of capital importance to diminish the risk of potential fatal complications. Endoscopic removal and a close follow up are essential to deal with complications.

E-23

Frequency, factors associated with malnutrition among patients with achalasia cardia and effect of pneumatic dilatation

***Prabhakar Kumar Thakur**, Uday C Ghoshal, Abhai Verma, Asha Misra, V A Saraswat*
Department of Gastroenterology, Sanjay Gandhi Postgraduate Institute of Medical Science, Raebareli Road, Lucknow 226 014, India

Background Patients with achalasia are often undernourished due to dysphagia and inadequate intake. As only a few reports evaluated nutrition in achalasia, we studied, (i) frequency of malnutrition among patients with achalasia (ii) effect of pneumatic dilatation (PD) on nutritional parameters.
Methods Fifty patients with achalasia diagnosed by high resolution manometry and 50 healthy controls underwent evaluation by dietary recall, anthropometric indices and serum protein, albumin, iron and calcium levels. Patients with achalasia were followed up for 6 months after PD to evaluate improvement in symptoms and nutrition.
Results Daily intake of calorie (1803.1±345.9 vs. 2085±389.9 Kcal/day, $p<0.05$), protein (40.9±8.5 vs. 53.6±10.3 g/day, $p<0.05$), iron (8.6±7.3 vs. 9.6±4 mg/day, $p<0.05$), and calcium (362.7±236.2 vs. 480.7±238.1 mg/day, $p<0.05$) was low among achalasia than controls. Serum total protein (7.2±3.8 vs 7.7±4.9 g/dL, $p<0.05$) was low in achalasia patients while no difference was observed in hemoglobin, serum albumin, iron and calcium between the two groups. Patients with achalasia had lower body mass index (19.7±4.1 vs. 22.8±5.9, $p<0.05$), mid-arm circumference (21±5.2 vs. 24.2 ±4.3 cm, $p<0.05$), biceps (3.2±2.4 vs. 5.6±3.3 mm, $p<0.05$) and triceps skin fold thickness (6.1±4.9 vs. 7.8±5.6 mm, $p<0.05$). Though calorie (1803.1±345.9 vs. 2069.9±389.9 Kcal/day, $p<0.001$), protein (40.9±8.5 vs. 47.6±7.8 g/day, $p<0.001$) intake and BMI (19.7±4.1 vs. 22.2±4.9, $p<0.05$) increased after PD, mid arm circumference and skin fold thickness remained comparable.
Conclusions Malnutrition is common in achlasia and PD is associated with increase in dietary intake and nutritional status.

E-24

Collagen spray in healing of large esophageal ulcers in Stevens-Johnson syndrome

*V G Mohan Prasad, **Madhura Prasad**, Shujaath Asif M, K V K S N Murthy, Mithra Prasad, Gokul Kruba Shanker, C S Thyagaraj, Vadiraj Hunnur, Anand Bharathan, G Vadamalainathan, Praveen M Patil*
V G M Hospital, 2100, Trichy Road, Coimbatore 641 005, India

Here is presented a video endoscopy report of a 34-year-old gentleman with Stevens-Johnson syndrome (SJS), with large esophageal ulcers, where collagen spray was used to accelerate tissue healing. The patient had developed SJS after taking trimethoprim sulphamethoxazole. He had severe odynophagia and lost 20 kg weight due to poor oral intake. Endoscopy revealed large ragged esophageal ulcers throughout the esophagus. Esophageal ulcers in SJS generally heal by six weeks. This patient was on proton pump inhibitors and sucralfate for two months with no change in symptoms. So it was proposed to use endoscopic collagen spray to accelerate ulcer healing. Collagen can induce fibroblastic growth which is necessary for formation of granulation tissue. VGM's Haemoseal spray, (Shaili endoscopy) was used. Collagen powder is applied in short bursts through the spray catheter with air pump that drives in air which propels the pre-loaded collagen powder in the cartridge. Collagen spray was done all over the ulcers. The patient had no discomfort during or after the spray. After the procedure, the patient improved over two weeks. He was able to take orally without any pain. Endoscopy done after one month revealed complete healing of the ulcers. Collagen spray was effective in healing of large esophageal ulcers in SJS not responding to standard care.

E-25

Effectiveness of pneumatic dilatation for achalasia:Experience from a tertiary care centre

***G Ponni Krishnan,** K Srijith, T S Prasanth, Gopu R Babu, B K Bincy, Nikhil Suraj, Shahna S Fathima, S Sreejaya, A Shanid, K S Prasanth, D Krishnadas*

Government Medical College, Ulloor Road, Thiruvananthapuram 695 011, India

Background and Aims Pneumatic dilataion is the most effective non-surgical and cost effective treatment option for patients with achalasia. Its clinical effectiveness and complications in the era of newer treatments like POEM, laparoscopic myotomy needs further studies. The aim of this study is to evaluate the efficacy of pneumatic dilatation in patients with achalasia cardia.
Methods We have retrospectively recruited patients with confirmed achalasia, who underwent pneumatic dilatation from January 2012 to December 2014 from Department of Medical Gastroenterology, Government Medical College,Trivandrum.
Inclusion criteria Diagnosed cases of achalasia (endoscopy+barium swallow+/−manometry) who underwent at least one single session of pneumatic dilatation (PD) from the Department during the study period. *Exclusion criteria* Prior esophageal or gastric surgery, Patients with sigmoid esophagus on endoscopy or patients who cannot be contacted through the given telephone numbers in discharge record. The following were recorded: Patients' demographics, clinical symptoms, and details of therapeutic procedures (PD), including size of the balloon, number of PDs, and complications. Symptoms, including weight loss, dysphagia, retrosternal pain, and regurgitation, were assessed with the use of the Eckardt score (which ranges from 0 to 12, with higher scores indicating more pronounced symptoms).
Study Design Cross-sectional follow up evaluation. To determine clinical response or recurrence, a cross-sectional evaluation was performed by using a structured telephone interview. The interview included questions about the Eckardt score variables at the time of the call and during initial presentation
Statistical Analysis Continuous variables are presented as means (with 95 % confidence intervals) and were compared with the use of Student's *t* test. A $p<0.05$ is considered statistically significant.
Results Forty-two patients who have undergone pneumatic dilatation were reviewed. Eleven patients could not be traced. Two patients who had already underwent Hellers myotomy and 2 patients with sigmoid esophagus were also excluded. Twenty-seven patients were included in the study. Mean age of study population was 44.296 (95 % CI: 37.57–51.02). 40.74 % were males (11 out of 27). 59.25 % were females (16 out of 27). The mean of the predilatation Eckardt score was 7.778 (95 % CI: 7.1–8.4), which dropped to 2.259 (95 % CI: 1.8–2.9) after PD ($P<0.01$). 92.5 % patients remained symptom-free one year after first dilatation. The mean duration of the symptom-free period was 24. 25 months (SD- 11.38, range 12–50). Only 2 patients (7.4 %) needed second dilatation, for them symptoms recurred within 10 months after the first dilatation. Age or gender was not found to be a predictor of Eckardt score improvement on multivariate linear regression analysis.
Conclusion Pneumatic dilatation is a treatment option for achalasia in a substantial number of patients. In this study, the PD success rate at one year interval reached above 92.5 %. Pneumatic dilatation is a safe treatment option for achalaisa without significant complications.

E-26

Expression of p53 in esophageal carcinoma and its correlation with various histopathological grades, clinical stage, prognosis and survival

Tushar H Sankalecha*, Sudhir Gupta, Nitin Gaikwad, Nikhil Shirole, Harit Kothari*
Department of Gastroenterology, Government Medical College and Super Specialty Hospital (SSH), Nagpur 440 009, India

Introduction Esophageal squamous carcinoma is one of the most aggressive types of cancer worldwide. The p53 gene is the tumor suppressor gene located at chromosome 17q13.1. The immunohistochemical protein expression of p53 has been proposed as a potential tool to evaluate the biological behavior of esophageal cancer.
Methods It was a prospective analytical study for duration from July 2015 to June 2016. Total 30 patients of esophageal carcinoma diagnosed by endoscopy, whose biopsy was positive for esophageal carcinoma were included for this study. These biopsy specimens were then treated immunohistochemically for assessing the expression of p53 gene. These findings were compared with histological and clinical parameters.
Results Male: Female ratio was 3:2, 18 (60 %) patients were male and 12 (40 %) were females. Most common age group is 60 to 70. According to TNM classification 6.66 %, 23.33 %, 26.67 % and 43.33 % of patients present in stage I, II, III and IV respectively. According to histological classification 26.67 %, 40 %, 23.33 % patients present in grade I, II, III respectively. In grade I 62.5 %, grade II 75 % and grade III 90 % patients had positive p53 expression. P53 expression was significantly higher in Grade II than grade I ($p<0.05$) and In Grade III than Grade II ($p<0.05$).
Conclusion Expression of p53 in esophageal carcinoma showed correlation with increasing grades (from well differentiated to poorly differentiated squamous cell carcinoma) and this expression also correlate with stage of the cancer. This suggests that immunohistochemical analysis of p53 is simple and effective modality to determine the prognosis and survival.

Stomach (*H pylori*)

STH-01

High efficacy of I-scan endoscopy in the diagnosis of *Helicobacter pylori* infection

Vijay Sharma*, Suresh Saini, Srichand Saini, Richa Sharma*
Department of Gastroenterology, and Endoscopy Unit, Manipal Hospital, Sector 5, Main Sikar Road, Vidhyadhar Nagar, Jaipur 302 013, India, and Department of Public Health, Regional Institute of Health, Medicine and Research, Jaipur, India

Introduction and Objective New endoscopy techniques like I-scan help focus examination of stomach to diagnose disease more efficiently, more detailed imaging have enabled endoscopist to observe microscopic structures like gastric pits patterns, microvessels and cell morphology. Endoscopic prediction of *Helicobacter pylori* infection is possible by analysis of surface architecture of the mucosa. Prospective pilot study aimed to compare the diagnostic value and image quality of high-definition magnifying white light endoscopy with I-scan for *Helicobacter pylori* infection.
Methods Prospectively, 18-years or old age patients giving informed consent, complaining of dyspepsia, undergoing upper gastrointestinal endoscopy were recruited. Patients undergoing endoscopic therapeutic procedures, with duodenal ulcer, gastrointestinal bleed, and post anti-*Helicobacter pylori* regimen, on proton pump inhibitors, post gastric surgery, cirrhosis and coagulopathy were excluded from study. The antrum and greater curvature of the stomach was carefully observed using both techniques, images saved. The gastric mucosal details for abnormal vascularity, mosaic pattern, spider web pattern, micronodularity, abnormal light reflex, and abnormal irregular pit pattern were recorded. The relationship between gastric mucosal classification and final diagnosis of *Helicobacter pylori* infection with antral biopsy and positive rapid urease testing at thirty minute on room temperature was determined.
Results N=146, mucosal changed suggestive of *H pylori* n=45 patients (30.8 %) with white light endoscopy while 79 patients (60.95 %) with I-scan endoscopy. Seventy-six patients (52 %) had positive rapid urease test. The sensitivity, specificity, positive predictive value, negative predictive value, accuracy of white light endoscopy was 59 %, 100 %, 100 % (95 % CI 92 % to 100 %), 69 % (95 % CI 59 % to 77 %), 78 % for *H pylori* infection. While the sensitivity, specificity, positive predictive value, negative predictive value, accuracy of I-scan imaging was 100 %, 95 %, 96 % (95 % CI 89 % to 98 %), 100 % (95 % CI 94 % to 100 %), 97 % for *H pylori* detection.
Conclusion I-scan imaging is significantly superior to white light endoscopy for the prediction of *Helicobacter pylori* infection. It is very informative to study gastric mucosal details.

STH-02

Decreased rate of infection with *H pylori* in patients with dyspepsia may explain the declining frequency of peptic ulcer disease

***Amit Kumar Dutta**, D Viswanath Reddy, H Venkatkrishnan, Ashok Chacko*
Department of Gastrointestinal Sciences, Medical College, Vellore 632 004, India

Background and Aim The frequency of peptic ulcer disease (PUD) in dyspeptic patients has shown a significant decline compared to the past. We aimed to assess whether the frequency of *H pylori* infection in dyspeptic patients has declined compared to the past to explain the decreasing frequency of PUD.
Methods Patients >15 years of age with dyspeptic symptoms were prospectively recruited in this study from 2010 to 2013. Patients were divided into three age groups; 15–30 years, 31–50 years and >50 years and the minimum sample size required in the three groups with a power of 90 % was 259, 256 and 188 respectively. All patients underwent upper gastrointestinal endoscopy and rapid urease test was done on gastric mucosal biopsy to detect *H pylori*. The clinical, demographic features and socioeconomic status were recorded. The study was approved by institute review board.
Results We included 1000 patients with dyspepsia. Their mean age was 40.0.3 (69.3 % males). Infection with *H pylori* was detected in 419 (41.9 %) patients. In the 15–30 years age group (n=303), the frequency of infection was 42.6 % while it was 48.3 % in the 31–50 years group (n=350) and 34.9 % in the >50 years group (n=347). Among men, *H pylori* infection was present in 45.7 % compared to 33.2 % in women (p<0.001)). Male sex was a significant risk factor for infection on multivariate analysis (p<0.001).
Conclusion The current prevalence of *H pylori* infection in dyspeptic patients is much lower than previous reports and may explain the declining frequency of PUD.

STH-03

Histopathological analysis of subjects infected with distinct genotypes of *H pylori* in various gastrointestinal diseases

***Avinash Bardia**, Sandeep K Vishwakarma, N Raju, Chandrakala, B V S Sastry, G Shravani, Aleem Ahmed Khan, Md. Aejaz Habeeb*
Centre for Liver Research and Diagnostics, Deccan College of Medical Sciences, Kanchanbagh, Hyderabad 500 058, India

Introduction H pylori infection is considered the leading cause of gastric mucosal inflammation. The bacterium induces histologically detectable damage to the gastric mucosa through a complex combination of virulence factors and results in inflammatory responses induced in the host's mucosa. As reported gastric inflammation and epithelial damage are believed to be important in the etiopathogenesis of various gastrointestinal diseases, but their association with various genotypes of *H pylori* are little investigated.
Aims The aim of the present study was to investigate the gastric histopathology in patients infected with *H pylori* with various gastrointestinal disorders and assess its relationship with bacterial genotypes.
Methods A total of 80 *H pylori* infected subjects who had undergone upper gastrointestinal endoscopy were included in the study. Biopsy sample were collected and used for culture of *H pylori* followed by DNA isolation and genotyping. One part of biopsies was immersed in 10 % buffered formalin. Slides from each specimen were stained by modified Giemsa, hematoxylin and eosin and alcian blue PAS stains respectively.
Results Present study demonstrated that histomorphological changes associated with *H pylori* infection largely depends upon the genotypic trait of the gastric pathogen though it may require the involvement of host related and environmental factors. It was observed that the severity of gastritis correlated with the presence of more virulent genotypes.
Conclusion Therefore these results strongly demonstrate that distinct *H pylori* genotypes seem to be associated to the outcome of the infection and may have important clinical and epidemiological implications.

STH-04

miRNA expressions profiling in *H pylori* infected various gastrointestinal diseases

***Avinash Bardia**, Sandeep K Vishwakarma, N Raju, Chandrakala, B V S Sastry, G Shravani, Aleem Ahmed Khan, Md. Aejaz Habeeb*
Centre for Liver Research and Diagnostics, Deccan College of Medical Sciences, Kanchanbagh, Hyderabad 500 058, India, and CSIR-Centre for Cellular and Molecular Biology (CCMB), Habsiguda, Hyderabad 500 007, India

Introduction H pylori induced gastroduodenal disease depends on the inflammatory response of the host and specific virulence factors that cause damage to gastric epithelial cells. Among the mediators induced in response to the infection, miRNA has the potential impact on the outcome of the bacteria-host interaction. This has led to the identification of miRNA associated with inflammatory response initiated by the *H pylori* infection. Therefore the present study was designed with an objective to characterize the miRNA profile with various gastrointestinal diseases.
Methods A total of 80 *H pylori* infected subjects with various gastrointestinal diseases were included. Biopsy sample were collected before and after treatment. Biopsy was used for miRNA extraction using GITC method followed by cDNA constraction. miR-21, miR-155, miR-146, miR-181 and miR-7 expression levels were quantified by using real time-quantitative PCR based on SYBR-Green.
Results We have demonstrated that even after eradication of *H pylori* with a triple antibiotic treatment for a 7-day period, the levels of miR-21 did not change but there is down regulation in miR-155, miR-146, miR-181. In contrast, the levels of tumor-suppressor miRNA, including miR-7 increased after eradication. These results suggest that after infection and eradication of *H pylori*, some underlying processes may continue that promote tissue damage and lead to gastric malignancy.
Conclusion Our study suggest that miRNA may be modulating pathways associated with differential out comes in response to infection with *H pylori*. This will opens the possibility of more efficacious and global treatments for illnesses with common origins.

STH-05

MMP7-181A/G promoter polymorphism in patients of gastric ulcer and gastric carcinoma

***Jitendra Kumar Choudhary**, M K Tripathi, S K Shukla, Ashok Kumar, A K Jain, V K Dixit*
Department of Gastroenterology, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, India, and School Of Biotechnology, Institute of Life Science, Banaras Hindu University, Varanasi 221 005, India

Introduction The matrix metalloproteinase (MMPs) family can degrade various component of the extracellular matrix and implicated in number of physiological processes. *Helicobacter pylori* infection can up-regulate MMP-7 in the gastric mucosa and in serum. The effect of *H pylori* infection on epithelial cells might influence the subsequent progression to cancer and are still largely unknown.

Aim This research aimed to study MMP7-181A/G promoter polymorphism in patients of gastric ulcer and gastric carcinoma in *H pylori* infected individuals.
Methods A total of 147 patients having gastric ulcer (82) gastric carcinoma (65) were enrolled in this study. All the patients were underwent for upper gastrointestinal endoscopy subjected to tissue biopsy for ultra rapid urease and DNA isolation. PCR for *H pylori* specific 16S DNA was done. Genotyping of MMP7-181A/G polymorphism was done by PCR-RFLP assay using restriction enzyme EcoR1.
Results H pylori infection was confirmed by 16S rDNA amplification. In gastric cancer the distribution frequency of the MMP-7AG genotype was 32 (48.48 %) followed by the AA 18 (27.27 %) and GG 16 (24.24 %) genotypes having a frequency of the A allele of 52 % and of the G allele of 48 %. In ulcer patients genotype MMP-7 AG was 44 (55.56 %) followed by the AA 21 (25.62 %) and GG 17 (20.73 %) genotypes having a frequency of the A allele carrier was 53 % and of the G allele carrier was 47 %.
Conclusion Distribution of the MMP-7AG genotype was found high in both gastric ulcer and gastric cancer with high A allele carriers.

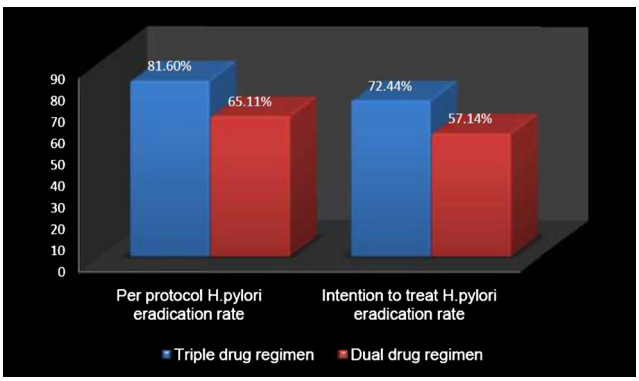
STH-06

Comparision of eradication rates of *Helicobacter pylori* between standard triple drug therapy and dual drug therapy with amoxicillin and PPI

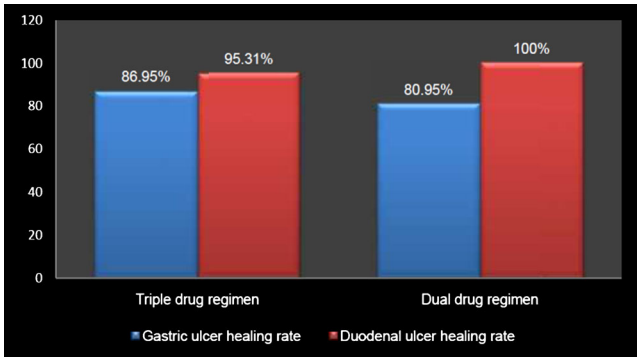
M Manasa, *P Muralikrishna, L R S Girinadh, R L Praveen*
King George Hospital, Jagadamba Junction, Visakhapatnam, India

Background and Aim Helicobacter pylori infection is the most common chronic bacterial infection in the world with prevalence higher than 80 % in developing countries. The aim of the current study is to look for the eradication rates of triple and dual drug therapy in peptic ulcer disease patients.
Methods A total of 197 patients with *H pylori* positive peptic ulcer disease patients included in the study. They were randomized into two treatment arms. One arm receives triple drug regimen containing Clarithromycin, Amoxicillin and Omeprazole for 2 weeks. Second arm receives Amoxicillin and Omeprazole containing dual drug regimen for 6 weeks. Follow up was done at weekly intervals and repeat *H pylori* testing was done at the end of treatment regimen.
Results Out of 197 patients 24 patients lost follow up and 173 patients completed the study. Male to female ratio 1.9:1. Among 173 patients, 65 have gastric ulcers and 108 have duodenal ulcers. The eradication rates are as shown in Fig. 1.

Fig. 1 *H pylori* eradication rates



Gastric and duodenal ulcer healing rates are shown in Fig. 2
Fig. 2 Gastric/duodenal ulcer healing rates



The side effects profile is same between the two groups.
Conclusion H pylori eradication rate with dual drug regimen for six weeks is inferior to triple drug regimen for two weeks. Peptic ulcer healing rate at four weeks after end of treatment is similar with both triple drug regimen and dual drug regimen.

STH-07

Role of probiotics in anti-*Helicobacter pylori* therapy in symptomatic patients of APD

Syed Ibrahim Hassan, *S M Akbar Hassan, Wazha Mehmood, Yusra Khan, Uzma Afreen*
Deccan College of Medical Sciences, Hyderabad 500 058, India, and Central Research Institute of Unani Medicine, Erragadda, Hyderabad 500 038, India

Literature has substantial evidence of probiotics modulating colonisation by interfering with *H pylori* adhesion to gastric mucosa and attenuate the gastritis.
Aim Compare the standard triple drug anti-*H pylori* regimen with a probiotic added regimen and to know the difference in eradication rates in two groups.
Methods Adult patients of either sexes between ages of 18–75 and endoscopic evidence of APD with CLO test positive without co morbidities IHD, CKD, on NSAIDs steroids any concurrent illness were taken up in the study after informed consent. Follow up CLO test was done on day 10, 20 and 30. 60 patients were taken up into the study randomized to two groups, one recieved standard triple drug regimen whereas the second recieved standard regimen+probiotics (bifidobacterium long, saccharomyces bollards, L rhamnosus, L acidophilus) twice a day for 7 days.
Results At entry all the patients were CLO test positive, following treatment in regimen I 4 and in regimen II 5 became CLO test negative recurrence of infection CLO test+) in regimen I was 6 and in regimen II it was 7 in regimen II the corresponding numbers were 3 and 4 respectively the commonest side effect in regimen I was abdominal pain 20 % and in regimen II was constipation 13 % eradication rate was higher in regimen II side effects and recurrence rate were less in regimen II.
Conclusion Addition of probiotic to the standard triple drug regimen showed increased drug compliance and higher eradication rate without major side effects and decrease recurrence rates on follow up.

STH-08

Characterization of *Helicobacter pylori* virulent genes and their correlation with clinical outcomes in gastroesophageal reflux disease in North India

Valentina Gehlot, Shweta Mahant, Kunal Das, Asish Kumar Mukhopadhyay, ***Rajashree Das***
Molecular Bacteriology Laboratory, Center for Medical Biotechnology, Amity Institute of Biotechnology, Amity University, Noida 201 303,

India, Max Superspeciality Hospital, Patparganj, New Delhi, India, and Max Superspeciality Hospital, Vaish

Background The role of *Helicobacter pylori* in gastroesophageal reflux disease (GERD) remains controversial because of less data and conflicting results. *H pylori* infection is a protective factor against GERD by causing atrophic gastritis, which leads to reduced gastric acid secretion.
Aim To characterize the virulent genes of isolated *H pylori* strains and to evaluate potential relationship between *H pylori* infection and GERD.
Methods Patients suffering from gastroduodenal diseases who underwent upper gastrointestinal (UGI) endoscopy were enrolled in the study. Reflux esophagitis (RE), non-erosive reflux disease (NERD) and non-ulcer dyspepsia (NUD) were described on the basis of FSSG questionnaire and endoscopy based clinical symptoms. PCR screening was done for the detection of putative virulence genes (vacA, cagA and iceA) in *H pylori* strains.
Results Prevalence of GERD and *H pylori* infection was found in 64.8 % and 31.26 % respectively in patients suffering from various gastroduodenal diseases. The less virulent form of *H pylori* i.e. cagA negative, vacA (s2m2) alleles and iceA2 subtype are significantly associated with GERD patients. Our findings were in contrast with the earlier studies which showed the protective role of more virulent *H pylori* in GERD.
Conclusions In conclusion, we found that the GERD patients were significantly carrying the less virulent form of genes of *H pylori* viz cagA (cagA negative), vacA (s2m2) or iceA (iceA2). Our findings is in contrast to the previous studies which reported that infection with more virulent cagA positive *H pylori* strains might have protective role against the severe complication of GERD.

STH-09

Endothelial nitric oxide synthase gene 27-bp VNTR polymorphism is associated with gastric cancer

Krishnaveni Devulapalli*, P Shravan Kumar, M Umadevi, M Ramanna, Pratibha Nallari, A Venkateshwari*
Department of Gastroenterology, Gandhi Hospital, Secunderabad 500 003, India, Institute of Genetics and Hospital for Genetic Diseases, Osmania University, Hyderabad 500 016, India

Gastric Cancer (GC) is a multifactorial disorder mediated by genetic, epigenetic and environmental risk factors. The 4a/b polymorphism of 27-bp VNTR in 4th intron of eNOS was reported to play an important role as an antioxidant and pro-oxidant in various diseases including cancers.
Aim To investigate the association of eNOS 27 bp VNTR polymorphism with gastric cancer.
Methods Genomic DNA was extracted from blood samples of 314 controls and 160 GC patients by salting out method. Genotyping of 4a/b 27 bp VNTR polymorphism in intron4 of the eNOS was carried by polymerase chain reaction. Hardy-Weinberg Equilibrium, odds ratio and 95 % confidence intervals were calculated to measure the strength of association between the polymorphism and GC.
Results Risk factor profile of the patients disclosed that advanced age i.e. 50 years, male gender, consumption of non-vegetarian diet, addiction to smoking or alcohol, consanguinity, and *H pylori* infection were the epidemiological risk factors ($p<0.05$). The statistical analysis revealed 2.6 fold enhanced risk for the a/a genotype (a/a vs b/a +b/b; $p=0.0017$) than those with other genotypes. Interaction analysis by SNPstats showed that a/a genotype individuals are at risk of 6.35 fold with male preponderance, smokers exhibited 11 fold risk and alcoholics 14 fold risk. The a/a genotype in combination with consanguinity or *H pylori* infection revealed 2.89 fold risk.
Conclusion The a/a genotype of the 4a/b polymorphism of eNOS gene is significantly associated with increased risk of developing GC, which strengthens the interaction of epidemiological variables.

STH-10

Prevalence of cagA positive strains in *Helicobacter pylori* infected patients of Guwahati, Assam

Shweta Mahant*, Rajashree Das, Valentina Gehlot, Sangitanjan Dutta, Kunal Das*
Amity Institute of Biotechnology, Amity University, Noida, Gauhati Medical College, Guwahati, Assam, Max Super Speciality Hospital. Patparganj, Delhi

Helicobacter pylori is gram negative gastric pathogen which causes various gastroduodenal diseases including gastric cancer. The cagA and vacA gene are the two most virulent genes for *H pylori* which causes gastric diseases. The prevalence of gastroduodenal diseases and cancers is high in the North-East region of India as compare to Norn India. One hundred and fifty biopsies were collected from Guwahati, Assam from the patients suffering from various gastroduodenal diseases. Out of 150 biopsies 62 (41.3 %) were *H pylori* positive by urease PCR, 11 gastric biopsies by culture method, 28 genomic DNA was isolated from the biopsies transported in PBS using Hi media mammalian DNA purification kit and from 23 samples genomic DNA was isolated from the biopsies transported in Formalin by QIAamp DNA FFPE Tissue Kit. Molecular characterization for all the 62 strains for were done. Out of 62, 61 strains were cagA and vacA with s1m1 positive (98.3 %) with cag typeA (96 %) and cag type B (1.6 %) and 1strain with vacA s2m2, cagA. In the present study the result demonstrated that the 99 % of the *H pylori* strains which were isolated from the patients of Guwahati, Assam were cagA and vacA positive with cagA type A. In this sharp contrast to the strains isolated from North East India where more virulent with the incidence of cagA positive as compare to the strains of North India were the prevalence of cag A is less than 50 % (our unpublished Data).

Stomach (non-*H pylori*)

STN-01

Corrosive gastric strictures: Formulating guidelines for surgical management

M Chandramohan*, M Kanagavel, V Jayanthi*
Institute of Surgical Gastroenteroloy, Madras Medical College, Chennai 600 003, India, Rajiv Gandhi Government General Hospital (RGGGH), Park Town, **Chennai** 600 003, and Institute of Gastrointestinal Sciences, Global Health City, Chennai 600 100, India

Background Surgery remains the mainstay in management of patients with corrosive injury of the stomach.
Aim To classify site specific gastric strictures in corrosive injury and to define management strategy.
Methods Prospective study. Site and extent of stricture was assessed by preoperative upper endoscopy and at laparotomy.
Results Twenty of 48 patients (41.7 %) had an antral stricture within 5 cm of the PD ring (Type I a). Antrectomy with Billroth I or II anastomosis was done. Five patients had stricture >5 cm of PD ring (Type Ib); 4 patients had pylorus preserving antrectomy with an end to end anastomosis. Three patients with distal antral stricture with PD involvement (Type II) had gastrojejunostomy. Three patients with mid body stricture (Type III a) >1 cm thick had sleeve resection with gastrogastrostomy; <1 cm had endoscopy balloon dilatation. Five patients with diffuse gastric stricture (Type IV) had total gastrectomy with Roux en Y reconstruction. One patient with proximal gastric stricture with esophageal extension >3 cm extent (Type V a) had limited esophagogastrectomy and <3 cm had retrograde balloon dilation (Type Vb). Eleven patients with junctional stricture at OG and PD junction (Type VI) had combined resection with colon

interposition proximally and antrectomy with Billroth I or II anastomosis distally. Overall 19 patients had infection (39.8 %) There was one death each in Type Ia and Type VI.
Conclusion A simple site specific classification for corrosive gastric strictures can dictate appropriate surgical option in corrosive injury patients.

STN-02

Corrosive pyloric stricture dilation-A novel technique: Case series

Piyush Somani*, Malay Sharma*
Jaswant Rai Speciality Hospital, Saket, Meerut 250 001, India

Introduction Corrosive induced gastrointestinal mucosal injuries are common in developing nations leading to esophageal and pyloric strictures. Esophageal strictures have multiple treatment options such as sequential dilation, steroid injections with dilation, endoscopic incisional therapy, metallic stents and surgery. Pyloric strictures although less common than esophageal strictures are associated with more morbidity due to frequent need of surgical management
There are limited treatment options for pyloric strictures like balloon dilation and surgery. Balloon dilation is not feasible in early pyloric strictures (<8 weeks). Perforation and frequent need of dilation are main drawbacks associated with balloon dilation.
Feeding jejunostomy appears to be the only option in early pyloric strictures. At present, there seems to be no definitive treatment options for early corrosive pyloric strictures. In this case series of ten patients, we describe a novel technique of early corrosive stricture dilation.
Aims and Methods: Step 1- Under direct vision, straight hydrophilic guidewire (0.035 in.) was passed across the pyloric stricture through the 7 Fr ERCP cannula. The position of guidewire was confirmed with fluoroscopy. Cannula was passed into duodenum over the guidewire. The guidewire was removed. *Step 2* - Contrast was injected through cannula. Position of cannula inside the duodenum was confirmed with fluoroscopy. *Step 3-* Through the cannula straight stiff wire with hydrophilic tip was passed into duodenum. Cannula was withdrawn.10 Fr feeding tube was placed across pyloric stricture and position confirmed on fluoroscopy. High protein formula feed was given through feeding tube under guidance of dietician. *Step 4* - After one week straight stiff wire with hydrophilic tip was passed across the stricture through ERCP cannula. A 6 Fr dilator was passed over the guidewire. Dilator was removed. One 7 Fr pigtail stent was passed across the stricture over the guidewire. Every third day, one 7 Fr pigtail stent was placed across the stricture using the same technique. Total ten 7 Fr stents were placed within a period of one month. After one month all 10 stents were removed with the help of polypectomy snare. After removal of the stents endoscope could be negotiated across pylorus without difficulty.
Results This technique has been performed on 10 patients. In eight patients, pyloric stricture was dilated with excellent results and no complications. Another two patients are undergoing dilation with this technique.
Conclusion Technique Highlights: (i) Easy to perform; (ii) Neglible complication rates; (iii) Performed with easily available accessories; (iv) Continued enteral nutrition possible; (v) Excellent success rate.
This novel technique can be performed in pyloric strictures where surgery seems to be the only option. It can be adopted as a safe and effective alternative over other available modalities. This novel technique not only helps in feeding but also in the definitive treatment of corrosive induced pyloric stricture unlike feeding jejunostomy.

STN-03

A case of primary gastrointestinal amyloidosis

Suryaprakash Kothe*, H V Aradya, H P Nandeesh, T R Vijay Kumar, Inderjith, Chandrababu*
Department of Gastroenterology, J S S Medical College and Hospital, Opposite J S S Pharmacy College, Mysore-Bangalore Road, Bannimantap, Mysuru 570 004, India

Sixty-five-year old female patient presented with complaints of abdominal pain, loose stools, moderate intermitent fever and weight loss since 1 month. She had pallor with low BMI of 18 Kg/m2. There was no lymphadenopathy or organomegaly. Colonoscopy showed ileocolonic ulcers - biopsy was suggestive of amyloidosis. contrast-enhanced computed tomography (CECT) abdomen showed circumferential wall thickening of stomach (antrum), duodenum, jejunum. Esophagogastroduodenoscopy (EGD) showed nodular mucosa in esophagus (GEJ), body of stomach and D2- biopsies were taken - congo red staining showed apple green birefringence on polarised microscopy confirming presence of amyloid. Serum immunoelectrophoresis showed no M bands. There was no hepatic involvement and no family history of amyloidosis. Urine examination was normal. Hence a diagnosis of primary amyloidosis was made.

STN-04

Dieulafoy's lesion masquerading as gastric erosion

Bhuvan Shetty*, Avinash Balekuduru, Lokesh Locheruvapalli, Ravi Kiran, Satyaprakash Bonthala Subbaraj*
Department of Gastroenterology, M S Ramaiah Hospitals, B E L M S Ramaiah Nagar, RIT Post, M S Ramaiah Nagar, Mathikere, Bengaluru 560 054, India

Case Report Dieulafoy's lesion is relatively rare and life threatening condition, accounting for 1 % to 2 % of acute gastrointestinal bleeding. A 64-year-old gentleman diagnosed to have ischemic heart disease S/P PTCA and stenting presented with restenosis of the stent and significant melena. He had no other bleeding diathesis. He was hypotensive and required emergency repeat PTCA, thrombolysis and angioplasty of stenosed stent. He was initiated on triple antiplatelets. In view of ongoing melena, blood transfusions, emergency endoscopy was done. Endoscopy revealed gastric erosions in fundus and multiple clean based flat antral ulcers of 0.5 cm without any evidence of bleed. In view of persistent fall in hemoglobin requiring blood transfusions, repeat endoscopy was done which showed ooze from the earlier noted erosion in fundus. Provisional diagnosis of underlying Dieulafoy's lesion was made. A resolution hemoclip (Boston Scientific) was placed at the site of ooze and hemostasis was achieved. He was discharged but presented with rebleed after 2 weeks. Repeat endoscopy (bedside) showed ooze adjacent to the previously placed clip. Second hemoclip was placed and hemostasis was achieved. Contrast-enhanced computed tomography was done which revealed persistent caliber arteriole at the site of the clip. Plan was made for angiography with embolization in case of rebleed. His hemoglobin stabilized and was asymptomatic on 4 weeks follow up. High index of suspicion and low threshold for repeat endoscopy might enhance the rate of detection and therapy for Dieleufoy's lesion masquerading as gastric erosion.

STN-05

Glucose breath test for diagnosis of small intestinal bacterial overgrowth-A retrospective analysis

Sanjeev Kumar*, Avinash Balekuduru, Lokesh Locheruvapalli, Ravi Kiran, Satyaprakash Bonthala Subbaraj*
Department of Gastroenterology, M S Ramaiah Hospitals, B E L M S Ramaiah Nagar, RIT Post, M S Ramaiah Nagar, Mathikere, Bengaluru 560 054, India

Background Small intestinal bacterial overgrowth (SIBO) is a condition in which excessive levels of bacteria, mainly the colonic-type species are

present in the small intestine. The purpose of this study was to retrospectively analyze the patient profile of SIBO at our centre.
Methods Adults with symptoms of pain, bloating and flatulence underwent a glucose breath test (GBT) to determine the presence of SIBO. Breath samples were obtained at baseline and at 30, 60 and 90 min after ingestion of 50 g of glucose dissolved in 150 mL of water.
Results of the GBT, which measures hydrogen and methane levels in the breath, were considered positive for SIBO if 1) the hydrogen or methane peak was >20 ppm when the baseline was or=10 ppm.
Results Eighty-seven patients underwent a GBT (mean age, 44 y; 63 % male). Fifty patients (57 %) had a positive GBT result suggestive of SIBO. Bloating/pain/flatulence accounted for 30 % of the presenting complaints. The mean value of hydrogen an methane in the study were at 30 min −13 ppm and 8 ppm, 1 h (and 90 min) 15 ppm and 9 ppm respectively. Fifty (mean age 46 y; 60 % male) are positive for GBT. Majority (40 %) of the positive cases were positive for GBT at the end of 1 h.
Conclusions: SIBO was present in a sizeable percentage (58 %) of patients with symptoms of pain/bloating/flatulence. Diagnosis of SIBO with GBT could aid in successful treatment plans.

Small Intestine

SI-01

Primary adenocarcinoma of the duodenum: A case series

Rajan Mittal, *P Padmanabhan, P Bibin, S Rajanikanth, S N K Chenduran*
Department of Gastroenterology, Meenakshi Medical College, Enathur, Karrapettai Post, Kanchipuram 631 552, India

Primary carcinoma of the duodenum is uncommonly encountered. A unique finding in the two cases reported herein is that primary duodenal adenocarcinoma did not cause obstructive features.
An 86-year-old male diabetic/hypertensive was admitted in our hospital with six months history of upper abdominal pain, dyspeptic complaints and left hip pain. He gave history of significant weight loss. X-ray of the hip showed osteolytic lesion. Esophagogastroduodenoscopy revealed polypoidal mass lesion in 1st part of the duodenum (Fig. 1) with biopsy confirming adenocarcinoma. Patient was offered palliative care.

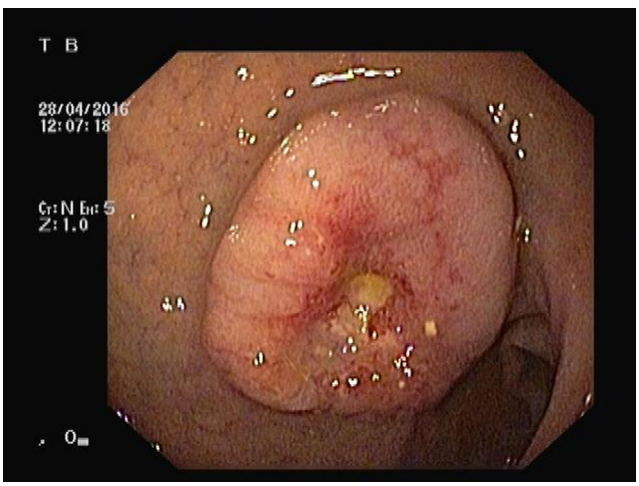
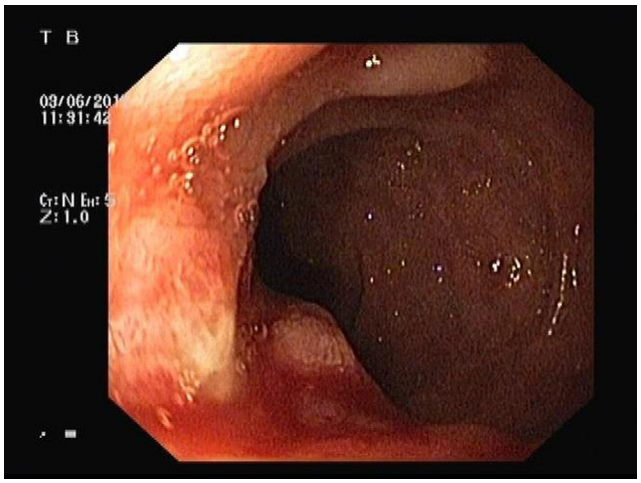


Fig. 1

A 78-year-old man presented with dyspeptic complaints. Upper gastrointestinal endoscopy revealed large round lesion in 2nd part of duodenum initially thought to be periampullary growth with biopsy revealing adenocarcinoma of the duodenum. This patient was also offered palliative care.



The diagnosis of primary duodenal adenocarcinoma is often delayed because its symptoms may be absent until the tumor has progressed. Patients present with a long history of variable and vague symptoms, and many are diagnosed with advanced disease and often confused with periampulalry carcinoma. As regards clinical manifestations, abdominal pain is the most frequent symptom. Esophagogastroduodenoscopy and gastrointestinal barium radiography are the main diagnostic tests, detecting 88.6 % and 83.3 % of tumors, respectively.

SI-02

A case of invasive duodenal cytomegalovirus infection in an immunonocompromised patient post kidney transplantation

Aditya D Shah, *P Ganesh, S Shanmuganthan, Shanthi Vijayaraghavan*
Sri Ramachandra Medical College, 1, Ramachandra Nagar, Porur, Chennai 600 116, India

Cytomegalovirus (CMV) is one of the most important infection post kidney transplantation. CMV duodenitis has although been infrequently reported. A 58-year-old male, known case of HCV, Type 2 diabetes mellitus having undergone live kidney transplant in December 2015 on triple immunosuppressants presented with decreased appetite and non bilious, non projectile vomiting almost 5–6 episodes per day. The creatinine of the patient was 1.4. Patient underwent CT scan abdomen which was suggestive of extensive fat stranding of the transplant kidney along with minimal ascites and cystitis. Patient was planned for esophagogastroduodenoscopy which was suggestive of esophageal candidiasis and multiple dimunitive to small duodenal sessile polyps. Biopsies were taken from esophagus, antrum and duodenum. The biopsies from duodenum were suggestive of CMV inclusion bodies. The patient underwent salivary and blood for CMV PCR. It reported 2800 copies of CMV in the saliva and 140 copies in the blood. The patient was started on Tab. Valganciclovir 450 mg twice a day. We present a classic images of CMV duodenitis in a patient less than one year post renal transplantation. This entity should be suspected in any immunocompromised patient with persistent gastrointestinal symptoms.

SI-03

Endoscopic resection of duodenal lesions- A single center experience

*Amol Bapaye, **Nachiket Dubale**, Mahesh Mahadik, S S R Gangireddy, Rahul Lokhande, Rajendra Pujari*
Shivanand Desai Center for Digestive Disorders, Deenanath Mangeshkar Hospital, Erandwane, Pune 411 004, India

Introduction Endoscopic submucosal dissection (ESD) and full-thickness resection (EFTR) have been described as treatment modalities for mucosal and sub epithelial lesions in the gastrointestinal tract, especially esophagus, stomach and rectum. Endoscopic resection of duodenal lesions is considered technically challenging due to peculiar anatomy and thin duodenal wall. This report our series of duodenal lesions resected endoscopically.
Methods Sixteen consecutive patients were diagnosed to have duodenal lesions on esophagogastroduodenoscopy (EGD) over a six-year period (2010–16). Preprocedure radial endosonography was performed in all to identify layer of origin. All patients underwent endoscopic resection of the lesion by either EMR, ESD or EFTR.
Results N=16, 13 males, mean age: 60 years (36–85). Twelve (75 %) lesions were located in duodenal bulb and 4 in descending duodenum. Layer of origin - mucosa-10, submucosa-5, muscularis propria-1 (on radial EUS). EMR was performed in six (37.5 %), ESD in 7 (43.8 %) and EFTR in 3 (18.8 %). EFTR defect was closed using hemoclips in 1 and full-thickness clip in two patients. Two complications were noted (12.5 %), delayed hemorrhage-1 (controlled by hemoclips) and delayed perforation-1 (required surgery). Final histology, neuroendocrine tumor-11, adenoma-2, gastrointestinal stromal tumor-1 and hyperplastic polyp-2. Final HPE showed clear margins in all. Follow up EGD showed no recurrence.
Conclusions Endoscopic resection of duodenal lesions is safe and effective. Complications may be slightly higher as compared to resection in other locations, but can be managed endoscopically.

SI-04

Autoimmune thyroid disease in the first-degree relatives of patients with celiac disease

***Snigdha Soni**, Alka Singh, Vipin Gupta, Pradeep K Chaturvedi, Rajesh Khadgawat, Govind Makharia*
Departments of Gastroenterology and Human Nutrition, Reproductive Biology, and Endocrinology, All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India

Introduction Approximately 7.5 % of first-degree relatives of patients of celiac disease (CeD) develop CeD. Since patients of CeD are at a higher risk for developing other autoimmune disorders; this poses a question that whether their first-degree relatives are also at a greater risk.
Methods A prospective case–control study was carried out at a tertiary care hospital, and we recruited 96 FDRs of CeD patients and 99 age-matched healthy controls. They were screened for CeD using anti-tissue transglutaminase antibodies. The screening for thyroid diseases was done using a symptom questionnaire and estimation of anti-thyroid peroxidase antibodies and serum thyroid stimulating hormone. FDRs were classified as having œthyroid autoimmunity if anti-TPO was positive (>5 IU/mL), or having œthyroid dysfunction if TSH levels were higher than 4.92 mU/L.
Results The prevalence of thyroid autoimmunity in FDRs was significantly higher compared to healthy controls (p=0.0442). FDRs also had higher serum TSH values compared to controls (p=0.09). 14.2 % (11/77) of FDRs seropositive for CeD, 3 had co-existent thyroid autoimmunity and 2 had associated thyroid dysfunction. Amongst those with thyroid autoimmunity (14/96), four had symptoms (28.5 %) but only one out of these symptomatic FDRs was positive for celiac serology. Three of the FDRs (30 %), who had only thyroid dysfunction, were symptomatic for thyroid disease.
Conclusions FDRs of patients with CeD have almost a 3-fold higher risk of developing autoimmune thyroid disorders. This association can be attributed to a common genetic background/environmental factors. The dataset suggests that FDRs of patients with CeD should also be screened for autoimmune thyroid disease.

SI-05

Comparison between magnetic resonance enterography and computed tomographic enterography in patients with inflammatory bowel disease, especially Crohn's disease: A retrospective observational study from a tertiary referral cente

***Harshad Joshi**, Philip Abraham, Anand Joshi, Tarun Gupta, Devendra Desai, Nirad Mehta*
P D Hinduja National Hospital and Medical Research Centre, Veer Savarkar Marg, Mahim, Mumbai 400 016, India

Rationale Crohn's disease is a chronic inflammatory disease affecting small and large bowel with complications like stricture, fistulae and abscesses. Strictures can be inflammatory or fibrotic. Studies have shown that magnetic resonance enterography (MRE) may be superior over computed tomographic enterography (CTE) in identification of inflammatory process.
Objectives To understand efficacy of MRE over CTE in differentiating inflammatory from fibrotic strictures and correlate with level of inflammation.
Methods Thirty patients, diagnosed as Crohn's disease who had undergone CTE and MRE, within 30 days of each other using the standard protocol were analyzed. Clinical data (active in remission), inflammatory markers (CRP, fecal calprotectin). A modified Girometti score for assessment of severity of inflammatory activity based on MRE findings was applied in each patient and patients were grouped into no activity (score 0–2), mild activity (2–6 score) and severe activity (score >7).
Result and analysis Mean age of patients was 48 years with male predominance. Ten out of 30 patients had strictures reported on CTE, but MRE showed only 3 out of these 10 were likely fibrotic. Patients with active clinical disease and increased inflammatory markers had more consistent abnormal findings on MRE than CTE (80 % vs. 40 %). Modified Girometti score correlated well with CRP.
Conclusion MRE scores over CTE in differentiating inflammatory versus non inflammatory strictures. Modified Girometti score can be useful in objectively assessing MRE activity of severity in Crohn's disease.

SI-06

Spontaneous intramural hematoma of small intestine (SIHSI) -A report of two cases

***M A Arvind**, R S Arun, George Eapen, Ashok Chacko*
Institute of GI and Liver Diseases, Madras Medical Mission, 4/A, Dr J Jayalalitha Nagar, Mogappair, Chennai 600 037, India

We present 2 cases with a rare cause of acute small intestinal obstruction namely intramural small intestinal hematoma secondary to anticoagulant therapy.
Case 1 Mrs T a 62-year-old female presented with acute onset, periumbilical abdominal pain and vomiting. She was on warfarin 10 mg OD for idiopathic DVT. On examination there was generalized abdominal distension and periumbilical tenderness. Her INR was 8.9.
Case 2 Mr B, 52-years-old male presented to emergency department with severe periumbilical abdominal pain and bilious vomiting for 3 days. In the past he had aortic valve replacement surgery and was on Warfarin. On examination there was abdominal distension and periumbilical tenderness. INR at admission was 9.
Discussion We report 2 cases with a rare cause of acute small intestinal obstruction namely spontaneous intramural hematoma of small intestine

secondary to anticoagulant therapy. Diagnosis was made based on significant INR elevation and findings on CT scan abdomen. Endoscopy images of small bowel in case 1 helped in the diagnosis. Both patients recovered with conservative therapy. To the best of our knowledge, this is the first case report showing endoscopy images and histology of small bowel in a patient with SIHSI treated conservatively. A high index of suspicion is needed to make the diagnosis and avoid unnecessary surgery.

SI-07

Long acting Octreotide is effective for gastrointestinal bleeds from vascular malformations : A case series

M A Arvind*, R S Arun, Nageshwar Rao, Ashok Chacko*
Institute of GI and Liver Diseases, Madras Medical Mission, 4/A, Dr J Jayalalitha Nagar, Mogappair, Chennai 600 037, India

Vascular malformations are a frequent cause of small intestinal bleed in patients older than 60 years. Patients who are not fit for invasive procedures and/or have multiple lesions across different segments of small intestine are a group who require pharmacological therapy. We present here 3 cases of vascular malformations related gastrointestinal (GI) bleed who were effectively treated with long acting octreotide,. All 3 of our patients had vascular malformation related GI bleed (GAVE refractory to APC/multiple jejunal and ileal angiodisplasia with SRH on CE in a 84 year male/multiple angiodysplastic lesions in a 96 year lady). Bleeds were significant with need for recurrent multiple transfusions. Important comorbid conditions noted were CKD, cirrhosis, ischemic heart disease and stroke. All patients were treated with long acting release octreotide 20 mg IM per month. After initiation of therapy there was significant reduction in recurrent bleeds and need for packed red cell transfusion. Period of follow up ranged from 3 to 6 months. *Conclusion* Long acting release octreotide 20 mg per month is effective in preventing recurrent GI bleed from vascular malformations of GIT and reducing transfusion requirements.

SI-08

Duodenal tuberculosis diagnosed on endoscopy: Case series

Vishal Sharma, ***Sandeep Lamoria****, Arka De, Somya Agarwal, Brinder Mohan Singh Lamba*
Department of Gastroenterology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India. and Ram Manohar Lohia Hospital, Baba Kharak Singh Marg, New Delhi 110 001, India

Background Duodenums is an unusual site for tuberculosis. The endoscopic diagnosis, traditionally, has been reported to be difficult and older series report that surgery is diagnostic and also provides therapeutic benefit.
Methods Report of presentation, and diagnosis of four cases of duodenal tuberculosis. *Case Series*: Of the four patients, two were males, mean age was 35.25 years. All patients had abdominal pain while three had features of gastric outlet obstruction. All patients had a positive Mantoux while one had healed old pulmonary tuberculosis. Endoscopic findings included ulcerations, nodularity, thickening of folds and narrowing of duodenal lumen. Endoscopic diagnosis was possible in all but required two attempts in two patients with use of well technique (biopsy on site of previous biopsy). None of the patients had HIV. Histology revealed epithelioid granulomas in all patients with no AFB positivity. All patients were treated with standard four drugs (HRZE) daily anti-tubercular therapy (ATT) for two months followed by two drugs for four months. Only one patient needed endoscopic dilatation when the symptoms of gastric outlet obstruction did not improve after one month of ATT.
Conclusion Use of well biopsy technique may help achieve endoscopic diagnosis in duodenal tuberculosis. Patients respond well to the usual ATT while some patients need dilatation.

SI-09

MR enterography as the emerging imaging modality for small-bowel diseases

Ravi Chaudhary
Medanta The Medicity Hospital

The cross-sectional imaging techniques are noninvasive means of evaluating of small-bowel diseases and their role in current scenario is ever increasing. Role of magnetic resonance (MR) enterography in the evaluation of Crohn's disease is well described in the literature. In addition, MR enterography has an important though less well documented role to play in the evaluation of other small-bowel diseases, including various benign and malignant neoplasms, inflammatory conditions such as vasculitis and treatment-induced enteritis, infectious processes, celiac disease, diverticular disease, systemic sclerosis, and bowel duplication. MR enterography is useful for the evaluation of intermittent and low-grade small-bowel obstructions. Advantages of MR imaging over computed tomography (CT) for enterographic evaluations include superb soft tissue resolution, lack of ionizing radiation, multiplanar and multiphasic imaging capabilities, and use of relatively safe intravenous contrast media. Limitations of MR enterography in comparison with CT include higher cost, less availability, more variable image quality, and lower spatial resolution.

SI-10

Ileocecal thickening on computed tomography: Relevance in India

Amit Kumar, *Surinder S Rana, Puneet Chhabra, Vishal Sharma, Ritambhra Nada, Naveen Kalra, Rajesh Gupta, Usha Dutta, Deepak K Bhasin*
Departments of Gastroenterology, Pathology, Radiology and General Surgery, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Introduction Clinical significance of ileocecal thickening on computed tomography (CT) is uncertain.
Aim To determine clinical relevance of ileal and/or cecal thickening on CT.
Methods All patients with ileocecal thickening on CT were prospectively evaluated with colonoscopy, biopsy and other relevant investigations.
Results Fifty patients (29 males, mean age 36.8±13.21 years) were studied. Thirty-nine (78 %) patients had abdominal pain, 14 (28 %) subacute abdominal obstruction, 22 (44 %) fever, 15 (30 %) diarrhea and constipation each and 5 (10 %) had rectal bleeding. On CT 46 (92 %) had thickened terminal ileum, 25 (50 %) cecum, and 21 (42 %) of both cecum and ileum. Final diagnosis was tuberculosis in 24 (48 %) patients, Crohn's disease (CD) in 10 (20 %) and adenocarcinoma in 1 patient. On colonoscopy, 9/50 (18 %) patients had normal mucosa with four having normal histology and remained asymptomatic. Remaining 5 patients were diagnosed as tuberculosis (4) and CD (1). The colonoscopic findings in 41 patients were ulcers (20), nodularity (5), mucosal edema (15), polypoidal lesions (3) and ileocecal deformity (4). CT findings did not differ between patients with and without ileocecal pathology. Short or long segment narrowing, degree of thickness, presence of regional or mesenteric lymph nodes, peri-ileocolonic stranding, involvement of the ascending colon and colonoscopic findings had no bearing on the final diagnosis ($p>0.05$). Ileal thickening favored a diagnosis of tuberculosis ($p=0.022$) and cecum with ICJ thickening suggested CD ($p=0.038$).
Conclusion Majority of patients with ileocecal wall thickening on CT have an underlying disease and should be further investigated by colonoscopy.

SI-11

Retrospective analysis of video capsule endoscopy findings in patients with suspected small bowel pathology

***Agnibha Dutta**, Ayusmati Thakur, Sudipta Ghosh, Sujit Chaudhuri*
Department of Gastroenterology, AMRI Hospitals, No. P-4 and 5, C.I.T Scheme, Block-A, Gariahat Road, Dhakuria, Kolkata 700 029, India

Rationale Video capsule endoscopy (VCE) is an important tool for small bowel evaluation in patients with suspected small bowel pathology.
Objective To evaluate the presenting symptoms of patients referred for VCE and to determine outcome of VCE in patients.
Method Patients undergoing VCE in a tertiary care Institute in Eastern India from December 2008 to March 2015 were identified and database reviewed to evaluate presentation and VCE outcome.
Results Total of 196 patients were evaluated. One hundred and fifty-six patients (79.6 %) had some lesion detected by VCE. Forty-two (21.4 %) have lesions definite for CD and 69 (35.2 %) have lesions of suspicious CD. Obscure gastrointestinal bleeding (OGIB) - Overt 20 (10.2 %) and occult 137 (69.9 %) was the commonest presentation. Other presenting symptoms were chronic diarrhea 10 (5.1 %), pain abdomen 28 (14.3 %) and weight loss 1 (0.5 %). Lesions other than CD detected by VCE were NSAID enteropathy 15 (7.7 %), angiodysplasia 9 (4.6 %), portal hypertensive enteropathy 8 (4.1 %), suspected tuberculosis 5 (2.6 %), tumor 4 (2 %) and small gut polyps 2 (1 %). Nine (4.6 %) patients had capsule retention, 1 in esophagus, 5 in stomach and 3 in small gut, all in the final group were subsequently detected to have CD. In the patients with suspected Crohn's disease, 57.9 % patients (n=40) could be followed up, of them 75.3 % (n=31) had a later confirmation of CD.
Conclusion Obscure gastrointestinal bleeding was the commonest reason for referral for VCE and Crohn's disease was the commonest diagnosis in the study population.

SI-12

A retrospective analysis of the clinicopathological profile and treatment outcome of patients with Crohn's disease at a tertiary care institute

*Sujit Chaudhuri, **Ayusmati Thakur**, Agnibha Dutta, Manoj Jain, Sanghamitra Mukherjee*
Departments of Gastroenterology, Radiodiagnosis and Pathology, AMRI Hospital, JC - 16 and 17, Salt Lake City Block-A, Scheme-L11 Salt Lake City, Bidhannagar 700 098, India

Background The clinical presentation, complications and response to therapy in Crohn's disease (CD) are different amongst populations and regions.
Aim To retrospectively study clinicopathological profile and treatment outcome of patients with CD attending the gastroenterology unit of our hospital.
Methods The data of patients with CD attending the gastroenterology unit over a 3-year period (January 2013- January 2016) were analyzed retrospectively. Diagnosis of CD was established by presence of typical segmental bowel involvement, characteristic histological depiction, recurrent nature of disease, exclusion of infectious causes, response to standard therapy and absence of other etiological factor.
Results Amongst 49 patients analyzed, 60 % were males (mean age 46.6 years). The mean (±SD) hemoglobin at first presentation was 10.11 ±1.84 g %. Presenting symptoms were: abdominal pain 36 (73.4 %), diarrhea 15 (30.6 %), gastrointestinal bleeding 12 (26.6 %) and obstruction 5 (11.1 %) patients. Twelve patients (24.4 %) had fever at first presentation. Extraintestinal manifestation seen in 5 patients (11.1 %). The mean (±SD) duration of CD was 2.2±0.6 years. Small bowel involvement seen in 80 % (jejunal in 2), colonic lesions in 8.8 % and ileiocolitis in 11.2 %. Lesions were ulcerating (71.4 %), stricturing (22.4 %) and fistulising (6.2 %). Six patients received prior anti-tubercular therapy without improvement. Mesalamine used in 36 (73.4 %) and azathioprine in 19 (38.7 %) patients. Glucocorticoid therapy needed in 20 %, at least once during treatment. Four patients received infliximab (non-response to standard regimens) and 7 patients (15.5 %) needed surgery (commonest: resection anastomosis).
Conclusions Retrospective analysis of CD at our centre revealed that most of the patients suffered from a severe form of the disease.

SI-13

A study to evaluate the association between chronic proton pump inhibitor therapy and small intestinal bacterial overgrowth using glucose hydrogen breath test

***R Sabari Nathan**, Kani Shaikh, Ratnakar Kini, K Prem Kumar, T Pugazhendhi*
Institute of Medical Gastroenterology, Madras Medical College, Chennai 600 003, India

Introduction Chronic use of proton pump inhibitors (PPIs) credibly been associated with several adverse events but the association between the usage of PPI and small intestinal bacterial overgrowth (SIBO) is controversial. So we used glucose hydrogen breath test to analyze the plausible association between chronic proton pump inhibitor usage and the risk of development of small intestinal bacterial overgrowth.
Aim of the Study Our study is aimed at evaluation of the association between chronic proton pump inhibitor use and SIBO using glucose hydrogen breath test.
Results A total of 34 subjects were included in our study, with 24 cases and 10 controls. Ten patients who are not on PPI served as controls for our study. Among cases, 15 (62.5 %) were females and 9 (37.5 %) were males. Statistical analysis of glucose hydrogen breath test values between groups using independent-t-test showed no significant difference between groups, evinced that occurrence of SIBO was not associated with chronic proton pump inhibitor usage.
Conclusion Our study revealed that there is no association between the occurrence of SIBO and chronic PPI therapy. Considering low sensitivity and specificity of glucose hydrogen breath test as evident in studies, duodenal/jejunal aspirate culture could serve as the gold standard method to diagnose SIBO yielding better result.

SI-14

An unusual case of T cell lymphoma post treatment with multiple autoimmune disorders

*Syed Ibrahim Hassan, **S M Akbar Hassan***
Deccan College of Medical Sciences, Hyderabad 500 058, India

A 26-year-old female was admitted with vomiting and loose motions since 1 month fever with chills and rigors - 2 days. Severe joint and muscle pain treated for T cell lymphoblastic lymphoma with chemotherapy with resolution 6 months back at admission- the patient is conscious coherent emaciated anemic pyrexial with no generalized lymphadenopathy, no sternal tenderness, bilateral pitting edema present P/abdomen- Nad.
Investigations CBP Hb 7.2 g %, total count 12,400, DC- n-54, L-42, E-1, B-1, stool for occult blood+LFT- S.bilirubin 3 mg %, conjugated 1.8; SGOT 56; SGPT 67; ALP 178, S protein 6.1 g % albumen 2.2, glob 3.9 CT abdomen- dilated bowel loops upto rectum with normal pericolic fat planes UGIE- candidial esophagitis, gastritis with attenuated duodenal folds. Colonoscopy-superficial ulcerations with mucosal congestion and edema LE cell phenomenon +, ds DNA +, ANA+++, D2 biopsy- celiac disease. Diagnosis- celiac crisis,T cell lymphoblastic lymphoma in remission. SLE, esophageal candidiasis with erosive esophagogastritis, ulcerative pancolitis, acute autoimmune hepatitis, iron deficiency anemia. Treatment- patient was

kept NBM and given Inj cefotaxime BID, inj metronidazole TID, inj fluconazole 100 mg OD, mesalamine 1.2 g. OD, Inj dexamethasone 1 cm^3 8th hourly. Tab UDCA 300 mg bid, human albumen 20 % corrected to 3.5 g, fresh blood transfusion given 2 units, tab fruselac once daily. Follow up-patient started to improve and from 5th day oral fluids were started. From the 7th day veg diet without milk started. By 15th day she becomes normal and was discharged on maintainence treatment.

SI-15

Clinical profile and outcome of patient with obscure gastrointestinal bleed

***Ashish Hota**, Surinder S Rana, Amit Kumar, Vishal Sharma, Ashish Bhalla, Sushil Kumar, Naveen Kalra, B R Mittal, Rajesh Gupta, Deepak K Bhasin*
Departments of Gastroenterology, Internal Medicine, Radiology, Nuclear Medicine and General Surgery, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background Data on clinical profile and outcomes of obscure gastrointestinal bleeding (OGIB) in India is miniscule.
Aim Prospective study of patients with OGIB from northern India and evaluation of diagnostic yield of various endoscopic and radiological investigations and clinical outcomes.
Methods Thirty-one consecutive patients (mean age 52.8±17.5 years) with OGIB with negative upper gastrointestinal endoscopic and colonoscopic examinations. These patients underwent CT enterography, capsule endoscopy, technetium RBC scanning, angiography etc. depending upon the treating clinician's discretion.
Results Of 31 OGIB patients, 28 (90.6 %) presented with overt and 3 (9.6 %) with occult bleeding. Melena (19 patients, 61.3 %) was the commonest presenting complaint. Use of antiplatelets was the commonest risk factor in 7 (22.6 %) and hypertension the commonest (13, 41.9 % patients) co-morbidity. Angiodysplasia was the most common cause in 5 (16.1 %) patients, followed by small intestinal tuberculosis and Wegner's granulomatosis in 2 (6.4 %) patients each, hookworm infestation and portal hypertensive enteropathy in 1 each (3.2 %). In 3 (9.6 %) patients etiology was not established. The diagnostic yield of capsule endoscopy was 11/13 (78.5 %), RBC scan 12/18 (66.6 %), CT enterography 2/4 (50 %) and with CT angiography yield was 4/12 (33.3 %). Twenty-two (70.9 %) patients were managed medically, 3 (9.7 %) endoscopically and 6 (19.4 %) surgically. During follow up 3 (9.6 %) patient succumbed to their illness with causes unrelated to gastrointestinal bleed.
Conclusions Apart from angiodysplasia and vasculitis, causes specific to tropical countries like worm infestation and tuberculosis must be considered in evaluation of OGIB in India.

SI-16

Correlation of vitamin D levels with disease activity in Crohn's disease using Harvey-Bradshaw index and CRP

***Vineet Mishra**, A J Joseph*
Christina Medical College, Vellore 632 004, India

Background and Objective Western studies show around 65 % of patients with Crohn's disease have low vitamin D concentrations. Data is scarce from India. We conducted this study to observe correlation between vitamin D levels and disease activity (measured by HBI and CRP). We also observed jejunal involvement, arthralgia, blood counts, serum albumin levels and use of immunomodulators.
Methods All patients with Crohn's disease were taken from hospital database and divided into three groups according to vitamin D levels (30 ng/mL group C). Disease character, anatomic distribution, disease activity (measured by HBI and CRP), blood counts, serum albumin levels and use of immunomodulators were assessed among the groups and compared.
Results One hundred and ninety-one patients with Crohn's disease were studied. One hundred and thirty-eight patients were deficient and 35 patients had insufficient vitamin D levels. There were significant differences between: CRP (group A 25.46±32 mg/L vs. B 8.35±10.23 mg/L and C 9.40±9.5 mg/L), albumin (group A 3.66±1.1 g/dL vs. B 4.27 ±0.65 g/dL), Hemoglobin (group A 11.46±1.99 g % vs. B 12.48±1.92). No significant differences were found within three groups when Harvey-Bradshaw index, platelets, arthralgia, disease character/jejunal involvement, use of immunomodulators were compared.
Interpretation and Conclusion Vitamin D insufficient/deficient group comprised 72 % of the total. CRP was significantly higher in vitamin D deficient group (not translating into higher clinical activity). This study also questions significance of HBI in assessment of disease activity. It also poses question regarding need for novel clinical activity assessment tool that may incorporate vitamin D levels, CRP, serum albumin with/without histological activity.

SI-17

Differential diagnosis of granulomatous ileo-colitis: It is no longer that simple-A case report

A W Zohaib, I Khan, Ganesh C Pai
Department of Gastroenterology, Kasturba Medical College, Manipal 576 104. India

We present a case of granulomatous ileo-colitis (IC), which with its similarities to Crohn's and tuberculosis (Tb) and something œunforeseen was difficult to treat. A 62-year-old woman had undergone laparotomy and biopsy from a painful right iliac fossa (RIF) mass lesion of 2 years under surgical department. The biopsy had revealed granulomas and she was lost to follow up. She presented to us after 6 months with an RIF mass and weight loss. CECT abdomen showed overlapping features of intestinal Tb and Crohn's, with long and short segment strictures of the distal small intestine and œcombs sign. Colonoscopy, showed pseudo polyps in the rectum, ascending colon and cecum with ileocecal valve involvement, tilting the balance towards Tb. However, the biopsy revealed small, scattered granulomas and cryptitis suggestive of Crohn's. She was started on Pentasa, with poor response. Mycobacterium Tb was isolated from culture, thus started on standard first line ATT, but with no relief in symptoms. A repeat colonoscopy at 3 months showed most of her lesions had healed and the biopsy showed no granulomas or cryptitis. However, the culture was surprisingly positive for Mycobacterium Tb. Culture sensitivity was suggestive of R Tb. Kanamycin based modified ATT was initiated. Though her symptoms improved, she developed tinnitus and sensorineural hearing loss suggestive of Kanamycin induced oto-vestibulotoxicity. As per the patient's wish and consent, modified-ATT was continued with regular ENT follow up. This case raises the question whether drug resistance testing should be at the forefront in treatment of intestinal Tb.

SI-18

Collagen spray in peptic ulcer bleed

*V G Mohan Prasad, **M Shujaath Asif**, Madhura Prasad, K V K S N Murthy, Mithra Prasad, Vishwanath Reddy, Gokul Kruba Shanker, C S Thyagaraj, Vadiraj Hunnur, Anand Bharathan, G Vadamalainathan, Praveen M Patil*
VGM Hospital, 2100, Trichy Road, Coimbatore 641 005, India

Aim To demonstrate collagen spray as an endoscopic hemostatic agent in a series of cases with peptic ulcer bleed.
Methods In this case series, endoscopic collagen spray, VGM's Hemoseal spray has been used in the treatment of peptic ulcer bleed, as a single agent or in combination with other agents. Hemoseal Spray Kit consists of air pump, Hemoseal probe, a 7.5 Fr spray catheter, 230 cm in length and a pre-loaded collagen cartridge that contains 5 g of powder. A maximum of 2 g is applied depending on the area to be covered.
Results This is a case series of nine patients, who presented with peptic ulcer bleed. There were eight patients with duodenal ulcer and one patient with gastric ulcer. The bleeding ulcers were Forrest classification Ib in eight patients. Collagen spray was used in combination with injection epinephrine in most patients. The bleeding stopped within seconds in all the patients. Repeat endoscopy after 48 h showed no rebleed. There were no side effects experienced by the patients. One patient had an arterial spurt from duodenal ulcer. Collagen spray was used initially as there was poor visibility. Once the bleed stopped, the vessel was visualized and hemoclipping was done.
Conclusion Collagen spray is a safe and effective endoscopic hemostatic agent in treatment of peptic ulcer bleed.

SI-19

Lupus enteritis: Unusual cause of acute abdomen

Rajendra S Gunjal
Department of Medical Gastroenterology, Superspeciality Block, Government Medical College, Trivandrum 695 011, India

Introduction Lupus enteritis is a rare manifestation of systemic lupus erythematous and is considered as a form of visceral vasculitis involving predominantly the jejunum and ileum, with subsequent submucosal edema [1]. Clinical presentation is nonspecific with focal or diffuse abdominal pain, vomiting, diarrhea, and fever. Even if there is no pathognomonic imaging feature of lupus enteritis, computed tomography may be suggestive. Typical computed tomography features that have been reported are bowel wall thickening ("target sign") (Fig. 1) with abnormal bowel-wall contrast enhancement, dilatation of intestinal segments, and engorgement of mesenteric vessels ("comb sign").
Case Report A 34-year-old woman was admitted to Medical Gastroenterology Ward, Trivandrum with an acute history of diffuse abdominal pain, vomiting, diarrhea and asthenia. Complete blood count revealed leukopenia (3.3 %) and anemia (hematocrit 27.7 %). Emergency abdominal ultrasound revealed an uncommon aspect of diffuse edema of the jejunum and mild ascites. Abdominal computed tomography confirmed a diffuse jejunal wall thickening with intense bowel wall contrast enhancement ("target sign"). Thoracic ultrasound showed mild pleural effusion. An upper endoscopy showed normal study. The histologic and microbiological samples were normal. At the same time, the patient developed rapidly progressive renal failure, from a serum creatinine at 1 mg/dL at baseline up to 4 mg/dL. She also developed a rash over the cheeks. Autoimmunity screening was positive for ANA, AntiSM antibody and antids DNA antibody and complement consumption. Diagnosis of systemic lupus erythematosis with lupus enteritis was retained. She had not given the consent for renal biopsy. We initiated treatment with intravenous methylprednisolone pulses (1000 mg/d) for 3 days followed by 1 mg/kg/d of prednisone and 3 g/d of mycophenolate mofetil. Under this regimen, digestive symptoms resolved quickly within 5 days and renal failure improved progressively with a serum creatinine of 1 mg/dL at day 8.

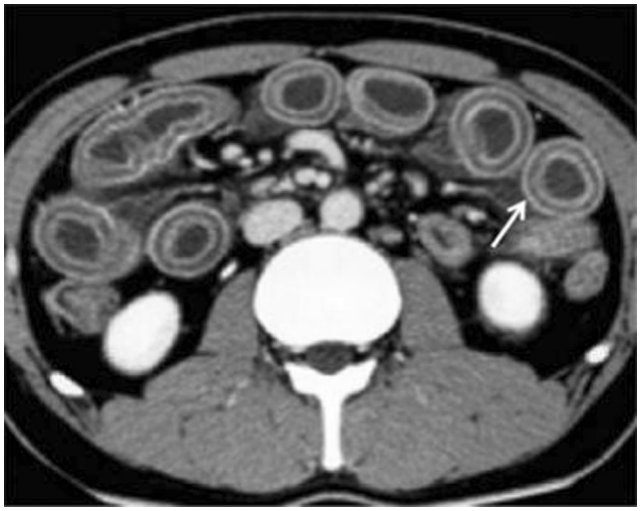


Fig. 1: Contrast-enhanced CT scan of abdomen showing diffuse circumferential bowel wall thickening in the small intestine with the target sign (white arrow)

Discussion The term lupus enteritis has been coined to describe a spectrum of intestinal inflammatory lesions in SLE. Even if lupus enteritis has been rarely described as the first presentation of systemic lupus erythematous, it is reported as a challenging diagnosis in such cases [2, 3]. Lupus enteritis occurs in up to 53 % of SLE patients [4]. Lupus enteritis is a potentially severe complication of SLE, stressing the need for swift diagnosis and adequate management. In a recent review of literature by Janssens et al. [3] on 150 patients of lupus enteritis revealed abdominal pain (97 %) as the most common symptom followed by vomiting (42 %), diarrhea (32 %) and fever (20 %). 7 % had complications in the form of intestinal necrosis or perforation, yielding a mortality rate of 2.7 %. Untreated cases may evolve to intestinal necrosis and perforation leading to death. If lupus enteritis is suspected, a screening with computed tomography remains necessary. Adding with this an excellent steroid responsiveness, timely diagnosis becomes primordial for the adequate management of this rare entity.
Acknowledgment To the patient and their family members who showed interest and gave permission for publication of their case.
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SI-20

Effect of Hypoxia on gut immunity: Development of countermeasure for gastrointestinal tract inflammation

Kunjan Khanna, *K P Mishra, Lilly Ganju, Shashi Bala Singh*
Defence Institute of Physiology and Allied Sciences, Lucknow Road, Timarpur, New Delhi 110 054, India

The present study was proposed to elucidate the effect of hypobaric hypoxia on gut immunity and development of countermeasures to prevent the gut inflammation. Sprague Dawley rats were exposed to simulated high altitude

hypoxia at 7620 m for 1 day, 3 day, 5 day and 7 days at 25±1 °C. The damage in gut wall and hypoxia inducible factor 1 alpha (HIF-1α) expression was determined by histopathology. Gut lavage was collected and determined for sIgA, and proinflammatory mediators *viz* TNF-α, IL-1 β and IL-6 by ELISA. Peyer's patches were isolated for determination of lymphocyte subsets such as CD4T Cell, CD8 T cell, NK Cell and γδ T cell by flow cytometry. An *in vitro* intestinal epithelial cell line model for inflammation was established to develop countermeasures for treatment of inflammation in gut. Cells were treated with LPS and andrographolide, supernatant was collected for IL-1 β ELISA and NO assay, whole cell lysates were prepared for western blotting of Nalp-3 pathway. The results indicated that Hypobaric hypoxia exposure causes damage to the gut wall as the morphology of intestinal wall was exfoliated with disorganized and incomplete villi after 7 days of Hypoxia exposure. HIF-1α expression was found to be maximum on the 7th day of Hypoxia exposure. There were increased sIgA and inflammatory cytokines in gut lavage for initial 3 days and subsequently the level of these inflammatory mediators reduced however sIgA level was significantly upregulated on day 1, 3 and 7 of exposure as compared to unexposed control rats. Analysis of the peyer's patch lymphocytes indicated that NK cells were significantly increased while Naïve T-cells were significantly decreased on exposure to hypobaric hypoxia for 7 days. Under the countermeasure development, we found that andrographolide significantly reduced the inflammatory cytokines and transcription factor NF-kB in LPS induced intestinal epithelial cell line IEC-6. This study clearly indicated that high altitude hypoxia causes inflammation in the gut and it can be curtailed by andrographolide treatment. These results indicated that hypobaric hypoxia affect gut immunity and andrographolide could be a potential immunomodulatory agent to prevent the hypobaric hypoxia induced gut inflammation and mucosal barrier injury.

Large Intestine

LI-01

Marigold and acetic acid-induced colitis: An experimental study in animal model

Tanideh Nader, ***Daneshi Sajad****, Jamshidzadeh Akram, Sepehrimanesh Masood, Hosseinzadeh Masood, Koohi-Hosseinabadi Omid, Najibi Asma, Raam Mozhdeh, Asadi Seyedeh-Leili*
Colorectal Research Center, and Department of Pharmacology, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran , and Young Researchers and Elite Club, Yasuj Branch, Islamic Azad Universit

LI-02

Toxigenic culture and clinical profile of patients with Clostridium difficile infection in a tertiary care center

Meenakshi Singh, ***Chetana Vaishnavi****, Safrun Mahmood, Rakesh Kochhar*
Departments of Gastroenterology, Experimental Medicine and Biotechnology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Clostridium difficile is the primary cause of hospital acquired colitis in patients receiving antibiotics. Pathogenicity of C. difficile is mainly due to production of toxins A and B. We performed toxigenic culture and analyzed the clinical data of patients suspected of C. difficile infection (CDI). Toxigenic culture for C. difficile was performed from fecal samples obtained from 1110 patients. C. difficile isolates from Columbia blood agar were identified by cultural appearance, Gram staining, biochemical tests and molecular investigation. Broth culture supernatants of C. difficile isolates from broth culture were analyzed by enzyme linked immunosorbent assay for toxins A and B. Clinical details of patients were recorded in a pre-printed proforma and analyzed. Of the 1110 cases, 63.9 % were males. The mean age of the patients was 38.7 years. The major antibiotic in use were nitazoxanide (23.9 %), penicillins/penicillin combinations (19.0 %), quinolones including fluroquinolones (13.1 %), carbapenems (11.5 %), glycopeptides (11.0 %) and cephalosporins (8.4 %). Predominant clinical symptoms present were watery diarrhea (56.4 %), abdominal pain (35.3 %) and fever (40.0 %). The underlying diseases were gastrointestinal disorders (52.6 %), cancers (13.2 %), surgical conditions (8.3 %), hepatic disorders (8.0 %), blood disorders (4.5 %), renal disorders (3.6 %), respiratory disorders (3.2 %), neurological disorders (2.4 %), tuberculosis (2.0 %), cardiac disorders (1.3 %) and skin infections (0.8 %). Of 174 C. difficile isolated 54.6 % were toxigenic. All (100 %) patients with surgical conditions had isolates positive for C. difficile toxin followed by patients with cancer (65.2 %) and gastrointestinal disorders (57.1 %). Clinical conditions of the patients correlating with toxigenic culture can be a valuable asset for diagnosis of CDI.

LI-03

NUDT15: A novel biomarker for thiopurine induced toxicity in Indian patients

Swarup A V Shah*, Minal Paradkar, Devendra Desai, Tester F Ashavaid*
Research Laboratories, Departments of Gastroenterology, and Biochemistry, P D Hinduja National Hospital and Medical Research Centre, Mahim, Mumbai 400 016, India

Background and Aim Inter-individual variation seen in the thiopurine metabolism is attributed to the genetic variant in Thiopurine methyltransferase (TPMT) gene leading to myelosuppression. In Asians, the thiopurine-induced toxicity is not completely explained by TPMT variants. Literature indicates that a newer genetic variant in nucleoside diphosphate-linked moiety X-type motif 15 (*NUDT15*) gene is associated with thiopurine intolerance. We aimed to determine the risk allele frequency of *NUDT15* genetic variant and it's association with thiopurine-induced toxicity in Indian patients. We also intend to determine whether *TPMT* or *NUDT15* or both can better predict thiopurine toxicity in Indian patients.
Methods In this study, 69 patients on thiopurine therapy were analyzed. The frequencies of thiopurine-induced leukopenia were recorded. *NUDT15* (C415T) and *TPMT* (*2, *3A, *3B and *3C) genotyping were performed using Amplification-refractory mutation system–polymerase chain reaction and restriction fragment length polymorphism technique. Results were validated by DNA sequencing.
Results The *NUDT15* CC, CT and TT genotypes were found to be 86.9 %, 11.5 % and 1.5 % respectively, whereas *TPMT* genetic variants were absent. Of the 60 patients without *NUDT15* variant, none developed leukopenia, whereas out of 9 patients with *NUDT15* variant, 6 developed leukopenia. (p value <0.0001). The mean thiopurine dose of 1.01 mg/kg/day and 0.73 mg/kg/day for patients with wild and mutant *NUDT15* alleles respectively was statistically significant (p<0.01). The sensitivity and specificity for *NUDT15* variant were 100 % and 95.2 % respectively.
Conclusions The study findings have for the first time shown a strong association of *NUDT15* genetic variant with the risk of developing thiopurine induced toxicity in Indians. Hence *NUDT15* genotyping should be considered before thiopurine therapy in Indian patients, which eventually would help the clinicians to effectively manage patients on thiopurine therapy, thereby decreasing the incidences of adverse toxicity.

LI-04

Identification of miRNAs profiling in ulcerative colitis

Avinash Bardia*, Sandeep K Vishwakarma, N Raju, Chandrakala, B V S Sastry, G Shravani, Aleem Ahmed Khan, Md. Aejaz Habeeb*

Centre for Liver Research and Diagnostics, Deccan College of Medical Sciences, Kanchanbagh, Hyderabad 500 058, India, and CSIR-Centre for Cellular and Molecular Biology (CCMB), Habsiguda, Hyderabad 500 007, India

Introduction Ulcerative colitis (UC) is thought to be an autoimmune condition. However, the pathogenesis of UC still remains enigmatic. MicroRNAs (miRNAs) are important in the regulation of innate and adaptive immunity. miRNAs are involved in key functions in many physiological networks and have been implicated in the pathogenesis of diverse gastrointestinal disorders such as UC. The discovery of miRNAs in UC, will offers a novel way of understanding the disease and will give rise to new therapeutic strategies. Present study aims to analyze the miRNA expression in UC patients and healthy individuals in order to identify new potential miRNA biomarkers in UC.
Methods Blood samples were obtained from 50 UC patients (proctosigmoiditis, left-sided colitis, pancolitis) and 50 healthy volunteers. Serum samples were isolated by centrifugation from total blood. miRNA from each subject was extracted immediately after serum separation by using GITC method, cDNA was prepared. Selected miRNAs (miR-21, miR-155, miR-146, and miR-181) expression levels were quantified by using real time-quantitative PCR based on SYBR-Green.
Results Four differentially expressed miRNAs were identified in UC patients (p<005 UC vs. healthy). Expression levels of miR-21, miR-155, miR-146, and miR-181 were significantly up-regulated in UC compare to control. We compared miRNA expression in various type of UC and found that all miRNAs shared common altered expression which was not statistically significant (p 005).
Conclusion The present study suggests that miRNA levels are up-regulated in patients with UC. Selected miRNAs may serve as new potential biomarkers for UC.

LI-05

Fecal calprotectin and its correlation with disease severity in ulcerative colitis

***Aswath Venkitaraman**, Pazhanivel Mohan, Abdoul Hamide*
Departments of Medicine, and Medical Gastroenterology, Jawaharlal Institute of Postgraduate Medical Education and Research, Dhanvantri Nagar, Gorimedu, Puducherry 605 006, India

Background and Aim Fecal calprotectin (FC) is a useful marker to determine disease severity in IBD. However there are very few studies from India. The present study aimed to quantitate fecal calprotectin levels in patients with active ulcerative colitis and to the correlate it with disease severity using Truelove-Witts and Mayo scoring systems.
Methods A cross-sectional study was undertaken by departments of Medicine and Medical Gastroenterology, JIPMER between September 2014 and June 2016. Colonoscopic biopsy proven ulcerative colitis served as cases and patients without gastrointestinal disease acted as controls. Truelove-Witts and Mayo scoring systems were employed to assess disease activity. FC was measured by quantitative ELISA in both cases and controls. Mann–Whitney U test and Spearman correlation were used for analysis.
Results Of the 50 cases enrolled, 26 were males and 24 were females with a mean age of 36.3. Majority (70 %) had relapses of pre-existing ulcerative colitis. Fecal calprotectin levels in cases (median, 918 g/g; IQR, 86.69 - 3277.35) were significantly greater as compared to controls (median, 19.02 g/g; IQR, 1.16 76.19). FC levels correlated positively with disease activity using Truelove-Witts index (Spearman coefficient=0.901) and Mayo score (Spearman coefficient=0.889).
Conclusion Fecal calprotectin is markedly increased in ulcerative colitis with active disease and can reliably predict disease severity.

LI-06

Correlation of fecal calprotectin, ESR and CRP with Mayo score as a marker of disease activity in ulcerative colitis patients

***Madhur Chaudhary**, Ashish Kumar Jha, Amrendra Kumar, V M Dayal, S K Jha, Amitesh Kumar*
Department of Gastroenterology, Indira Gandhi Institute of Medical Sciences, Bailey Road, Shiekhpura, Patna 800 014, India

Introduction: Endoscopic findings an invasive method, are used for assessing disease activity in ulcerative colitis (UC). Markers like erythrocyte sedimentation rate (ESR), C-reactive protein (CRP) are not sufficiently specific/sensitive. Stool markers such as fecal calprotectin (FCP) and lactoferin are recently being used for assessment of disease activity and to differentiate organic from functional bowel diseases.
Aims and Objective To study the FCP, ESR and CRP as non-invasive markers of severity of UC, and its correlation with disease extent and Mayo score (complete and endoscopic subscore).
Methods A total of 34 patients attending IBD clinic at IGIMS, Patna were included. To assess activity of the disease, the FCP, CRP and ESR were compared with each other and correlated with mayo score and disease extent.
Results In patients with active UC, the FCP > 50 mcg/g, ESR >20 mm and positive CRP were seen in 100 %, 79.41 % and 41.2 % patients, respectively. FCP level significantly correlated with Mayo score (r=0.38. p=0.026), however, CRP (r=0.23, p=.24) and ESR values (r=.17, p=31) were not correlated. FCP correlation was more with Mayo endoscopic sub score FCP (r=.552, p=.011). FCP (r=.20, p=0.49), CRP (r=.17, p=.30) and ESR (r=.11, p=.60) did not correlated with disease extent. FCP level was not correlated with CRP (r=–.06, p =0.71) and ESR (r=0.055, p=0.75).
Conclusion FCP correlated with Mayo score and more strongly with endoscopic sub score. FCP level does not correlates with CRP and ESR. None of these markers was correlated with disease extent.

LI-07

Comparison of air, carbondioxide, water insufflation in difficult colonoscopies

***Alisha Chaubal**, Ruchir Patel, Kaivan Shah, Meghraj Ingle, Prabha Sawant*
Department of Gastroenterology, Lokmanya Tilak Medical College and General Hospital, Sion, Mumbai 400 022, India

Unsedated colonoscopy has the advantage of avoiding anesthetic complications. Difficult colonoscopies i.e. involving individuals with thin habitus (BMI <18 kg/m^2), obese habitus (BMI >30 kg/m^2) or post abdominal surgery cases often require anesthesia. We prospectively studied the use of air, carbon dioxide and water insufflation in difficult colonoscopies. One hundred and eighteen patients were randomized to insufflation by air, carbon dioxide or water during colonoscopy over a period of 1 year. The primary end-points were pain (using visual analogue scale - VAS) at rectosigmoid junction, splenic flexure and hepatic flexure and cecal intubation times. The secondary end-points were loop formation, need for pressure and need for change of position. The VAS score at rectosigmoid junction was 6.38, 5.88 and 4.2, at splenic flexure was 5.82, 5 and 3.64, at hepatic flexure was 3.54, 3.13 and 2 for air, carbondioxide and water respectively (p<0.001 using ANOVA). The cecal intubation times were 22.13 min, 20.71 min and 17.64 min for air, carbondioxide and water respectively (p=0.029 using ANOVA). Loop formation was seen in 86 %, 94 % and 47 %; need for pressure was seen in 55 %, 38 % and 13 %; need for change in position was seen in 82 %, 100 % and 93 % with air, carbondioxide and water insufflation respectively. Based on our observation use of water insufflation was significantly better than air or

carbondioxide for patient pain tolerance but the caecal intubation time did not significantly vary between the three groups.

LI-08

Acute hypersplenism in a patient with colon rupture and acute diverticulitis

Irene Christodoulou, *Dimitra Gonezou, Georgios Dounias, Ioannis Tsakiridis, Nikolaos Peitsidis, Fani Tsiompanou, Grigorios Pagonis*
2nd Surgical Department, G Papanikolaou Hospital, Thessaloniki, Greece

Objectives This is a case of interest due to the unexpected finding of hypesplenism in a patient who was operated urgently for colon rupture due to acute diverticulitis.
Methods A 50-year-old man with high fever, mild pain in abdomen palpation, and a profound diverticulitis in computed tomography was admitted and treated with a conservative treatment for one week. The fever did not improve for 7 sequential days. On the 8th day the patient reported an acute abdominal pain during and after defecation. We noticed a gradual development of hematological disorders, which were fully developed in the period from day 4 to 8 (leukopenia, thrombocytopenia, acute anemia), worsening hepatic function and an unexpected sequence of measurements in procalcitonin levels (0, 12, 7 and 3 ng/mL in days 0, 5, 7 and 8). The patient was operated under the pressure of free air diagnosed in the computed tomography on day 8.
Results The patient was found to suffer from noted splenomegaly and an urgent splenectomy was executed with the scope for curing a possible hypersplenism, as well as a temporary colostomy was executed due to ischemic lesions found in the sigmoid colon. The patient was improved after the operation and all the hematological anomalies were gradually reversed.
Conclusions Acute hypersplenism in acute abdomen from disrupted colon is a very rare phenomenon.

LI-09

Study of histologic, endoscopic, clinical and biochemical parameters in ulcerative colitis

Bubun Kumar Patel, *B Sukanya, N Joshi, Y Ragahvendra, N M Rohit, J Rishabh, R Gaurav, K Ajit*
Department of Medical Gastroenterology and Pathology, Nizam's Institute of Medical Sciences, Punjagutta, Hyderabad 500 082, India

Background Historically, a poor correlation has been reported between histologic findings and activity scores for ulcerative colitis (UC).Aim To study the correlation between histological grading with endoscopic, clinical and biochemical parameters in UC.Methodology Seventy-seven patients of UC underwent colonoscopy with biopsy along with relevant biochemical parameters. Severity was graded as per Truelove (Clinical), Mayo (endoscopic), Geboes and Riley (histopathology scores).
Results Seventy-seven patients (50M:27F) with age 18-67 (mean 38.6 ±14.2) were included. Misclassification between Geboes and Mayo were 41.7 %, 53.8 %, 80.6 % and 9.5 % and between Riley and Mayo were 41.7 %, 77 %, 67.7 %, and 19 % for grade 0, 1, 2 and 3 respectively. There was statistically significant correlation between Geboes and Mayo (r=0.726, p<.0001), Riley and Mayo (r=0.664, p<0.0001) and between Truelove and Mayo (r=0.6264, p<0.0001) Truelove and Geboes (r=0.6041, p<0.0001) and Truelove and Riley (r=0.6194, p<0.0001). Platelets (p<0.0009), ESR (p<0.048), Protein (p<0.026), Albumin (p<0.032) values were significantly different between active and inactive UC patients according to Mayo sub-score. Platelets (p<0.0048), ESR (p<0.0021), protein (p<0.0286) values were significantly different between active and inactive UC patients according to Geboes and Riley score. CRP (p<0.057) was non-significant between active and inactive UC patients according to Mayo sub-score and (p<0.51) between active and inactive UC patients according to Geboes and Riley score.
Conclusion Presence of endoscopic remission does not reflect deep remission where as in severe endoscopic disease, the histology correlates well. Histological grading is higher as compared to endoscopic grading in the same patient. Hence, histologic score in addition to endoscopy may be a better index when scoring disease activity for clinical trials and monitoring response to biologics. Platelets, ESR, protein and albumin too can differentiate, whereas, CRP was unable to differentiate active from inactive UC.

LI-10

Study of predictive factors and clinical implication of deep mucosal healing in ulcerative colitis

Deepak Kumar Gupta, ***Vinit Kahlekar***, *Sangeet Saurav, Nivedita Mane, Swati Kamble, Akash Shukla, Shobna Bhatia*
Department of Gastroenterology, Seth G S Medical College and K E M Hospital, Parel, Mumbai 400 012, India

Introduction and Aim Deep mucosal healing is the goal in treatment of UC that predicts sustained clinical remission and resection-free survival of patients. We did this study to evaluate the incidence, predictors and outcome of deep mucosal healing in ulcerative colitis.
Methods Prospectively patients recently diagnosed with UC or with acute flare were enrolled. Patients were assessed 3 monthly for clinical remission (cessation of bleeding and normal stool frequency), endoscopic healing (Mayo score of<=1) and biopsy for mucosal healing as per Geboes index.
Results Thirty-nine patients (16 men, age 35.3+12.42 years, pancolitis-22, left sided colitis-9, proctitis-8) were followed up for 12 months. Clinical remission was seen in all (18 Mesalamine,19 steroids, 1 Adalimumab and 1 Mycophenolate), endoscopic healing was seen in 30 (76.9 %) within 5.5+/−2.6 months of treatment. Complete mucosal healing was seen in 3 (7.69 %) patients (2 Mesalamine, 1 Azathioprine) and partial mucosal healing in 13 (33.3 %). Severe disease at onset at presentation and pancolitis were associated with lack of mucosal healing. Endoscopic healing was seen in 15/20 (75 %) patients on Melamine and 9/13 (76.9 %) on Azathioprine. Flare was seen in 0/3, 3/13 and 8/23 in complete, partial and no healing groups. Flares were similar in patients with and without endoscopic healing (8/30 vs. 3/9 p=0.692).
Conclusion Deep mucosal healing is seen in small group of patients inspite of clinical remission which was seen in 100 % and endoscopic remission in 76 % of patients.

LI-11

Iohexol permeability as a marker of gut permeabilityusing computerised tomography: A feasibility study

Usha Dutta, *Arun Veerabhadraiah, Anandita Sinha, Rizwan Ahamed, Ajay Gulati, N Khandelwal, R Kocchar*
Department of Gastroenterology, Post Graduate Institute of Medical Education and Research, Sector 12, Chandigarh 160 012, India

Background Leaky gut plays a key role in the pathogenesis of inflammatory bowel disease. HPLC based methods in use are cumbersome and expensive.
Aim To determine the feasibility of using urine ioxehol estimation with computed tomography as a marker for gut permeability.
Methods Ioxehol was serially diluted in saline to obtain increasing concentrations of iohexol from 0 % to 32 %. The stack test tubes containing varying concentrations were placed under a CT scanner (80 mA and

1.2kv) to determine the hounsfield units in a 10 ml solution. Averages of 3 readings were obtained over 1 cm 2 area. Subsequently three patients of IBD were studied and their urine Iohexol levels were estimated after oral Iohexol administration and urine collected at specified intervals. Colonoscopy was done to determine the extent of disease. Statistical analysis was done to determine the relationship between urine iohexol concentration and HU.
Result Serial dilution of iohexol revealed that increasing concentrations of iohexol correlated linearly with increasing values of HU (y=248+8 161, R2=0.968). The lower detection limit was 2 %. Three patients with left sided colitis showed increased urine iohexol levels. The timing and amount of iohexol detection in the urine was related to the site and severity of inflammation respectively. Baseline HU in urine increased from 1.9 ±5.6 to 30.8±5.7; 3.9±5.8 to 12.7±4.7 and 2.5±4.3 to 27.3±12.7.
Conclusion Ioxehol estimation in the urine using CT is a feasible and novel method to study gut permeability.

LI-12

Overlap between functional dyspepsia (FD) and irritable bowel syndrome (IBS) in a tertiary care hospital

Saikrishna Katepally*, P Shravan Kumar, M Umadevi, M Ramanna*
Department of Gastroenterology, Gandhi Hospital, Secunderabad 500 025, India

LI-13

Risk factors and clinicopathological correlation of inflammatory bowel disease

Suhas Udgirkar*, Samrat Kolekar, Anjali Amarapurkar, Pravin Rathi, Sanjay Chandanani, Vinay Pawar, Nikhil Sonthaliya, Ravi Surude, Q Contractor*
Department of Gastroenterology, Topiwala National Medical College and BYL Nair Charitable Hospital, Dr. A L Nair Road, Mumbai 400 008, India

Background and Aims In developing nations in which inflammatory bowel disease (IBD) is emerging, ulcerative colitis (UC) typically is more common than Crohn's disease (CD). The aim of this study is to analyse risk factors for IBD and study histopathological features of IBD.
Methods This is comparative observational study. Total 200 cases of IBD including both UC and CD included. Endoscopy of all cases was done. Biopsy processed with haematoxylin and eosin stain.
Results Majority 63 (31.5 %) were between (29-38) age group, youngest aged 19 years and eldest 73 years.123 (61.5 %) males and 77 (38.5 %) females. There were 180 (90 %) cases residing in urban areas while 20 (10 %) residing in rural areas. IBD was more common in professionals 80 (40 %) than in 53 (26.5 %) unskilled workers and 67 (33.5 %) unemployed cases. Diarrhea (196) and per rectal bleeding! (195) were most common presenting symptoms.. Among 193 cases of UC, 107 (55.4 %) had left sided involvement of colon, 57 (29.5 %) had pancolitis, 24 (12.4 %) had proctitis while 5 (2.5 %) had patchy involvement. Among 7 cases of CD, 3 (42.8 %) had involvement of ileum, 3 (42.8 % had ileocolic and 1 (14.2 %) had involvement of colon, presented with fistula.In UC, inflammation was mild in 5 (2.5 %), moderate in 134 (69.4 %), severe in 54 (27.9 %) cases. On histopathology, lymphocytes and plasma cells present in 190 (98.4 %), lymphoid aggregates in 142 (73.5 %) cases and basal plasmacytosis in 117 (60.6 %) In Crohn's, inflammation was moderate in 5 (71.4 %) cases and was severe in 2 (28.6 %) cases. In CD all cases (100 %) showed presence of inflammatory cells and lymphoid aggregates present in 3 (42.8 %) case, CMV was present in only 2 (1.0 %) cases, dysplasia was present in 3 (1.5 %) cases while even a single case had not showed presence of granuloma.
Conclusion The association between IBD and control group with the area of residence, educational status and occupation was found to be statistically significant (p value <0.05). Histopathological features in UC were: polypoidal configuration of surface epithelium, lymphoplasmacytic infiltrate in lamina propria, lymphoid aggregate, basal plasmacytosis, cryptitis, crypt abscesses, crypt distortion and reduction of gob. There were 2 cases with CMV inclusions and low grade dysplasia was found in 3 cases.

LI-14

Fecal calprotectin as a diagnostic marker in patients with diarrhea - A western perspective

Prateik Poddar*, Meghraj Ingle, Dhaval Choksi, Alisha Chaubal, Nirav Pipaliya, Vikas Pandey, Prabha Sawant*
Department of Gastroenterology, Lokmanya Tilak Municipal Medical College, Dr. Babasaheb Ambedkar Road, Sion (West), Mumbai 400 022, India

Fecal calprotectin has been evaluated worldwide as an important and valid marker for ulcerative colitis. Some studies have found it to correlate better with histological activity than endoscopy. Calprotectin is a marker of neutrophilic infiltration and inflammation. Compared to the western world, our population in India has a greater incidence of abdominal tuberculosis and tropical sprue for which Calprotectin has never been evaluated. We performed an observational cross-sectional study on patients presenting with diarrhea. A total of 84 patients were studied over a period of one year. Forty-two of the patients presented to us with diarrhea. A similar number of age and sex matched control population was taken. We found that Calprotectin levels were significantly higher in patients with ulcerative colitis compared to controls (mean value 802 mcg/g). Calprotectin levels were higher in patients with higher mayo score, endoscopic severity and histological activity compared to those with mild disease. Patients with tropical sprue also had a higher Calprotectin levels compared to the control population (mean value 98.7 mcg/gm). Ileo-cecal tuberculosis patients also showed higher Calprotectin levels compared to the controls (mean value 116.5 mcg/gm). Patients with irritable bowel syndrome had normal Calprotectin levels. We conclude that fecal Calprotectin is an important marker for assessing severity of ulcerative colitis. It is notable that the levels were raised even in tropical sprue and ileo-cecal tuberculosis which forms a unique patient population in our country. Further studies are warranted in this regard.

LI-15

Anemia in patients of ulcerative colitis in clinical remission

Alisha Chaubal*, Prateik Poddar, Dhaval Gupta, Meghraj Ingle, Prabha Sawant*
Department of Gastroenterology, Lokmanya Tilak Medical College and General Hospital, Dr. Babasaheb Ambedkar Road, Sion West, Mumbai 400 022, India

Anemia is a complication of active ulcerative colitis. In clinical remission it is due to chronic disease, medications, micronutrient deficiency or other causes.
Aims of our study were to evaluate the causes of anemia in patients with ulcerative colitis and effect of iron correctional therapy in patients with iron deficiency anemia. We prospectively performed a one-year study including all ulcerative colitis patients in remission attending the outpatient department of our hospital. Anemia was defined as hemoglobin level less than 12 g/dL in women and 13 g/dL in men. Fifty-two patients (males −16, females −10) with ulcerative colitis in clinical remission were

studied. Of these 50 % were found to have anemia. The causes for anemia were iron deficiency (77 %), chronic disease (11.5 %), vitamin B_{12} deficiency (7.7 %), drug induced (3.8 %), hemoglobinopathy (3.8 %), myelodysplasia (3.8 %). Patients having ferritin levels <100 mcg/L were 96 %, between 30 and 100 mcg/L were 42 % and less than 30 mcg/L were 54 %. Iron deficiency anemia had a positive correlation with extent of disease and disease activity. Nine patients received intravenous iron (2 intolerance to oral iron, 7- Hb <100 mcg/L) in 96 % cases. Inadequate correction of hemoglobin after 4 weeks treatment with oral iron (1.4 g/dL) as opposed to intravenous iron (2.2 g/dL).

LI-16

Familial aggregation of inflammatory bowel disease in patients of ulcerative colitis

***Akshita Gupta**, Sawan Bopanna, Saurabh Kedia, Dawesh Prakash Yadav, Sandeep Goyal, Saransh Jain,Vineet Ahuja*
Department of Gastroenterology, All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India

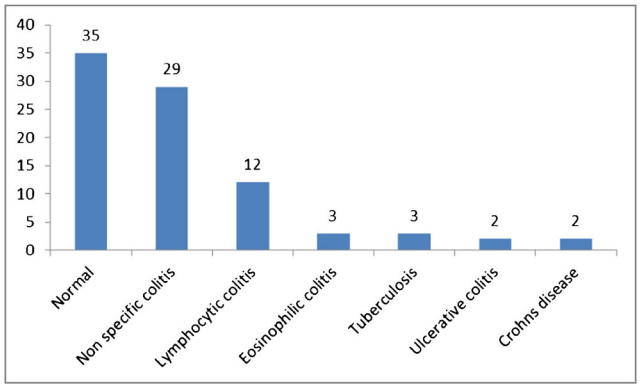
Introduction Familial occurrence of inflammatory bowel disease is well documented. Reports from Western countries have shown a higher familial occurrence of ulcerative colitis (UC) in first and second degree relatives than that in the Asian UC population. No data is currently available from the Indian subcontinent in this regard. We present our data on the familial aggregation of UC.
Methods Records of patients with UC following at the Inflammatory Bowel Disease Clinic at All India Institute of Medical Sciences (AIIMS), New Delhi from August 2004 to January 2016 were reviewed. Details regarding the prevalence of family history and characteristics of these patients were recorded. Affected family members were contacted and disease characteristics were noted for assessment of familial aggregation.
Results Of the 2058 UC patients included in the analysis, a positive family history of IBD was confirmed in 31 patients (1.5 %), of which 24 (77.4 %) patients had only first-degree relatives affected. All the affected relatives had UC and none had CD. Among first degree relatives, siblings were found to have the highest prevalence of IBD (53.3 %), followed by parents (26.7 %).
Conclusion The probability of occurrence of IBD in family members of affected North Indian UC patients is lower than that reported in Western population.

LI-17

Evaluation of chronic large bowel diarrhea by colonoscopy and biopsy

***Sravan Kumar Korrapati**, Varun Karri, L R S Girinadh, Murali Krishna Palakurthy*
King George Hospital, Andhra Medical College, Maharani Peta, Jagadamba Junction, Visakhapatnam Port 530 002, India

Introduction Studies exploring the causes of chronic diarrhea in developing countries are scarce and might not be generalizable from one setting to another. The aim is to study the colonic and terminal ileal macroscopic and mucosal histopathological findings in chronic large bowel diarrhea.
Methods All patients more than 18 years with chronic large bowel watery diarrhea were included. Patients with systemic disorders, bloody diarrhea were excluded. A full length colonoscopy with terminal ileoscopy was done. When the colon was within normal limits, randomly 4 biopsies each were taken from terminal ileum, ascending colon, transverse colon and rectosigmoid region respectively. When there is macroscopic abnormality biopsy was taken from the specific lesion.
Results Total 86 patients were included in the study. Out of 86 patients, 35 patients had normal histology in which colonoscopy was macroscopically normal in 31 patients, 4 patients had non-specific abnormality. Twenty-nne patients had non-specific colitis with normal colonoscopic mucosa in all patients. Out of 12 patients with lymphocytic colitis only 1 patient had mucosal hyperemia on colonoscopy. In patients with diagnosis of eosinophilic colitis and ulcerative colitis 1 each had patchy mucosal edema and hyperemia. Patients who were diagnosed as tuberculosis had edematous and ulcerated IC valve in 2 patients and normal mucosa in 1 patient.
Conclusions The yield of colonoscopy and biopsy in chronic large bowel diarrhea is moderate. Most common cause of chronic large bowel watery diarrhea in the present study is microscopic colitis. Therefore colonoscopy and biopsy is advocated in all patients with chronic of the patient.



Histological diagnosis in patients with chronic watery diarrhea

LI-18

Appendicitis or appendagitis: A diagnostic challenge

***Neeraj Nagaich**, Radha Sharma, Alok Choudhry, Saumya Mathur, Jayant Sharma, Abhinav Sharma, Ila Gupta, Subhash Nepalia, Sandeep Nijhawan*
Department of Gastroenterology, Fortis Escorts Hospital, Jawaharlal Nehru Marg, Malviya Nagar, Jaipur 302 017, India, Department of Gastroenterology, Mahatama Gandhi National Institute of Medical Sciences, Riico Institutional Area, Sitapura, Tonk Road, Jaipur 302 022, India, Metro MAS Hospital, Shipra Path, Near Technology Park, Mansarovar, Jaipur 302 020, India and Department of Pathology, Rajasthan University of Health Sciences, Sector-18, Kumbha Marg, Pratap Nagar, Jaipur 302 033, India

Background Acute epiploic appendagitis is a self limiting disease due to ischemic infarction of an epiploic appendix. Diagnosis is difficult clinically due to the lack of pathognomonic clinical features.
Methods Fifteen patients diagnosed with EA were evaluated and analyzed for demographic factors clinical presentation and diagnostic radiological features. Comparision was also done with data in patients of earlier series reported.
Results Fifteen patients (5 females and 10 males, average age: 43.6 years, range: 24–73 years) were diagnosed with symptomatic EA. Abdominal pain was the leading symptom, the pain being localized in the left (8 patients, 53 %) and right (3 patients, 20 %) lower quadrant. Except two all patients were afebrile, and with the exception of three patient, nausea, vomiting, and diarrhea were not present. CRP was slightly increased (mean: 1.4 mg/DL) in three patients (33 %). Computed tomography findings specific for EA were present in five patients. Gastrointestinal symptoms such as nausea and vomiting were infrequent, and localized tenderness without peritoneal irritation was common. In all cases except two, a pericolic fatty mass with a hyperattenuated ring was observed on computed tomography. Two patients (13 %) with left PEA showed leukocytosis,

Conclusion Epiploic appendagitis was more frequent in males. Abdominal pain was located in the lower quadrant, more predominant in the left than right. EA should be considered. In patients with acute abdomen and localized tenderness without associated symptoms or leukocytosis, a high index of suspicion for PEA is necessary. Preoperative diagnosis may avoid unnecessary surgery.

LI-19

MicroRNAs are differentially expressed in colonic mucosa in patients with ulcerative colitis

Swati, *Raju Ranjha, Saurabh Kedia, Vineet Ahuja, Jaishree Paul*
School of Life Sciences, Jawaharlal Nehru University, New Mehrauli Road, Munirka, New Delhi 110 067, India and Department of Gastroenterology, All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India

Introduction Pathophysiology of ulcerative colitis (UC) is hypothesized to be interplay of microbial, environmental and genetic factors which results in dysregulated immune response. According to recent reports, miRNAs have emerged as crucial regulators of genes involved in the inflammatory pathways.
Hypothesis MiRNAs may be differentially expressed in UC that can modulate the expression of their target mRNAs contributing to the diseased condition.
Methods Colonic mucosal biopsies were collected from UC patients with active disease (n=40) and non IBD controls (n=25). Microarray was done to screen the miRNA profile of UC and controls. The expression level of selected miRNAs was validated by Real time PCR.
Results and Conclusion We found dysregulation of total 15 miRNAs (with a cut off value 1.5), out of which 9 miRNAs were significantly downregulated and 6 were upregulated. miR-223, miR-491 and miR-378d were found to be significantly upregulated in UC patients as compared to controls as confirmed by real time PCR. They were subsequently analyzed using target scans for their possible gene targets in the inflammatory pathways. Further validation is being carried out to see the expression of target genes in the patient samples so as to derive possible biomarkers for the disease development.

LI-20

Emerging role of GABA in pathogenesis of ulcerative colitis

Surbhi Aggarwal *, Saurabh Kedia, Vineet Ahuja, Jaishree Paul*
School of Life Sciences, Jawaharlal Nehru University, New Mehrauli Road, Munirka, New Delhi 110 067, India and Department of Gastroenterology, All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India

Introduction Recent evidences indicate that enteric nervous system (ENS) contributes in gut disorders. Neuropeptides produced by ENS regulate inflammatory process via interaction between ENS and enteric immune system (EIS). Role of GABA has been implicated in autoimmune diseases like multiple sclerosis, type1 diabetes and rheumatoid arthritis where they modulate the immune response to infections but role in ulcerative colitis (UC) has not been defined.
Hypothesis GABA may downregulate p38 MAP Kinase activity to reduce peripheral production of proinflammatory cytokines.
Methods Fifty blood and 40 biopsy samples from UC patients and 28 blood and 25 biopsy samples from controls were collected. ELISA was used for measuring level of GABA in serum of UC and controls. Immunohistochemistry was used for checking the activity of p38 MAP kinase. RT-PCR was done to check the expression of proinflammatory cytokines.
Results and Conclusion We found significantly decreased level of GABA with increased activation of p38 MAP kinase in UC as compared to controls. Further we found increased expression of proinflammatory cytokines in UC as compared to controls. Hence we conclude that insufficient level of GABA in UC fails to downregulate p38 MAP kinase activity which further leads to overproduction of proinflammatory cytokines.

LI-21

A SUMO battle at inflamed gut viscera

Salman Ahmad Mustfa*, Mukesh Singh, Aamir Suhail, Ritika Rampal, Vineet Ahuja, C V Srikanth*
Regional Centre for Biotechnology, 3rd Milestone Gurgaon Faridabad Highway, Faridabad, and All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India

Uncontrolled intestinal inflammation is one of the major causes for development of ulcerative colitis (UC) and Crohn's disease (CD) which share similar symptoms. Activation of aberrant signaling pathways responsible for changing the healthy status of cells into chronically inflamed conditions are not well understood. Other than regulation of gene expression at transcriptional and translational level, post-translation modification (PTM) is a crucial mechanism to rapidly modify the activity of proteins. Among the PTMs, covalent modification by small ubiquitin like modifiers called as SUMOylation, are now being recognized as important modulators of several fundamental processes of the cell. Using a mutlipronged methodology involving cell culture model, mouse model and clinical patient samples, we embarked studies on the role of SUMOylation in CD and UC, particularly in the molecular signaling leading to inflammation. Our investigation reveals that the inflammatory cascade during gut inflammation is tightly linked to SUMOylation status of the epithelial cells. Specifically we found that, experimental perturbation of SUMO pathway resulted in dramatic alteration in the expression of inflammatory genes. This connection was also seen in DSS induced murine model. Interestingly we also saw significant down regulation of multiple SUMO genes including Ubc9, PIAS1 in human biopsy samples. Crucial regulators of inflammation and cell proliferation were found to be under SUMO regulation. In patient samples we observed altered ratios of SUMOylated vs. native forms of NF-kB regulators compared to control samples. Thus our study uncovers a novel role of SUMOylation in IBD specifically as a switch governing the master regulators of inflammation.

LI-22

Liver dysfunction in thalassemic cases: More in splenectomized than non-splenectomized group

Sajan Agarwal
Department of Pediatrics, JK Lon Hospital, S M S Medical College, Jaipur

LI-23

Typing and sequencing of Clostridium difficile strains isolated from patients of a tertiary care hospital in North India

Meenakshi Singh*, Chetana Vaishnavi, Safrun Mahmood, Rakesh Kochhar*
Department of Gastroenterology, Postgraduate Institute of Medical Education and Research, Sector 12, Chandigarh 160 012, India

Background In the industrialized countries Clostridium difficile is the causative agent of infectious colitis with significant morbidity and

mortality. The pathogenic potential of the organism is due to production of exotoxins - toxin A and toxin B. In many countries during the last several years, outbreaks due to new emerging isolates have gained tremendous notoriety. We characterized C. difficile strains isolated from patients suffering from C. difficile infection (CDI).
Methods C. difficile isolates (*n*=174) cultured from 1110 fecal samples of suspected CDI patients were subjected to toxinotyping and ribotyping. Partial sequencing of amplified segments-ten each for toxin A and B genes-was done. The sequenced genes were compared with reference C. difficile 630 strain using BLAST and further translated into corresponding amino acid sequences by ExPASy.
Results Of 174 C. difficile isolates, 121 were toxigenic, belonging to toxinotype 0 (*n*=76) and to toxinotype VIII (*n*=45). The PCR-ribotypes identified was ribotype 001 in 36.8 %, 017 in 23.6 % and 106 in 9.2 % among the 121 toxigenic isolates. Among the non-toxigenic isolates, 18.9 % belonged to ribotype 009 and 11.5 % to ribotype 010. Partial sequencing of toxin genes revealed substitutions in toxin A sequences of five (50 %) C. difficile isolates, but the translated nucleotide sequences showed changes in only three (30 %) of them. No variation was seen in the nucleotide sequences of toxin B in any of the ten sequenced isolates.
Conclusion Inter-strain differences were observed in the clinical C. difficile isolates in our region.

LI-24

Adenocarcinoma in chronic fistula in ano ..? A case report

***Gaurav Bachhav**, Avinash Balekuduru, Lokesh Locheruvapalli, Ravi Kiran, Satyaprakash Bonthala Subbaraj*
M S Ramaiah Medical College, MSR College Road, MSR Nagar, MSRIT Post, Mathikere, Bengaluru 560 054, India

Case Report Adenocarcinoma in long standing fistula in ano is a rare complication (2 % to 3 % of large bowel cancers) and with no more than 200 cases reported in literature 1, 2. We report a case of adenocarcinoma secondary to fistula in ano. A 74-year-old male with a diagnosis of fistula in ano for 16 years duration (operated 4 times earlier), recently had worsening of mucopurulent discharge for 1 month duration. He was asymptomatic otherwise. On digital rectal examination, 2 external openings were noted and a mass was felt on the posterior mid line. Colonoscopy was performed which did not reveal any other positive finding. He was diagnosed to have complex fistula in ano with soft tissue mass. For delineation of the mass, MRI abdomen and pelvis was done which showed perianal fistulae with intrinsic frond like projections into the fistulae with central enhancement. For tissue diagnosis before contemplating surgery, rectal endosonography was planned. A PENTAX linear echoendoscope was passed per rectally under conscious sedation. EUS showed a 5 cm heteroechoic mass lesion with multiple fistulae. A 22 Guage Wilson cook needle was passed under EUS guidance transrectally and aspiraton biopsy was done and sent for histopathological examination (HPE). Biopsy revealed moderately differentiated adenocarcinoma. In view of the size, he was planned for neoadjuvant chemoradiotherapy. It is important to establish the diagnosis if persistent discharge, gradually increasing perianal mass, bloody discharge, unusual healing or induration in case of perianal fistula and biopsy should be taken in all the suspected cases.

LI-25

Prevalence and risk factors for low bone mineral density in inflammatory bowel disease patients

*Ram Pratap Bundela, **Kumar Shwetanshu Narayan**, Prachis Adhir, Mukesh Jain, Rupesh Kumar Pokharna, Sandeep Nijhawan*
Department of Gastroenterology, S M S Medical College and Hospital, Jawaharlal Nehru Marg, Gangawal Park, Jaipur 302 004, India

Background Inflammatory bowel disease (IBD) has been associated with increased risk of osteopenia and osteoporosis. Several risk factors contribute to low bone mineral density in IBD patients, however, studies evaluating their association have conflicting results.
Methods We conducted a cross sectional study with prospective enrollment of adult IBD patients attending gastroenterology department of S M S Hospital, Jaipur between June 2015 and December 2015. Demographic data including age, gender, body mass index (BMI), disease duration, type of disease, prior steroid use and vitamin D levels were recorded and compared with bone mineral density (BMD) using DEXA (dual-energy X-ray absorptiometry).
Results A total of 60 patients were enrolled in the study [55 ulcerative colitis (UC) and 5 Crohn disease (CD)]. In total 46/60 (76.67 %) of IBD patients had low BMD; 35/60 (58.33 %) patients had osteopenia, and 11 (18.33 %) patients had osteoporosis. Study showed that age, gender, BMI and type of disease are not statistically significant risk factors for low BMD. In univariate analysis, vitamin D status, disease duration and history of steroid use were observed as statistically significant. On multivariate analysis, prior steroid use and duration of disease were significant independent predictors of low BMD.
Conclusion Prevalence of low BMD is common in Indian IBD patients. Steroid use and disease duration are independent predictors for low BMD in this group of patients.

LI-26

Infliximab induced tuberculosis in patients with ulcerative colitis: Experience from a country with high prevalence of TB-India

***Amarender S Puri**, Devendra Desai, Ajit Sood, Sanjeev Sachdeva*
Department of Gastroenterology, G B Pant Institute of Post Graduate Medical Education and Research, 1, Jawaharlal Nehru Marg, New Delhi 110 002, India, Department of Gastroenterology, P D Hinduja Hospital and Medical Research Centre, Veer Savarkar Marg, Mahim, Mumbai 400 016, India, and Department of Gastroenterology, Dayanand Medical College and Hospital, Tagore Nagar, Ludhiana 141 001, India

Background and Aim Tuberculosis (TB) is a well-recognized iatrogenic adverse event following administration of biologic therapy. Existing data suggest that patients with inflammatory bowel disease are more vulnerable to develop tuberculosis following biologic therapy as compared to those with rheumatological diseases. There is paucity of data on the development of TB following use of biologics from countries with a high prevalence of TB. We aimed to analyze this adverse outcome of biologics in Indian patients with ulcerative colitis (UC).
Methods Data from three centers in India (Dayanand Medical College, Ludhiana, G B Pant Hospital, New Delhi and P D Hinduja Hospital, Mumbai) were retrospectively analyzed using a common proforma designed by one of the authors (ASP). Patients with UC exposed to infliximab between 2010 and 2014 were included in the study. Of the 79 patients of ulcerative colitis treated with infliximab, seven (8.8 %) developed tuberculosis at a median interval of 8 weeks after the first exposure despite screening for latent tuberculosis. Three of the 7 (42 %) patients developed disseminated disease whereas pulmonary disease was documented in 4 patients (57 %). All patients were successfully treated with anti-tuberculous drugs for a period of 6–13 months. In contrast to data from the West none of the patients in our study had a fatal outcome. None of the patients required a colectomy after a median follow up of two years following cessation of the infliximab therapy.
Conclusions Our data suggest that despite the higher prevalence, the outcome of tuberculosis after infliximab therapy is quite sanguine in Indian subcontinent.

LI-27

Biologics for treatment of pyoderma gangrenosum in ulcerative colitis

K Arivarasan,Vaishali Bhardwaj, Sukrit Sud, Sanjeev Sachdeva, Amarender Singh Puri

Department of Gastroenterology, G B Pant Institute of Post Graduate Medical Education and Research, 1, Jawaharlal Nehru Marg, New Delhi 110 002, India

Background Pyoderma gangrenosum (PG) is an uncommon extra intestinal manifestation of inflammatory bowel disease (IBD). The conventional treatment of PG includes local wound care, antibiotics, various systemic and topical immunomodulators and corticosteroids. However, the response to these therapies is highly variable. Despite limited published literature, biologics have caused a paradigm shift in the management of this difficult to treat skin condition.
Methods We hereby report three cases of PG with ulcerative colitis, successfully treated using biologics.
Results Three patients with active ulcerative colitis (UC) and PG were treated using biologicals (infliximab 2, adalimumab 1). Two of the three patients had multiple skin lesions. Size of the skin lesions were 5.5 × 4.5 cm, 5 × 3 cm and 3 × 2 cm respectively. Each of the three patients was treated initially with IV hydrocortisone. Biologicals were added due to partial response of the colonic disease and the skin lesions. Each of the patients had dramatic response to the biological, associated with rapid healing of the skin lesions. Complete healing of the skin lesion was documented within 6 months in all three patients. All patients were subsequently tapered off steroids successfully.
Conclusion In view of the rapid healing of the skin lesions, superior response rate and the additional benefit of improvement in the underlying colonic disease, anti TNF blockers should be considered as a first line therapy in the management of PG.

LI-28

Clinical and pathological spectrum of colonic polyps in a tertiary care center

K Arivarasan*, A S Puri, Ajay Kumar, A K Mantri, Ankush Pawar, P Sakhuja*

Department of Gastroenterology, G B Pant Institute of Post Graduate Medical Education and Research, 1, Jawaharlal Nehru Marg, New Delhi 110 002, India

Aim The frequency of colonic polyps differs across population. There are few studies addressing this issue from India. The aim of study was to assess clinical and histological spectrum of colonic polyps in Indian population.
Methods This was a retrospective data analysis of colonic polyps found during the colonoscopies done in the Department of Gastroenterology, GIPMER, New Delhi between January 2013 to January 2015. The data was recorded for demographic profile; clinical features, morphology and histology of the colonic polyp. Cases with incomplete colonoscopy examination and missing histology report were excluded.
Results Total of 221 (4.5 %) colonic polyps were found in 4900 colonoscopies done and complete data was available in 201 (90.9 %) cases. The mean age of patients was 17 years and were males (67 %). The polyps were in left side (89 %) and solitary (72 %). The histopathology of polyps was: Juvenile polyps-120 (59 %), hamartomatous polyps −28 (14 %), adenomatous polyps-21 (10 %), inflammatory polyp-13 (6 %), Peutz-Jeugher- 3 (2 %), adenocarcinoma-3 (2 %), neuroendocrine tumor −2 (1 %) and others-13 (6 %). 9/21 (42.8 %) adenoamtous polyps showed high grade dysplasia. The adenomatous polyps were more likely in patients above 40 years of age (P 1 cm size (P 40 years, size >1 cm and with number of polyp >1.

LI-29

Extraintestinal manifestations of ulcerative colitis: Frequency and predictors

Alok Kumar Mantri*, Amarender Singh Puri, Sanjeev Sachdeva, Ajay Kumar*

Department of Gastroenterology, G B Pant Institute of Post Graduate Medical Education and Research, 1, Jawaharlal Nehru Marg, New Delhi 110 002, India

Background Inflammatory bowel disease (IBD), both ulcerative colitis (UC) and Crohn's disease (CD), once thought to be uncommon, are now seen commonly in Asia. Extraintestinal manifestations (EIMs) in UC from Asia, are underreported. We therefore describe the prevalence of EIMs in Indian UC patients and study their relationship with disease extent and severity.
Methods This retrospective single-center study included all UC patients evaluated from June 2013 to June 2016. Disease profile and frequencies of all extraintestinal manifestations were analyzed. Isolated arthralgia and backache was not considered as EIMs.
Results Of total 268 patients with UC, frequency of any EIM was 17.2 % (46 patients). Mean (±SD) duration of illness was 56±22 months. Most of the patients were having extensive colitis (54.4 %). We found EIMs more common in females (p=0.001). We did not found any significant difference in prevalence of EIMs according to extent of colitis (p=0.1), age (p=0.3), duration of illness (p=0.2). Peripheral arthropathy was found to be the most common EIM (12 %). Ocular involvement was found in 2 % patients, most commonly episcleritis. Skin involvement was found in 1.3 % patients with 3 cases of pyoderma gangrenosum. DVT was found in 3 % patients.
Conclusions In Indian patients with UC, prevalence of EIMs appears to be similar to the experience from the West. EIMs were found to be more common in females. Presence of EIMs is not related to the severity of the disease or extent of involvement. Musculoskeletal EIMs are the most common in UC.

LI-30

CCR6 intrinsic signaling in the CD4 T cells promotes the differentiation of inflammatory Th17 cells during autoimmune colitis

Neeraja Kulkarni*, P K Sharma, V R Mujeeb, Sharad Srivastava, P Puri, Girdhari Lal*

National Centre for Cell Science, NCCS Complex, University of Pune Campus, University Road, Ganeshkhind, Pune 411 007, India, and Department of Gastroentrology, Armed Force Medical College, Southern Command, Near Race Course, Solapur Road, Wanowrie, Pune 411 040, India

Introduction Chemokine receptor CCR6 is a G protein-coupled receptor (GPCR) that binds to a chemokine CCL20, and plays an important role in pathogenesis of ulcerative colitis. A non-chemotactic function of CCR6 during colitis is not known.
Methods Acute colitis was induced in the C57BL/6 or CCR6−/− mice by giving 2 % dextran sodium sulphate (DSS, w/v) in the drinking water. Development of colitis was monitored by bloody diarrhea. Phenotype of CD4 T cells were analyzed by flow cytometry and microscopy. PBMCs from 10 healthy control (4 women, 6 men; age 63+9 years) and 16 ulcerative colitis (6 women, 10 men; age 39+8.5 years) patients were analyzed by flowcytometry.

Results CCR6-CCL20 interaction activates Akt/mTOR/STAT3 pathway to inhibit TGF-1 induced Treg differentiation and direct them towards pathogenic Th17 lineage. Further, CCR6 inhibits the suppressive function of Treg cells by reducing the expression of regulatory molecules like CD39, CD73 and Fas-L. On the other hand CCR6 pushes Th17 cells towards more pathogenic phenotype by enhancing the expression of RORt, T-bet, IL-17A and other pathogenicity related molecules. Ulcerative colitis patients showed increased number of CCR6 expressing CD4 T cells in the PBMCs and CCR6+cells showed selective commitment for pathogenic Th17 phenotype.
Conclusion CCR6 activation breaks the critical balance between Treg and Th17 cells required for maintenance of gut tolerance. Thus targeting CCR6 will inhibit the migration of pathogenic Th17 at the site of inflammation and also restore the balance between Treg and Th17 to resolve gut inflammation.

LI-31

Minimal encephalopathy in inflammatory bowel disease

***A C Haridas**, M Chooracken, R J Mukkada, A P Chettupuzha, P G Mathew, S C Paul, V F Jose, P Augustine, A Koshy*
Digestive Diseases Centre, VPS Lakeshore Hospital, Nettor. Kochi 682 040, India

Background Inflammation plays a major role in the pathogenesis of minimal hepatic encephalopathy (MHE), apart from hyperammonemia. Till date, the possibility of minimal encephalopathy (ME) in inflammatory bowel disease (IBD) patients similar to MHE in cirrhotic patients was never explored, although overt encephalopathy is reported in IBD.
Aim Assess the presence of ME in IBD patients.
Methodology Fifty-two patients with confirmed Crohn's disease (CD) or ulcerative colitis (UC) were included (28 CD and 24 UC), between June 2014 and December 2015, and were tested for psychometric hepatic encephalopathy score (PHES) and critical flicker frequency (CFF) to determine ME. Age and education matched controls were also tested for the same inclusion criteria: Confirmed Crohn's disease or ulcerative colitis exclusion criteria: Any patient with MMSE score below 25, decompensated liver disease, sepsis, dyselectrolytemia, neurological disease, CKD, respiratory or cardiac failure, mental retardation or learning disabilities, psychiatric illness, alcohol intoxication.
Results Seven out of 52 IBD patients (3 from UC and 4 from CD group) were tested to have ME while none had ME from control which was statistically significant (p=0.18). Incidence of ME in this study was 10.6 % and 16.6 % in CD and UC patients respectively. Karnofsky scores were significantly higher in the ME group when compared to the group without ME (p value=0.022), but CRP was not significantly high in ME (p 0.632).
Conclusions ME does exist in patients with IBD in both CD and UC.

LI-32

Tacrolimus as rescue therapy for steroid dependent/steroid refractory ulcerative colitis: Experience from tertiary referral centre

***Sukrit Sud**, Sanjeev Sachdeva, Anil Agarwal, A S Puri*
Department of Gastroenterology, and GI Surgery, G B Pant Institute of Post Graduate Medical Education and Research, 1, Jawaharlal Nehru Marg, New Delhi 110 002, India

Background In severe UC approximately 15 % to 20 % patients are non responsive to steroids (SRUC). Another 15 % to 22 % are steroid dependent (SDUC). Tacrolimus has the distinct advantage of being an oral and relatively cheap drug with minimal adverse events as compared to immunomodulators or biologicals.
Objective To assess the efficacy of oral tacrolimus in inducing remission in moderate to severe relapses in SDUC/SRUC.
Methods Twenty-six UC patients diagnosed as SDUC/SRUC were started on Tacrolimus 0.05–0.1 mg/kg. Clinical Mayo score (CMS) and UCEIS were recorded prior to starting Tacrolimus and after 8 weeks. 5 ASA and IM were continued if the patients were already on these drugs. Clinical response at 8 weeks was defined as CMS decrease by 3 points; clinical remission was defined as CMS −2 with UCEIS.

LI-33

Clinical usefulness of endoscopic ultrasound in ulcerative colitis

***Bhaskar Kante**, Surinder S Rana, Puneet Chhabra, Vishal Sharma, Ravi Sharma, Deepak Gunjan, Rajesh Gupta, Ritambhra Nada, Naveen Kalra, Deepak K Bhasin*
Departments of Gastroenterology, General Surgery, Pathology and Radiology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background Endoscopic ultrasound (EUS) provides high resolution images of gut wall and therefore can be used to evaluate ulcerative colitis (UC).
Aim To evaluate the clinical usefulness of EUS in patients with UC.
Methods Patients with UC with age >18 years were enrolled. Clinical disease activity, endoscopic activity was assessed using Truelove and Witts and Mayo system respectively.
Results Fifty-one patients [mean age 40.6±13.02 years, 31 (60.7 % males)] were studied. Three (5.9 %) with Crohn's disease were excluded. On enrolment, 10 (20.9 %) were in remission, 13 (27.1 %) had mild, 8 (16.7 %) had moderately severe and 17 (35.4 %) had severe disease. On endoscopy, 5 (10.4 %) were in remission and 10 (20.9 %) had mild, 16 (33.3 %) had moderate and 17 (35.4 %) had severe disease. On EUS, 32 (62.7 %) had preserved mural stratiation while 19 (37.3 %) had loss of wall stratation. Mean TWT (total wall thickness) was 3.59±1.22 mm while mean mucosal thickness was 0.93±0.43 mm and (M+SM) mucosal and submucosal thickness was 2.32±0.95 mm. Patients with active disease had increased TWT, mucosal and (M+SM) thickness as compared to patients in remission with no statistical significance (p>0.05). Patients who had clinically and endoscopically severe disease had thickened rectal wall as compared to patients with mild disease (p=0.017), (p=0.000) respectively. No parameter on rectal EUS was signifiantly different in patients who relapsed on follow up as compared to patients in remission.
Conclusion On EUS, TWT is increased in severe UC as compared to mild disease. EUS has no additive prognostic usefulness in UC.

LI-34

A randomized prospective investigator blinded study of bowel preparation for colonoscopy with magnesium sulphate versus polyethylene glycol at a single centre

***Kayalvizhi Natarajan**, K R Pradeep, G Y Amit, N K Anupama, Naresh Bhat*
Department of Gastroenterology, Aster CMI Hospital, International Airport Road, Bangalore 560 092, India

Background and Aims Polyethylene glycol (PEG) is the most commonly used bowel cleansing agent for a colonoscopy. Few centres

in India use magnesium sulphate (MS) as a bowel cleansing agent. The aim of this study was to compare the standard PEG preparation with MS.
Methods One hundred and thirty patients were randomized to receive either PEG or MS. All patients received 10 mg of oral Bisacodyl the night before the procedure. Ottawa Bowel Preparation Scale was used to score the bowel cleanliness and fluid volume. The secondary end points assessed were patient's acceptance and tolerance.
Results One hundred and thirty patients were randomized to receive either MS or PEG preparation, 122 patients were included in the final analysis, 62 in MS group and 60 in the PEG group (Table 1). Mean age in both groups was similar (48.6 vs. 46.2 years). Fluid score was found to be lower in the MS group and this was found to be statistically significant (p-0.021). Regional score and total score were comparable between the two groups. Forty-seven out of 62 patients (75.8 %) in the MS group and 40 out of 60 in the PEG group (66.6 %) had a total score of 3 or less. Nausea and vomiting were seen equally in the two groups. Patients acceptance in terms of tolerability and taste was the same in both the groups.
Conclusions Magnesium sulphate is as good as polyethylene glycol as a bowel cleansing agent and is equally well tolerated. We recommend its use as a bowel cleansing agent for colonoscopy.

Table 1: Demographic characteristics of the two groups

	MS ***n*=62**	**PEG** ***n*=60**	***p* value**
Age (years)	48.6±13.2	46±15	0.62
Male: Female	44:18	41:21	0.41
Indications for colonoscopy			
Pain abdomen	16	20	
Anemia or bleeding per rectum	19	16	
Suspecting TB/IBD	10	8	
Chronic diarrhea	7	7	
Constipation	7	6	
CRC screen	3	3	

Table 2 Comparison of bowel cleansing – Ottawa Scale

Fluid Score	**MS** ***n*=62**	**PEG** ***n*=60**	***P* value**	**Regional score**	**MS** ***n*=62**	**PEG** ***n*=60**	***p* value**
0	32	23	0.021	**0**	26	28	0.47
1	27	25		**1**	18	11	
2	3	12		**2**	0	6	
				3	10	2	
				4	1	6	
				5	2	4	
				6	1	0	
				7	1	0	
				8	0	1	
				9	2	1	
				10	1	0	
				11	0	1	
				12	0	0	
Total Score	**MS** ***n*=62**		**PEG** ***n*=60**		***p* value**		
0–3	47		40		0.45		
4–7	11		16				
8–14	4		4				

LI-35

Role of probiotics in treatment of inflammatory bowel disease

Syed Ibrahim Hassan, ***Syed M Akbar Hassan****, Shafia, Nausheen*
Deccan College of Medical Sciences, DMRL X Road, Santosh Nagar, Kanchan Bagh, Hyderabad 500 058, India

Introduction Treatment of inflammatory bowel disease (IBD) is multi dimensional in the active phase of the disease with steroids aminosalicilates and immunosuppressants.
Aim To study the effects of probiotics as an adjuvant in the treatment of acute phase of IBD and to know the beneficial / adverse effects.
Methods: Fifty patients of IBD admitted in active phase were assessed by obtaining scores based on MAYO scoring system for UC and Crohns. Twenty-five patients on standard therapy (group I) and 25 were put on added probiotic therapy (group II test group). Scoring done again at the end of one week 50 patients were enrolled after informed consent (25 test and 25 control) inclusion criteria being active IBD, above ages >18 years. : of either sexes ; no co morbidities i.e. CKD, IHD, CVA, pregnancy lactating mothers.
Results Fifty patients with M:F 26:24; 45 had ulcerative colitis and 5 had Crohns. Incidence of DM −16 %; HTN- 28 %; obesity-18 %, IHD-8 %, anal fissure- 20 %; polyps 4 %; addictions- 20 % (alcohol tobacco). Mean age was 42.3 years +/−18.6 years Mayo scores at the start of study 9.32+/− 2.07. Final Score- at the end of one week GR I score 4.36+/− 1.65 GR II score 1.52+/− 1.32.
Conclusion P value of <0.05 suggests that the use of probiotics was found to be beneficial along with the standard regimen for IBD in active IBD patients inducing remission with no adverse effects.

LI-36

Rectal cap polyposis: A rare cause of rectal bleeding, anemia and mucoid diarrhea

Kedarnath Panda, Prakash Chandra Dalai, ***Bijay Misra****, Brundaban Nahak, Amit Adya*
Department of Gastroenterology, Institute of Gastro and Kidney Care, Bhubaneswar, Odisha 751 015, India, Department of Gastroenterosurgery, Institute of Gastro and Kidney Care Bhubaneswar, Odisha 751 015, India, and Department of Pathology, KIMS Hospita

Background Cap polyposis (CP) is an under recognized form of nonneoplastic inflammatory polyps, with a distinct cap of granulation tissue. Here we present five patients who were diagnosed with CP during the investigation of unexplained chronic long standing anemia secondary to intermittent rectal bleeding and mucoid diarrhea.
Case report There were 5 patients diagnosed to have rectal CP on histology, four were male and one female with age group of 17 to 50. Clinical presentations were intermittent bleeding per rectum, mucoid diarrhea, and generalized anasarca in one patient. All patients had history of straining during defecation. There was lax anal sphincter with multiple polyps in rectum, congested and ulcerated rectal mucosa on colonoscopy. All patients behaved differently to therapy. One patient who had found to have *H pylori* positive on gastroscopy responded well after anti-*H pylori* therapy. Three patients responded to polypectomy and one patient who was diagnosed as CP after surgery for rectal malignancy, had reappearance of polyps and symptoms. However all patients were advised to avoid straining during defecation.
Conclusion Awareness of this diagnosis is important as misdiagnosis can result in prolonged and inappropriate treatment. Mucosal prolapse is the underlying mechanism in these cases. Endoscopic or surgical excision, anti-*H pylori* therapy can be curative but recurrence is also common in these patients.

LI-37

Eosinophilic polyserositis with proctocolitis-A case report

S K Singh, *V K Dixit, S K Shukla, Shivam Sachan, Gaurav*
Department of Gastroenterology, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, India

LI-38

Ulcerative colitis in adolescents- A tertiary care centre experience

Shivakumar Varakanahalli, *Pritul D Saxena, Amol Dahale, Sanjeev Sachdeva, Ajay Kumar, Amarender Singh Puri*
Department of Gastroenterology, G B Pant Institute of Post graduate Medical Education and Research, 1, Jawaharlal Nehru Marg, New Delhi, Delhi 110 002, India

Introduction In the West, ulcerative colitis (UC) presents for the first time in adolescence in 20 % to 25 % of (12–18 years) patients. UC in adolescents is more aggressive with a higher rate of colectomy.
Methods We retrospectively analyzed the data from April 2013 to April 2016 of UC patients with onset of disease between 12 and 18 years (adolescents) and 18–40 year (adults) who attended IBD clinic at GIPMER, New Delhi respectively. The data were retrieved from prospectively maintained data base of UC patients which recorded clinical features, disease course, requirement of immune-modulators and biological agents and need of surgery.
Results There were 35 patients in group 1 (12–18 years) and 224 patients in group 2 (18–40 year). Mean duration of illness was 80.3 months in group 1 vs. 60.8 months in group 2 (95 % CI=57–107 months). The severity of disease was mild in 11.4 % vs. 16.8 %, moderate in 45.7 % vs. 28.5 % and severe in 42.8 % vs. 42.4 % in groups 1 and 2 respectively. 4/35 (11.4 %) in group 1 vs. 32/224 (14.2 %) in group 2 had an EIM (p=NS). Forty-six percent of patients in group 1 required systemic steroids as compared to 19 % of patients in group 2 (p=0.005). The need of immunomodulators, biological agents and colectomy (2/35 vs. 18/224 p=NS) was not different between the two groups. No adverse effects of drugs seen in adolescents (0/35 vs. 12/224 p=0.001).
Conclusion The severity, disease course, need of immunomodulators, biological agents and colectomy rates are similar in adolescent and adult UC patients. Steroids are however required more frequently to achieve the remission in adolescent UC patients.

LI-39

Experience of toxic megacolon associated with ulcerative colitis from a tertiary referral centre

Pritul Dishant Saxena, *V Krishna Priya, Sanjeev Sachdeva, Ajay Kumar, Amarender Singh Puri, Anil Kumar Agarwal, M N Sarvanan*
Department of Gastroenterology, and Gastrointestinal Surgery, G B Pant Institute of Post Graduate Medical Education and Research, 1, Jawaharlal Nehru Marg, New Delhi, Delhi 110 002, India

LI-40

Role of fecal microbiota transplantation in steroid dependant ulcerative colitis: A prospective observational study

Charanpreet S Grewal, *Ajit Sood, Varun Mehta, Ramit Mahajan*
Dayanand Medical College and Hospital, Udham Singh Nagar, Civil Lines, Ludhiana 141 001, India
Steroid dependance develops in 15 % to 20 % of patients of ulcerative colitis. Recently, there have been reports of FMT being effective in some of these patients. We report the data of an open label study of FMT in induction and maintainance of remission of patients with steroid dependant ulcerative colitis. Baseline demographic disease characteristics, disease severity and drug history at enrollment were recorded. FMT protocol was 2 weekly for 2 times and then 4 weekly for 5 times (a total of 7 sessions). Clinical and endoscopic response was assessed using mayo score at week 4, end of study period (6 months) and follow up of 6 months. A total of 17 patients were enrolled. Of these, 10 were males and mean age for the whole group was 35.23 years (23–55). Seven patients (41.1 %) had pancolitis and 10 (58.8 %) had left sided disease. All patients (n=17) had moderate to severe disease. Fifteen of 17 (88.23 %) patients achieved clinical remission at week 4. Ten (58.8 %) stayed in remission at the end of 6 months of treatment and 6 months follow up period, allowing stoppage of steroids. Five (29.4 %) patients who initially responded to FMT, eventually had worsening of symptoms and were given adalimumab. Of the remaining 2 patients, 1 (5.8 %) was lost to follow up after a single session of FMT, while the other (5.8 %) developed medical complications. FMT is a promising therapeutic option for patients having steroid dependant ulcerative colitis.

LI-41

Cost of illness in inflammatory bowel disease in a tertiary care teaching hospital in India

Nagesh Kamat, *C Ganesh Pai, Asha Kamat, M Surulivel Rajan*
Departments of Gastroenterology and Hepatology, Community Medicine, Kasturba Medical College, Madhav Nagar, Eshwar Nagar, Manipal 576 104, India and Department of Pharmacy Practice, Manipal College of Pharmaceutical Sciences-Manipal University, Manipal 576 104, India

Background Inflammatory bowel disease (IBD) is an expensive malady without cure and patients feel exasperated, with periods of exacerbations and remissions. Inveterate nature of IBD along with hospital admissions are associated with substantial cost to patients. Although high costs of care are recognised, determinants of these are unclear in India. This study aimed to estimate the annual per patient cost of treating ulcerative colitis (UC) and Crohn's disease (CD) stratified by remission and relapse.
Methods Single-centred, cross sectional study in which patients were enrolled over a two year period (July 2014-June 2016) on the prevalence based approach wherein both direct and indirect costs were estimated. Cost was expressed as median annual cost per patient per year. Descriptive statistics were used to analyze the costs.
Results Of the 91 patients included, 7 (7.7 %) were lost to follow up, 59 UC patients, 43 (72.88 %) with remission, 16 (27.12 %) in relapse and 25 CD patients 18 (72 %) with remission and 7 (28 %) in relapse were included. The median no of visits for UC in remission and relapse were 5 (3–7) and 11.5 (10–12.75), while for CD it was 8 (6.75–10) and 11 (10–13) respectively. The annual median (IQR) cost per UC patient was estimated to be Rs. 43,140 (34,357–51,031) with remission, Rs.52,436.5 (49,229–67,567.75) in relapse and for CD estimated to be Rs. 43,763.5 (32,202–57,372) in remission; and Rs. 72,145 (49,447–92,212) in relapse respectively.
Conclusion This is the first pharmacoeconomic study for IBD in India. Chronic, relapsing disease with young age of onset and normal life expectancy is a prospect for substantial lifetime medical costs.

GI Motility

GIM-01

Profile of patients with motor dysphagia

Rajiv Baijal, ***Mayank Jain***
Pushpawati Singhania Research Institute (PSRI) and Hospital, Press Enclave Marg, Sheikh Sarai II, New Delhi 110 017, India and

Choithram Hospital and Research Centre, 14, Manik Bagh Road, Indore 452 014, India

Aim of the study To analyze the epidemiological, symptom and manometric profile of patients presenting with motor dysphagia.
Methods This retrospective study was done at two centers - Pushpavati Singhania Hospital and Research Centre, New Delhi and Choithram Hospital and Research Centre, Indore. All patients who underwent esophageal manometry for motor dysphagia from April 2014 to June 2016 formed the study group. High resolution manometry was done in left lateral position using 16 channel water perfusion systems. Basal LES pressures were recorded for 1 min. Peristalsis was recorded for ten swallows of 5 mL water each.
Results A total of 121 patients formed the study group (mean age) 45.57 years, male: female 1.32:1). The main symptoms at presentation were- dysphagia (79), regurgitation (46), weight loss (15), chest pain (14), vomiting (9), retrosternal burning (5) and hoarseness of voice (2). The manometry profile showed the following abnormalities-achalsia cardia (63, 52.06 %), DES (9, 7.43 %), hypertensive peristalsis (6, 4.95 %), scleroderma esophagus (6, 4.95 %), EGJ outflow obstruction (4, 3.30 %), ineffective motility (32, 26.44 %) and cricopharangeal achalasia (1, 0.8 %). The detailed assessment of achalsia patients is mentioned below in Table 1.
Conclusion Achalasia cardia is the commonest cause of motor dysphagia in our setting.

Type of achalasia	No. of patients	Dysphagia to solids and liquids	Chest pain	regurgitation	Weight loss
Type 1	25	25 (100 %)	2 (8 %)	16 (64 %)	10 (40 %)
Type 2	18	15 (83.33 %)	59 (27.77 %)	10 (55.56 %)	6 (33.3 %)
Type 3	20	18 (90 %)	5 (25 %)	14 (70 %)	10 (50 %)

GIM-02

Characteristics of LES function and esophageal motility in patients with reflux disease

Rajiv Baijal, ***Mayank Jain***
Pushpawati Singhania Research Institute (PSRI) and Hospital, Press Enclave Marg, Sheikh Sarai II, New Delhi 110 017, India and Choithram Hospital and Research Centre, 14, Manik Bagh Road, Indore 452 014, India

Background Gastroesophageal reflux disease (GERD) is defined as pathological retrograde movement of gastric contents into the esophagus. Reflux esophagitis (RE), non-erosive reflux disease (NERD) and complicated GERD are subtypes of gastroesophageal reflux disease.[1] LES function and esophageal motility play an important role in antireflux in patients with GERD. The present study was done to study the characteristics of esophageal motility and LES function in patients with RE and NERD.
Methods This retrospective study was done at two centers - Pushpavati Singhania Hospital and Research Centre, New Delhi and Choithram Hospital and Research Centre, Indore. All patients who underwent esophageal manometry for reflux symptoms from April 2014 to June 2016 formed the study group. They were divided into two groups based on the upper gastrointestinal endoscopy reports - reflux esophagitis (RE) and NERD. High resolution manometry was done in left lateral position using 16 channel water perfusion systems. Basal LES pressures were recorded for 1 min. Peristalsis was recorded for ten swallows of 5 mL water each.
Results A total of 98 patients formed the study group (70 males , mean age 44 years). The details of the two groups are mentioned below in the Table.

Table 1 Comparison between reflux esophagitis and non-erosive reflux disease groups

	NERD group	RE group
No. of patients	32	66
Male: female	21:11	49:17
Mean age	42	46
Mean LES pressure	12	8.4
EGJ morphology		
Type 1	8 (25 %)	23 (34.84 %)
Type 2	16 (50 %)	23 (34.84 %)
Type3a	4 (12.5 %)	9 (13.63 %)
Type3b	4 (12.5 %)	11 (16.66 %)
Peristalsis		
Normal	20 (62.5 %)	38 (57.57 %)
Hypertensive	0	2 (3.03 %)
Weak peristalsis	10 (31.25 %)	16 (24.24 %)
Frequent failed peristalsis	1 (3.125 %)	4 (6.06 %)
Absent peristalsis in distal 2/3	1 (3.125 %)	6 (9.09 %)

Type of achalasia	No. of patients	Dysphagiato solids and liquids	Chest pain	regurgitation	Weight loss
Type 1	25	25 (100 %)	2 (8 %)	16 (64 %)	10 (40 %)
Type 2	18	15 (83.33 %)	5927.77 %)	10 (55.56 %)	6 (33.3 %)
Type 3	20	18 (90 %)	5 (25 %)	14 (70 %)	10 (50 %)

GIM-03

Efficacy of Injection Naloxone hydrochloride for the treatment of acute colonic pseudoobstruction in hospitalized patients

Vijay Sharma*, Richa Sharma, Vaibhav Vaishnav*
Departments of Gastroenterology, Critical Care Medicine, Manipal Hospital, Sector 5, Main Sikar Road, Vidhyadhar Nagar, Jaipur\ 302 013, India and Department of Public Health, Regional Institute of Health Medicine and Research, Jaipur, India

Introduction In acute colonic pseudo obstruction (Ogilvie syndrome) there is dilation of the colon without mechanical obstruction, it may develop after surgery or with severe systemic illness. Acute imbalance of the normal extrinsic autonomic innervations of the bowel. May resolve with conservative therapy, however colonoscopic decompression, injection neostigmine required in few cases. No reported experience with Injection Naloxone.
Aims To study the efficacy of Injection Naloxone hydrochloride in patients acute colonic pseudoobstruction.
Methods Prospectively pilot study at tertiary care centre since March 2015, admitted patients with acute colonic pseudoobstruction with clinical abdominal distension and radiographic colonic dilation. Reversible and mechanical causes of abdominal distension ruled out, patient started on Injection Naloxone 0.4 mg intravenous eight hourly for 48 h. Clinical

response defined as evacuation of flatus or stool, reduction in abdominal circumference and measurements of the colon diameter on radiographs.
Results N=25, eight patients with pneumonia, three with chronic renal failure, five with cerebrovascular accident, two post spinal surgery, five with polytrauma, and two post knee replacement. Twenty-one patients received Naloxone had early colonic decompression in the form of passage of flatus, passage of motion, significant (more than 2 in.) decrease in abdominal girth, significant decrease in large bowel diameter on X-ray abdomen (equal or more than one cm), improvement in clinical parameters especially respiratory rate, oxygen saturation. One patient required colonoscopy decompression, three had poor recovery. Injection Neostigmine was not used for any patient. Median time to response was 8 h (range 3 to 28 h). Side effects of Naloxone included mild tachycardia and rise in blood pressure in five patients, irritability noted in 6 patients.
Conclusion Initial study suggests that Injection Naloxone is beneficial and safe in the treatment hospitalized patients with colonic pseudo obstruction.

GIM-04

Abdominal remodelling after laparoscopic hernia operation in patient with chronic abdominal pain and aerocolia

Irene Christodoulou*, Dimitra Gonezou, Georgios Dounias, Nikolaos Peitsidis, Ioannis Tsakiridis,Fani Tsiompanou, Grigorios Pagonis*
2nd Surgical Department, G Papanikolaou Hospital, Thessaloniki, Greece

Objectives This is a case report of interest for a patient suffering from chronic problems of aerocolia, pain and abdominal wall symmetry problems.
Methods A 75-year-old woman with right abdominal pain and post surgical ventral abdominal hernia was presented in our Department and operated with a laparoscopic procedure. A synthetic mesh was placed in the only official gap of the abdominal wall, very close to the umbilicus area, while the abdomen did not have any symmetry due to prior operations (gynecological operations, open cholecystectomy), advanced age and loss of skin firmness. The woman presented 10 months later reporting left abdominal pain, profound abdominal asymmetry which made her feel uncomfortable, and asking for examination, because she thought that a hernia re-occurred. A computed tomography revealed a noted aerocolia and a significant difference between the left and right side of the abdominal wall, with almost a disappearance of the right abdominal wall, however not official herniation was present.
Results It seems that the bowel distention was such that the patient's thin, multi-injured abdominal wall was not able to be protected with a 5 × 5 synthetic mesh put in the middle line of the abdomen. We decided not to step to further operating solutions.
Conclusion In patients with chronic motility problems of the intestines or/and bothered motility due to prior operations (adhesions) thin abdominal walls may easily contribute to abdominal asymmetry as well as chronic pain and operations with the use of small synthetic meshes cannot solve the problems of this kind.

GIM-05

To study interobserver and intraobserver variability in the classification of defecatory disorders on high resolution manometry

Akash Shukla*, Deepak Gupta, Dhiraj Agrawal, Abhishek Sadalage, Kiran S, Philip Abraham, Shobna Bhatia*
Department of Gastroenterology, Multistoried Building, Seth G S Medical College and K E M Hospital, Parel, Mumbai 400 012, India

Introduction Based on manometry findings, defecatory disorder is classified into 4 types (S S C Rao et al. GCNA 2008). The accuracy, reliability and reproducibility need evaluation. Hence, we did this study to examine intra and interobserver variability and to access reproducibility of manometry data in patients with defecatory disorders (DD).
Methodology We did reanalysis of anorectal manometry (ARM) tracing collected over a period of 2 years of 70 adult patients with diagnosis of DD. ARM tracing of each of the patient were shown to 4 different blinded experts (8 years of experience in reporting manometry) separately. One of the experts was one who had reported manometry tracings previously, at least 6 months apart. The data was entered into the case record form by an independent observer and analyzed to calculate interobserver and intraobserver variability.
Results The mean age of 70 patients (48 men) was 37±15.5 years, mean duration of symptoms were for 3.96 years, average stool frequency per day was 2±1.5, median Bristol stool scale was 3, mean basal pressure 70 ±21 mmHg, mean squeeze pressure 138±63 mmHg, mean defecation index 0.64±0.26. The intraobserver agreement was 86.7 % and interobserver agreement was 46.4 %. Details of agreement are mentioned in Table 1.

Table : Intra (Expert 1A and 1B) and interobserver variability in the classification of defecatory disorders

	Expert 1A	Expert 1B	Expert 2	Expert 3	Expert 4
Expert 1A	NA	0.867	0.350	0.370	0.657
Expert 1B	0.867	NA	0.347	0.346	0.727
Expert 2	0.350	0.347	NA	0.371	0.359
Expert 3	0.370	0.346	0.371	NA	0.298
Expert 4	0.657	0.727	0.359	0.298	NA

Conclusion HRM has good intraobserver agreement but poor interobserver agreement for classification of defecatory disorder. More objective criteria need to be defined.

GIM-06

A prospective study on prevalence and risk factors of post-infectious irritable bowel syndrome (PI-IBS) in coastal Eastern India

Prasanta Kumar Parida*, Preetam Nath, Sambit Kumar Behera, Girish Kumar Pati, Jimmy Narayan, Kaibalya Ranjan Dash, Suryakanta Parida, Shivaram Prasad Singh*
Department of Gastroenterology, S C B Medical College, Mangalabag, Cuttack 753 007, India

Background and Aim Usually a third of cases of IBS are **post-infectious** irritable bowel syndrome (PI-IBS) which occur following an attack of infectious diarrhea. The aim of the study was to find out the relationship of IBS with preceding episodes of gastroenteritis and other associated risk factors.
Methods This prospective cohort study was performed between July 2015 to June 2016. Eighty-eight consecutive patients attending the infectious and diarrhea (ID) and Gastroenterology ward, S C B Medical College and Hospital, Cuttack, were studied by using a set of questionnaires for evaluating their mental status and bowel habit following acute gastroenteritis, with a follow up evaluation after six months.
Results All the 88 patients were asked regarding their usual bowel habit, duration and details of the acute gastroenteritis, mental health status, and subsequently evaluated after six months. One fourth (22) patients suffered from IBS after six months of acute gastroenteritis. The risk factors for development of IBS were younger age ($p<0.05$), female sex ($p<0.05$), cramping abdominal pain ($p=0.002$), watery stools ($p=0.027$), bloody stools ($p=0.008$), longer duration of gastroenteritis ($p=0.004$), anxiety ($p=0.004$), depression ($p=0.002$), infective organisms like E coli (16 out of 22 patients) followed by Shigella (6 out of 22 patients).

Conclusion From our study we found that IBS developed following acute gastrointestinal infection in a fourth of hospitalized patients. The major risk factors for the development of PI-IBS were female gender, younger age, severity of the initial gastrointestinal insult, duration of the gastroenteritis, adverse psychological profile, and organisms like E coli and Shigella.

GIM-07

The prevalence of defecation disorders among patients with solitary rectal ulcer syndrome

Shemin Shah Abdul*, Varghese Thomas*
Department of Gastroenterology, Government Medical College, Calicut 637 008, India

Background Solitary rectal ulcer syndrome (SRUS) is an under reported disease that affects patients of all ages. The available data on the prevalence of defecatory disorders are limited among patients with SRUS.
Aim To study the prevalence of defecatory disorders like pelvic floor dyssynergia and slow transit constipation in patients with SRUS.
Methods This is a cross sectional study among histologically proven patients with SRUS. Diagnosis was based on history, physical examination, endoscopic and histological findings. Anorectal manometry, balloon expulsion test and radio opaque marker study were done in all. Pelvic floor dyssynergia was diagnosed by anorectal manometry and balloon expulsion time (>1 min). Colonic transit study was done with radio opaque markers as per published protocol.
Results Thirty-one cases were enrolled**,** males 21, median age 43 years. Median duration of symptoms were 24 (2–240) months. The common symptoms were constipation (*n*=36, 96.8 %), blood and mucus in stool (*n*=30, 96.8 %), excessive straining (*n*=28, 90.3 %), digital evacuation (*n*=26, 83.6 %) and rectal prolapse (*n*=3, 9.7 %). SRUS manifested as ulcer in 27 (87.1 %) and erythema in 4 (12.9 %) patients. Mean distance of ulcer from anal verge was 8.5±2.1 cm. Most common affected site was anterior wall (*n*=20, 64.5 %). Mean total colonic transit time was 12.6 ±7.9 h. Table shows prevalence of defecation disorders in patients with SRUS.

THE PREVALENCE OF DEFECATION DISORDERS AMONG PATIENTS WITH SRUS (TOTAL 31 PATENTS)

DEFECATORY DISORDER	NUMBER	PERCENTAGE
PELVIC FLOOR DYSSYNERGIA	21	67.7 %
SLOW TRANSIT CONSTIPATION	11	35.5 %
HYPOSENSITIVE RECTUM	8	25.8 %
PELVIC FLOOR DYSYSNERGIA+ SLOW TRANSIT CONSTIPATION	5	23.8 %
PELVIC FLOOR DYSSYNERGIA+ HYPOSENSITVE	**6**	**28.6 %**
PELVIC FLOOR DYSSYNERGIA+ HYPOSENSITVE RECTUM+ SLOW TRANSIT CONSTIPATION	**1**	**3.1 %**

Conclusion Pelvic floor dyssynergia was seen in 68 % of patients with SRUS. Slow colonic transit was seen in 36 % and hypo sensitive rectum in 26 % of patients. Thirty-eight percent had combination of these disorders.

GIM-08

Association of altered gut motility with ACE (I/D) polymorphism in type 2 diabetic patients: A case control study

Aastha Malik*, Rajesh Kumar Morya, Sanjay Kumar Bhadada, Satyavati Rana*
Departments of Gastroenterology and Endocrinology, Post Graduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background Type 2 diabetes is chronic metabolic disease. Environmental as well as genetic factors play key role in pathogenesis and complications of diabetes. Common gastrointestinal problems in diabetic patients include constipation and/or diarrhea. Both these may be related to alterations in gut motility.
Aim To study association of altered gut motility with ACE (I/D) polymorphism in type 2 diabetic patients.
Methods Two hundred and twenty-three type 2 diabetic patients attending Diabetic Clinic at PGIMER, Chandigarh were enrolled. They had diabetes for ≥5 years. One hundred and fifty-six age and sex matched healthy controls who were not relatives of patients but gave consent for study were also enrolled. Non-invasive lactulose hydrogen breath test was used for measurement of gut motility i.e. orocecal transit time (OCTT). Five mL blood was taken from subjects. Plasma was used for measurement of substance *P* levels by ELISA and buffy coat was used for isolation of DNA using phenol chloroform method. Angiotensin converting enzyme (ACE) gene polymorphism was performed by PCR.
Results Out of 223 patients, 46.2 % were males while 44.8 % males out of 156 controls. Mean±SD of age in patients was 55.06±10.12 years and 53.9±8.5 years in controls. Frequency of D allele and DD genotype was significantly higher ($p<0.05$) in patients than controls and was associated with increased risk of disease. OCTT was significantly delayed in patients as compared to controls. Delay was more significant ($p<0.05$) in individuals with DD genotype as compared to II genotype. Levels of substance *P* were lowest in DD allele genotype. Constipation was present in 60.5 % diabetic patients. OCTT was also delayed in patients with constipations than patients with diarrhea or who had no problem. Substance *P* levels were lower in patients with constipation.
Conclusion This study shows that there is association of DD allele with delayed gut motility through lowering of substance *P* levels in diabetic patients. Individuals with DD genotype may be more prone of developing constipation.

GIM-09

Role of anorectal manometry in post surgical pediatric patients with constipation/fecal incontinence

C Kumari*, S Karkra, N Mohan*
Department of Pediatric Gastroenterology and Hepatology, Medanta The Medicity Hospital, Gurgaon 122 001, India

Background Surgical correction of congenital megacolon, anorectal malformations and spinal anomalies could be complicated by fecal incontinence/constipation. Further treatment plan is difficult without understanding the residual sphincteric functional capacity. Anorectal manometry is a tool to assess the dynamic motor and sensory function of anal sphincter.
Objective To analyze the utility of anorectal manometry in post surgical patients of anorectal malformations (AR), congenital megacolon/ Hirschprung's disease (HD) and spinal malformations (SM) who presented with fecal incontinence (FI) /chronic constipation (CC).
Methods We did a prospective study on post surgical patients of AR, HD and SM presenting with FI and constipation in a tertiary care Department of Pediatric Gastroenterology in North India from January 2011 to July 2016. Anorectal manometry was done by using MMS-Water

perfused ARM catheter on all the patients in our neurophysiology laboratory and resting anal pressure (RAP), anal length, squeeze, RAIR, sensation were analyzed.
Results Ten patients, 9 males, with mean age of 79.8 months (18–168 months), included post AR 3, SM 4, HD 1 and post injury 2. In AR, 2 FI and 1 CC. One patient of FI had RAP of 25 mmHg with adequate squeeze, RAIR and sensation while the other had RAP of 3 mmHg with no squeeze and absent RAIR. In the former it was advised to continue pelvic floor exercises while in the second one a gracilis wrap was planned. In SM group, three had FI in whom mean anal length was 2 cm with RAP 55.6 mmHg, adequate squeeze, RAIR and sensation was present in 2. The 3rd patient had pudendal neuropathy. Patient with CC had normal ARM parameters. One patient with HD had CC and ARM showed high basal anal pressure (55 mmHg) with normal RAIR ruling out residual aganglionic disease. Two patients with accidental anal injury had presented with FI for whom initially colostomy was created their ARM showed good basal anal pressure with some rise during squeeze which helped in planning stoma closure by the surgeons with advise on pelvic exercises.
Conclusion ARM is a very useful modality to analyze the anal-sphinteric function in post anorectal surgery patients with chronic constipation/fecal incontinence and helps in their subsequent management plan.

GIM-10

Relationship between esophageal clinical symptoms and manometry findings in children with esophageal motility disorders

***Sakshi Karkra**, A Rai, N Mohan*
Department of Pediatric Gastroenterology and Hepatology, Medanta The Medicity Hospital, Gurgaon 122 001, India

Background The diagnostic value of esophageal manometry in particular clinical symptoms with suspected esophageal motor disorders (EMDs) is still unknown. The aim was to explore the correlation between presenting symptoms and esophageal manometry findings.
Methods We conducted a cross-sectional study of 58 patients with prior endoscopy aged 2–18 years and correlation calculated between symptoms and manometric findings.
Results Fifty-eight patients analyzed. Eighteen females, mean weight 43.9 Kg, mean age 13.4 year (6–18 years). Thirty-nine (67.2 %) presented with persistent vomiting, 17 dysphagia and 2 chest pain. In patients presenting with vomitings, 12 (30.7 %) had normal manometry findings while rest (69.2 %) had abnormality. Fifteen (39 %) were diagnosed with rumination syndrome with mean DCI of 646, CFV 4.3 cm/sec and IRP 6.1 mm. Six patients with vomitings (5.1 %) had hypotensive LES with mean LES pressure of 11 mmHg while rest had peristaltic defects like weak peristalsis, segmental breaks and hiatal hernia which was missed on endoscopy. Of dysphagia 17 (29.3 %), 15 (88 %) were diagnosed achalasia/segmental spasm. Average DCI was 1715, CFV 59.27 cm/sec and IRP 29.88. Two with chest pain had normal manometry.
Conclusion Esophageal manometry is useful modality in children presenting with dysphagia or persistent vomiting with significantly better manometric correlation.

GIM-11

Clinical outcome of pneumatic dilatation of achalasia cardia

***Amit Shejal**, T M Ramachandran*
Department of Gastroenterology, Government Medical College, Kozhikode 673 008, India

Background Pneumatic balloon dilation is one of most commonly used and effective method for treating patients with achalasia cardia.
Aim To accesses clinically immediate and long term response of pneumatic dilatation in achalasia cardia.
Methods Fifty-two achalasia cardia patients who had undergone pneumatic dilation using rigiflex balloon dilators (30 mm diameter with 10 psi for 1 min), from January 2013 were reviewed. During follow up patients either visited department or were contacted on Telephone. Forty-one were available for follow-evaluation. Data from these patients were analyzed for clinical improvement of symptom complex as per Eckardt score.
Results Of the 41 patients 21 were male (51.22 %) and 20 female (48.78 %). Mean age was 38.68 (13–64) years. Median symptom duration prior to 1st dilatation was 18 months (2–240). Symptoms at presentation were dysphagia (*n*=41, 100 %), regurgitation (*n*=38, 92.68 %), chest pain (*n*=31, 75.6 %), and weight loss (*n*=20, 48.78 %). Mean Eckardt score was 6.82 (4–11) at time of 1st dilatation which improved to 0.66, in follow up. Mean follow up period was 22.22 months (9–38). Forty (97.56 %) patients had immediate clinical improvement after 1 dilatation, of which 38 (92.68 %) patients didn't require any further treatment. Two patients required 2nd dilatation one 5 months and other 18 months after 1st procedure. Mean symptom free duration was 21.17 months. Occasional symptoms in follow up were dysphagia 2 (4.88 %), retrosternal chest pain1 1 (26.83 %), regurgitation 14 (34.15 %) no patient had weight loss. One patient had major complication in form of disrupted musculature of LES after dilatation and required surgery.
Conclusion Pneumatic dilatation is safe effective method for treatment of achalasia cardia and most patients responds to single dilatation procedure.

GIM-12

Prevalence of celiac disease in patients of irritable bowel syndrome at a tertiary care center

***S Rahman**, D K Bhargava, M Shawl, A Gupta, A Dhudhwawale, P Singh, S Lone*
Indraprastha Apollo Hospitals, Delhi Mathura Road, Near Jasola Apollo Metro Station, Sarita Vihar, New Delhi 110 076, India

Aim Prevalence of celiac disease in patients of irritable bowel syndrome at a tertiary care center.
Methods The study was conducted in Indraprastha Apollo Hospital, New Delhi between April 2014 to April 2016. Patients were interviewed and diagnosed irritable bowel syndrome on the basis of Rome III criteria. These patients were tested for IgA anti tTG. Those with positive anti tTG antibody were evaluated for the presence of villous abnormalities by UGI endoscopy with D2 biopsy. Patients who were only IgA anti tTG positive were considered potential/latent celiac and those with positive anti-tTG antibody and villous atrophy were considered to have celiac disease.
Results Out of 253 patients 2 were IgA anti tTG positive. One patient was male and other female. Both the patients had diarrhea predominant IBS. Of the two IgA anti tTG positive patients, one patient had D2 biopsy showing complete villous atrophy, cypt hyperplasia and intraepithelial lymphocytosis (Marsh grade 3c) suggestive of celiac disease. Other patient had positive IgA anti tTG antibody and biopsy negative for celiac disease thus potential/latent celiac disease.
Conclusion The prevalence of potential/latent celiac disease in IBS patients is 0.4 %. The prevalence of celiac disease in IBS patients is 0.4 %.

GIM-13

Effect of biofeedback therapy on anorectal physiological parameters among patients with fecal evacuation disorder

***Abhai Verma**, Asha Misra, Uday C Ghoshal*
Department of Gastroenterology, Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow 226 014, India

Introduction Fecal evacuation disorders (FED) are common among patients with chronic constipation presenting to tertiary care centers. Though biofeedback therapy (BFT) is effective in relieving symptoms in these patients, there is limited data on improvement in physiological parameters after such treatment.
Methods Consecutive patients with FED (diagnosed in symptomatic patients based on defecography, balloon expulsion test [BET] and anorectal manometry) referred to Gastrointestinal Pathophysiology and Motility Laboratory of our hospital from August 2012 to July 2015 were included. BFT was done for 2 weeks with 2 sessions of 30 to 60 min each, per day on all week days. ARM and BET was done at the beginning and end of BFT. Patients were clinically followed up for 1 month after completion of therapy.
Results Of 43 patients (median age 44 y, range 18–76, 30 [71 %] male) incomplete evacuation 42/43 (98 %), straining 40/43 (93 %) and rectal obstruction 35/43 (81 %) were the most common symptoms. Defecography and BET and was abnormal in 30/34 (70 %) and 36/43 (83 %). Pre and post-biofeedback key manometric parameters (median and range) were as follows: anal pressure during defecation in mmHg 99 (52–148) vs. 78 (37–182), p=0.03; maximum intrarectal pressure 60 (90–110) vs. 76 (31–178); p=0.01; defecation index 1.1 (0.1–23.0) vs. 3.2 (0.5–29.0); p=0.001. Dyssynergia and BET got corrected in 22/34 (65 %) and 18/30 (60 %) patients with BFT. At one month follow up 23/37 (62 %) patients were satisfied about their bowel symptoms.
Conclusions BFT improves overall global bowel satisfaction and key anorectal physiological parameters for defecation.

Liver-Portal Hypertension

LPH-01

Study of safety and efficacy with Injection Darbopoietin Alpha and Injection Pegfilgrastim use in patients with Child C liver cirrhosis patients

***Vijay Sharma**, Richa Sharma, Prasanna Rao*
Department of Gastroenterology, Manipal Hospital, Jaipur, India, Department of Public Health, Regional Institute of Health, Medicine and Research, Jaipur, India, and Department of Gastroenterology , Apollo Hospital, Bangalore , India

Introduction Dysregulated erythropoietin (EPO) plasma levels may play a role in the pathophysiology of liver cirrhosis. No report of use of Darbepoietin alpha and Pegylated Filgrastim in liver cirrhosis.
Aims and Methods To study the benefits of Darbepoietin and Pegfilgrastim in patients with decompensated liver cirrhosis. Prospectively clinical data recorded since October 2014. Patients with active bleed, hepatorenal syndrome, hepatoma, portal vessels thrombosis were excluded from study. Patients started on Injection Darbepoietin alpha 200 microgram and Injection Peg filgrastim 6 mg subcutaneously every 15 days, total three visits of patients, then three month follow up planned. Improvement in clinical, laboratory parameters analyzed. Median calculated, Wilcoxon Signed-Rank test applied to compare both groups.
Results and Discussion N=22, all male, 3 lost to follow up, etiology of cirrhosis were nonalcoholic fatty liver disease 5, hepatitis B virus 3, hepatitis C virus 2 and alcohol 12. Median age 59 years (range 40 to 70). Improvement in hemoglobin from 10.1 g % (range 5.9–13.4 gm %) to 10.6 g % (range 7.5–13.7 g %) p value 0.00374, total leukocyte count from 5100/cu mm to 7100/cu mm p value 0.00214, platelet count 90,000/cu mm to 146,000/cu mm, p value 0.00096, INR 1.7 (range 1.5–4.8) to 1.4 p value 0.00064, albumin 2.4 g/dL (range 1.6–2.9) to 2.5 g/dL (range 1.8–3.5) p value 0.043, Child score from 10 to 8 p value 0.007, ascites score 2 to 1, p value 0.00222. No significant improvement in serum creatinine, sodium, potasium, calcium, bilirubin, total protein, hepatic encephalopathy. High cost of medicine was the limiting factor.
Conclusion Our study suggests that Darbepoietin Alpha and Peg filgrastim is significantly effective in improving hematology, International normalized ratio, albumin, ascites and Child score of liver cirrhosis patients.

LPH-02

Portal vein Doppler: A non-invasive prediction of esophageal varices in cirrhosis

*S Babu Kumar, **Alexander Paul**, Yogesh Garg*
Chettinad Hospital and Research Institute, Rajiv Gandhi Salai, Kelambakkam, Kanchipuram Dist, Chennai 603 103, India

Upper gastrointestinal (GI) endoscopy is regarded as the best tool for diagnosing esophageal varices and portal vein parameters give us a direct view on portal hypertension. Considering endoscopy side effects and its unavailability, efforts are put to find an alternative diagnostic method including Doppler ultrasonography. In this study we aim to evaluate portal vein indices using Doppler ultrasound abdomen and to correlate the presence of esophageal varices using upper GI endoscopy. The study is a cross sectional study of 50 patients with features of decompensated liver disease admitted at Chettinad Hospital, Kanchipuram. The portal vein parameters on Doppler ultrasound abdomen includes portal vein diameter and portal vein velocity and their sensitivity, specificity and predictive values will be calculated using upper GI endoscopy as a gold standard.

LPH-03

Prospective randomized study of effect of lactulose or rifaximin or placebo in minimal hepatic ncephalopathy

***Vinay Pawar**, Nikhil Sonthalia, Pravin Rathi, Qais Contractor, Ravindra Surude, Samit Jain, Ashok Mohite, Sanjay Chandnani*
Department of Gastroenterology, Topiwala National Medical College and B Y L Nair Charitable Hospital, Dr A L Nair Road, Mumbai 400 008, India

Background Minimal hepatic encephalopathy (MHE) is the mildest form of hepatic encephalopathy, is characterized by subtle motor and cognitive deficits, and impairs health related quality of life. MHE may increase the risk of accidents and increased work instability.
Aims To study prevalence of MHE and effect of lactulose or rifaximin or placebo in treatment of MHE using neuropsychological tests and inhibitory control test.
Methods Patients with confirmed diagnosis of liver cirrhosis were enrolled in the study. Patients with MMSE >24 underwent neuropsychological testing and inhibitory control test to establish the diagnosis of MHE and these patients underwent treatment with lactulose or rifaximin or placebo for 3 months. Treatment outcomes were monitored at the end of 3 months.
Results Of the 36 cirrhotics screened, 24 (66.66 %) were diagnosed to have minimal hepatic encephalopathy with the help of neuropsychological testing and inhibitory control test. These patients were randomized in three groups, Group A lactulose (30–60 mL/day), Group B rifaximin (550 mg twice a day), Group C (B-complex tablets as placebo). The proportion of patients showing MHE reversal at 3 months were 60 % (6/10) for lactulose, 62.5 % (5/8) for rifaximin and 16.66 % (1/6) for placebo.
Conclusions Lactulose and rifaximin have comparable results in treating MHE. Inhibitory control test is effective in diagnosis of MHE.

LPH-04

Comparison of real time elastography, Fibroscan, FIB-4 score and APRI index with METAVIR score for assessment of hepatic fibrosis: A prospective study

***Amitesh Kumar**, Ashish Kumar Jha, Amarendra Kumar, Vishwa Mohan Dayal, Prem Kumar, Sanjeev Kumar Jha, Madhur Choudhary*
Department of Gastroenterology, Indira Gandhi Institute of Medical Sciences, Patna 800 014, India

Introduction Staging of hepatic fibrosis (HF) is important for assessing the severity of chronic liver disease (CLD). Liver biopsy, an invasive procedure has been used for the assessment of HF. There has been increasing interest in non-invasive assessment of HF.
Aim and Objectives To analyze, noninvasive methods like ultrasound-based real-time elastography (RTE), fibroscan, FIB-4 score and APRI index for assessment of HF, using histological stage as reference.
Methods A total of 20 patients with CLD were prospectively evaluated with routine laboratory tests, RTE, fibroscan and liver biopsy. Staging of liver biopsy was done using METAVIR score. Mean 'E' value from RTE, fibrosis score on fibroscan, FIB4 score and APRI index were calculated.
Results Etiologies of CLD were hepatitis B (9), hepatitis C (5), autoimmune hepatitis (4), NAFLD (1) and cryptogenic (1case). Mean (SD) age of presentation was 34.6 (12.88) years with a male: female ratio of 9:11. Mean (SD) value of fibroscan, FIB-4 and APRI were 9.71 (±4.22), 2.57 (±2.71), 1.55 (±1.33), respectively. Of 20 cases, 55 % (*n*-11) had < F2 and 45 % (*n*-9) had ≥F2 fibrosis on liver biopsy. By logistic regression, fibroscan significantly correlated with histological stage (*p*-0.039) while FIB-4 (*p*-0.06) and APRI (*p*-0.08) were not correlated. RTE was not significantly correlated with histological stage of fibrosis (*p*-0.239).
Conclusion As compared to RTE, fibroscan has better correlation with liver biopsy which is remains the gold standard for assessment of HF. In view of small sample size, results needs to be validated further.

LPH-05

Helicobacter pylori is a contributor to the severity of portal hypertensive gastropathy in patients with chronic liver disease

T Ratnaparkhi Gaurav*, B Sukanya, J Nayana, Y Raghvendra, M Rohit, P Bubun, J Rishabh, C Vineet, Ravi, Ajit Kumar*
Department of Medical Gastroenterology, Nizam's Institute of Medical Sciences, Punjagutta, Hyderabad 500 082, India

Background The role of *Helicobacter pylori* (*H pylori*) in portal hypertensive gastropathy (PHG) in cirrhotic patients is poorly defined. The aim of this study was to investigate the association of *H pylori* infection with PHG in patients with chronic liver disease (CLD).
Methods Patients of chronic liver disease with portal hypertensive gastropathy on upper gastrointestinal endoscopy were included in this study. Endoscopic assessment of the severity of PHG was done using NIEC (New Italian Endoscopy Club) criteria and antral biopsy was taken for rapid urease test (RUT).
Results Total 46 patients of CLD having PHG were included. Twenty-two (47.8 %) were RUT positive and 24 (52.17 %) were RUT negative. Mild, moderate and severe PHG was seen in 34 (73.9 %), 9 (19.55 %) and 3 (6.52 %) of patients respectively. RUT was positive in 11 out of 34 patients (32.35 %) of mild PHG, 8 out of 9 patients (88.8 %) with moderate PHG and all 3 patients (100 %) of severe PHG. Patients grouped as those with mild PHG and positive RUT against those with moderate/severe PHG with positive RUT. Significantly higher positivity of RUT was noted in moderate and severe PHG when compared to mild PHG (*p* value-0.00045, Fisher exact probability test). No statistically significant difference was noted about RUT positivity between compensated and decompensated CLD (*p* value 0.337 using Fisher exact probability test).
Conclusion There is significant association between *H pylori* infection and severity of PHG in CLD patients, irrespective of Child status Thus, *H pylori* needs to be eradicated in CLD patients with PHG.

LPH-06

Effect of metformin on disease progression in patients with NASH-related cirrhosis with diabetes or insulin resistance

Tanmay S Vyas, *S K Sarin, Manoj Kumar Sharma*
Department of Hepatology, Institute of Liver and Biliary Sciences, D 1, Vasant Kunj, New Delhi 110 070, India

Background and Aim Metformin reduces insulin resistance, central in progression of NASH-cirrhosis. Metformin reduced the risk of death by 57 % when used in NASH-cirrhosis in a retrospective study. However, there are no RCTs on effect of metfromin in NASH-cirrhosis progression/regression. We studied the same, using clinical/hemodynamic parameters.
Methods Of the 286 patients with NASH-cirrhosis between August 2014 to February 2015, 86 patients with Child's A/B cirrhosis were randomized (NCT02234440) to metformin arm or standard medical treatment (SMT) arm. Patients were advised exercise (60 min brisk-walking, 6 days/week) and low-calorie (1500 Kcal), low-fat diet. The primary end-point (10 % reduction in HVPG) was assessed after 12 months of follow up. Safety profile of drug, reduction in LSM/CAP, decompensation/complication were recorded three monthly.
Results Patients in both the arms were comparable. Till January 2016, primary end-point (PEP) could be assessed in 62 patients (28 in metformin and 34 in SMT arm). PEP was achieved in 17 (60.7 %) patients in the metformin and 5 (14.7 %) in SMT arm. In the metformin arm, there was higher reductions in HVPG [1.5 (0.25 to 3.75) vs. 1.0 (−2.0 to 1.0) mm Hg], weight [4.00 (−0.17 to 10.25) vs. 1.75 (0.00 to 4.00) Kg], LSM [7.50 (0.00 to 13.32) vs. 3.95 (−5.00 to 8.20) (kPa)] and CAP [34.0 (11.25 to 80.00) vs. 11.5 (−18.25 to 79.75) (dB/m)] as compared to SMT arm. Metformin was safe and wasn't associated with any major side-effects.
Conclusions Metformin leads to a higher reduction in weight, HVPG, LSM and CAP among Child A/B NASH cirrhosis patients. Whether these benefits ultimately lead to decreased incidence of decompensation and other complications, is yet to be studied.

LPH-07

To assess the safety of undiluted Cyanoacrylate glue injection in patients with gastric varices

Parika Kalra*, Sudipta Dhar, A J Joseph*
Christian Medical College, Vellore 632 004, India

Introduction Gastric variceal hemorrhage is a serious complication of portal hypertension and accounts for 10 % to 30 % of all variceal bleeds. Treatment of gastric variceal hemorrhage is technically challenging and is associated with high mortality. Endoscopic glue (N-Butyl-2-Cyanoacrylate) injection is the gold standard treatment to control gastric variceal bleeds.
Aim To assess the safety of undiluted Cyanoacrylate glue injection in patients with gastric varices.
Method It is a descriptive study and the data was extracted from prospectively maintained database of patients who underwent glue injection for gastric variceal hemorrhage from 2006 to June 2016. Outcome included mortality associated with glue injection.
Result Total 252 glue injection sessions were performed out of which 117 were done to control acute gastric variceal bleed, the rest 135 were done in patients with previous history of gastric variceal bleed. Out of total 194 patients, 127 were female and 67 were male. Forty-six patients underwent repeat injection sessions. Most common etiology was cryptogenic cirrohsis followed by Ethanol. Mean MELD score 11.56. Four out of 194 (2 %) deaths were recorded due to failed glue injection, complications associated with glue therapy.
Conclusion Undiluted Cyanoacrylate glue injection in patients with gastric variceal is a safe and effective therapy.

LPH-08

Modified APASL gastrointestinal bleed score predicts outcome better than other scores in acute-on-chronic liver failure: A prospective study from the multinational APASL ACLF Research Consortium (AARC)

Kapil Jamwal*, Rakhi Maiwall, Manoj Kumar Sharma, Ashok Kumar Choudhary, Barjesh Chander Sharma, Shiv Kumar Sarin for ACLF AARC Consortium*
Department of Hepatology, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Introduction Upper gastrointestinal (UGI) bleed in cirrhotics is a common and serious problem with high mortality. Occurrence and outcome of variceal bleed in acute-on-chronic liver failure (ACLF) patients has however, not been adequately studied. There are also no prospective scores to predict mortality in ACLF patients presenting with GI bleed.
Methods Of the 1785 ACLF patients enrolled in the prospective AARC data, all those presenting with UGI bleed (variceal and non variceal) were enrolled and followed for 90 day survival; APASL bleeding score [comprises of systolic BP, platelet count, CTP score, sepsis and active bleeding at endoscopy] was used in addition to AIMS65 and CLIF-SOFA to predict outcomes. Baseline parameters and scores CTP, MELD, SOFA, APACHE II, CLIF SOFA and number of organ failures.
Results One hundred and sixty ACLF patients presented with UGI bleed; 115 variceal and 45 non variceal. A total of 61 patients survived, 92 died and 7 were lost to follow up. The scores which predicted mortality with a ROC as follows: Modified APASL score 0.75, CLIF-SOFA 0.73, AIMS65 0.67 and previous APASL bleed score 0.49. The modified APASL GI bleed score included with following OR and *p* values: MAP (mean arterial pressure) 1.1 and 0.02, platelet count 1.1 and 0.67, MELD score 1.1 and 0.015, sepsis 1.35 and 0.04 and number of organ failures 1.96 and 0.02 respectively, with bleeding as an event.
Conclusion Modified APASL GI bleed score can accurately predict mortality of UGI bleed in ACLF patients as accurately as CLIF-SOFA and needs further validation

LPH-09

A randomized study to compare the efficacy of carbepenem versus carbepenem plus GM-CSF in difficult to treat (DTT) spontaneous bacterial peritonitis

Vikash Prakash*, Ankur Jindal, Shiv Kumar Sarin*
Department of Hepatology, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Background Advanced cirrhotics with SBP have high mortality despite aggressive antibiotic therapy. These patients show reduced monocyte HLA expression.GM-CSF improves monocytic HLA-DR and decrease gut bacterial translocation.
Methods Sixty-one consecutive cirrhotics with DTT-SBP [defined-SBP >48 h of hospitalization or non-response to 3rd Generation Cephalosporin] were randomized to Carbapenem (1 g IV t.i.d x 5 d) (Group A=32) or Carbapenem plus GMCSF (1.5 mcg/Kg daily IV till resolution or 5 d) (Group B=29) in addition to albumin. We evaluated SBP response rate (>75 % decrease in absolute neutrophil count; ANC at 48 h) and resolution [ANC <250 cells/mm 3).
Results Patients with Group A had higher SBP response [Group A: 75 % vs. group B: 27.5 %; $p<0.001$] and resolution rates [62.5 % vs. 17.24 %; $p<0.01$] and also had more frequent response at day 1 [40.6 % vs. 6.9 %; $p<0.002$]. In hospital survival was more in Group A as compared to Group B among SBP responders at 48 h (59.3 % vs. 20.7 %; $p<0.002$) and those with resolution of SBP (53.1 % vs. 20.7; $p<0.009$). Percentage change in ANC at day 1 was higher in Group A (93.5 %) than Group B (66.6 %) ($p<0.001$). Presence of positive ascitic fluid culture (%) had no impact on SBP response in Group A (85.7 % vs. 85.7 %) buthad lower SBP response rate in Group B (0 vs. 72.7 %; $p<0.01$). One patient required discontinuation of GM-CSF due toblood white cell count on day 2 but achieved responseat 48 h and resolution by day 4.
Conclusion Addition of GM-CSF to Carbepenemhas greater response rates in DTT-SBP and may improve clinical outcomes.

LPH-10

Frequency and profile of decompensation in cirrhotics with hepatic venous pressure gradient below 10 mmHg: Need to redefine CSPH

Ankit Bhardwaj*, Ankur Jindal, Ajeet Singh Bhadoria, Chandan Kedarisetty, Guresh Kumar, Rakhi Maiwall, S M Shasthry, Ashok Choudhary, Manoj Kumar Sharma, Kapil Dev Jamwal, Shiv Kumar Sarin*
Departments of Hepatology, and Clinical Research, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Introduction Clinically significant portal hypertension defined by HVPG >10 mmHg is an important predictor for development of esophageal varices (EV) and clinical decompensation. However, many cirrhotics exhibit varices and ascites despite HVPG 6 mmHg showed an increase in the rate of decompensation by 4. Seven percent (95 % CI, 1.03–1.06, $p=0.0001$). Rate of hepatic decompensation was lower in patients with HVPG 10 mmHg (5.4 % over a median duration of 16.5±8.6 months versus 20.7 % over duration of 14.5±7.2 months, $p=0.021$). Moreover, presence of large EV [Odd's ratio; OR: 6.2 (95 % CI: 1.84–21.18)] and HVPG >10 mmHg predicted first clinical decompensation in a compensated cirrhotic. On repeat HVPG ($n=482$) measurement after a follow up of 20.7 months, for every ±1 mm change in HVPG from baseline led to ±5 % change in rate of decompensation [r=0.825 (95 % CI: 0.696–0.95)].
Conclusions The hemodynamic threshold of HVPG >10 mmHg to define CSPH is high and imprecise and attempts to reduce portal pressure should be initiated at a much lower level to prevent development of complications of PHT.

LPH-11

Targeted heart rate reduction using carvedilol±ivabradine improves left ventricular diastolic dysfunction,clinical progression and survival in cirrhosis

Madhumita Premkumar*, Devraj Rangegowda, Saggere M Shasthry, Tanmay S Vyas, Ritu Goyal, Jelen K Singh, Sherin S Thomas, Shiv K Sarin*
Departments of Hepatology, Biochemistry, and Cardiology, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Background and Aims Left ventricular diastolic dysfunction (LVDD) is seen in 30 % to 70 % cirrhotics and signifies advanced cirrhosis, renal dysfunction, and mortality. This prospective RCT assesses the effect of targeted heart rate reduction (THR using carvedilol±ivabradine) on LVDD and complications.
Methods: Two hundred and sixty consecutive cirrhotics with eradicated varices were screened for LVDD using echocardiography (ECHO). Of these, 189 (72 %) patients with LVDD were randomized to either THR (55–65 or 20 % reduction from baseline) Group A, $n=94$, (mean age 50 year; 87 % males)] or standard care [Group B , $n=95$; (mean age 52 years; 77 % males)] without beta-blockers. THR was achieved by maximum tolerated carvedilol ±ivabradine. Patients were evaluated at 0, 6 and 12 months.
Results Of 189 patients, 52 % and 48 % had Grades 1 and 2 LVDD respectively. In Gr. A, THR was achieved in 78 (82.9 %) patients (responders=R); 60 (63.8 %) with carvedilol alone and 34 (36.1 %) with added ivabradine in case of carvedilol intolerance. At the end of 1 year, 21 (11.1 %) subjects died, 6 (14 %) in Grp A and 15 (18 %) in Gr B ($p=0.24$),

with no mortality in R as compared with non responder (NR) (p=0.000). On echo non-survivors (NS) had higher E ratio [8.7±3.3 (S) vs. 9.1±2.3 (NS), p=0.058]. Patients in Gr. B developed more renal injury [OR6.2; p=0.02] and hepatic encephalopathy [OR 9.6; p=0.004]. In Gr A, LVDD reversed in 16 (20.5 %) and improved from grade 2 to grade 1 in 34 (35.4 %).
Conclusions Targeted HR reduction using carvedilol±ivabradine shows improvement in LVDD, reduces risk of HE, AKI, and enables better overall survival.

LPH-12

Correlation of platelet count/splenic diameter ratio for the diagnosis of esophageal varices in patients of cirrhosis of liver

Mandar Waghralkar, *Vijay G Somannavar, Santosh Hazare*
Departments of Medicine, and Gastroenterology, Jawaharlal Nehru Medical College, JNMC Campus, Nehru Nagar, Belagavi 590 010, India

Background and Objectives Patients with cirrhosis of liver according to current guidelines and recommendation need to undergo screening with an upper gastrointestinal (GI) endoscopy to detect esophageal varices. This poses social and medical burden. In this study we aim to identify the noninvasive predictors of esophageal varices particularly platelet count, spleen diameter and platelet count/SD ratio.
Methods In this prospective observational study of 70 patients, newly diagnosed patients with liver cirrhosis without a history of GI bleeding were included between January 2015 and December 2015.
Results Among 70 patients of cirrhosis 54 (77.14 %) had varices. Males predominated with 64 (91 %). Majority patients ranged in between 31 and 50 years. Evidence of esophageal varices was more common with cirrhosis secondary to alcoholism as compared to HBV, HCV. The Child-Pugh score, platelet count, spleen size, platelet count/spleen diameter ratio in patients with varices was significantly different from patients without varices. Platelet count spleen diameter ratio cut-off value of 909 was obtained with sensitivity of 77 % and specificity of 79 %. The positive predictive value was 88 % and negative predictive value was 62 %.
Conclusion and Interpretation There is strong evidence of correlation between platelet count, spleen diameter and platelet count/spleen diameter ratio for predicting esophageal varices in patients of cirrhosis. But platelet count/spleen diameter ratio with cut-off value of 909 may not be sufficiently accurate. The platelet count to spleen diameter ratio may be useful inexpensive tool for diagnosing esophageal varices in liver cirrhosis noninvasively when endoscopy facilities are not available.

LPH-13

Clinical and lab profile of type 1 hepatorenal syndrome

Anurag Rohatgi, *P Rani*
Department of Medicine, Lady Hardinge Medical College, C-604, Shaheed Bhagat Singh Road, Diz Area, Connaught Place, New Delhi, Delhi 110 001, India and Srimati Sucheta Kripalini Hospital SSKH, New Delhi, India

Aim To study the clinical and lab profile, and in hospital course of hepatorenal syndrome 1 (HRS-1).
Methods This is a prospective study of all patients admitted into the ICU during the period November 2012 to March 2014. Type 1 h was defined as per standard criteria. After admission patients were given supportive care, intravenous albumin and nor-adrenaline. ICU care as necessary was provided. Patients were evaluated for clinical profile, lab parameters and prognostic factors. A assessment of data of patients who survived and succumb were collated.
Results Total 50 patients were studied , 85 % (43 patients male) and 7 were female, mean age was 45.2 (27 to 58). Alcohol related liver disease was the most encountered (75 %) followed by hepatitis B and crytptogenic. Associated clinical features were upper gastrointestinal bleed, worsening ascitis, SBP and lower respiratory tract infections. A detailed analysis of the clinical profile of patients who survived or succumbed were done.
Conclusions High MELD score (26.8), Child class-C, elevated bilirubin and serum sodium below 126 mEq/L were associated with type 1 h and all these portended high short-term mortality of these patients.

LPH-14

Portal hypertensive polyps prevalence assessment of risk factor a prospective study

Pinakin Patel, *Deepak Amarapurkar*
Bombay Hospital and Medical Research Center, 12, Marine Lines, Mumbai 400 020, India

Aim Esophagogastric varices, portal hypertensive gastropathy (PHG) and gastric antral vascular ectasia (GAVE) are commonly described findings in upper gastrointestinal (GI) endoscopy in patients with portal hypertension (PH). We planned this prospective study to estimate prevalence and risk factors for portal hypertensive polyp (PHP).
Methods Two hundred and ninety consecutive patients of PH (cirrhosis: 268, non-cirrhotic portal fibrosis (NCPF) 6, extrahepatic portal vein obstruction (EHPVO) 16, were evaluated prospectively for upper GI mucosal changes over a period of 1 year. Out of 268 cirrhotic patients, 21 underwent successful band ligation (EVL), with evaluation before and after endoscopic therapy.
Results Out of 268 cirrhotic patients prevalence of gastrodeuodenal PHP was 7.8 %. Overall prevalence of esophageal varices (large 58.9 %, small 36.5 %), gastric varices 12.6 %, PHG 75.7 %, GAVE 7 % and gastrodeuodenal ulcers 7 %. Out of 268 patients 31 (11.5 %) having active esophageal variceal bleed and 2 having severe PHG bleed. Eighty-one (30.2 %) patients having iron deficiency anemia from unexplained reasons. Twenty-one patients underwent successful EVL, of which 15 had PHG (severe-5, mild-10) before therapy. After successful EVL 14 patients had PHG (severe-14, mild-4), but severity of PHG was significantly (p<0.05) increased.
Conclusion The prevalence of gastrodeuodenal PHP in cirrhotics was more associated with large esophageal varices and previous history of EVL but risk of development of gastrodeuodenal PHP was independent. Apart from esophagogastric varices, PHG GAVE and gastrodeuodenal ulcers are important cause of bleeding and chronic iron deficiency anemia of unexplained reason in cirrhotic patients. Severity of PHG was significantly increased following successful EVL.

LPH-15

Check point for esophageal variceal bleeding using band ligator-Outstanding efficacy but at low cost?

Amol Patil, *Avinash Balekuduru, Lokesh Locheruvapalli, Ravi Kiran, Satyaprakash Bonthala Subbaraj*
Department of Gastroenterology and Hepatology, M S Ramaiah Hospitals, Bangalore 560 054, India

Background and Aim Variceal band ligation (VBL) is recommended as the preferred endoscopic method for obliteration of esophageal varices 1. Multiple categories of band ligators were developed to manage variceal bleeding. The aim of the study is to assess the outcome of variceal bleed

and the efficacy of low cost (Rs.1700/-) variceal band ligator (super clikmedenta) for VBL at our center.
Methods Were trospectively studied all the subjects who underwent endoscopy for variceal bleed from April 2015 to May 2016. The age, gender, etiology of varices, type of endotherapy, outcomes were systematically recorded.
Results Endoscopy was performed in 237 subjects with variceal bleed during the study period. The mean age was 64 +/−8 years and 72 % were men. Alcoholic liver disease was noted in 145 (61 %) subjects. Endoscopic VBL was the most common procedure in 193 (81 %) patients, endoscopic sclerotherapy in 24 (10 %) patients, glue and hemoclip application in 5.4 % and 2.1 % were noted respectively in dual etiology. Rebleed following VBL was noted in 18 (7.5 %) subjects which was similar to the the rate reported for standard ligator 2 ,3.
Conclusion VBL at a low cost with similar efficacy can improve the follow up VBL sessions especially in subjects from low socioeconomic strata.

LPH-16

Consultant *se* Resident Takh-Gastrointestinal bleed me farak

***Amol Patil**, Avinash Balekuduru, Lokesh Locheruvapalli, Ravi Kiran, Satyaprakash Bonthala Subbaraj*
Department of Gastroenterology and Hepatology, M S Ramaiah Hospitals, Bangalore 560 054, India

Aim To study the difference in clinical, endoscopic profile and management of acute upper gastrointestinal (GI) bleed by consultant and a Final year Resident.
Method GI bleed database is maintained prospectively in department. Total 6 months period was chosen January-June of 2012 (Consultant) and 2016 (Resident) for comparison done at our centre (M S Ramaiah).
Results Males were predominant in both study. Presenting history of both hematemesis and malena found in 54 patients in 2012 study which was NIL in 2016. Most common etiology was esophageal varices. Difficult endoscopic findings like Dual etiology, M W Tear, EMD, gastric ulcer were found more in 2012 study. OR difficult endoscopic findings like dual etiology, M W Tear, EMD, gastric ulcer were found in single digits in 2016 study and double digits in 2012 study. Endotherapy such as sclero, clip application, APC, heater probe were more in number in 2012 study. While in 2016 study EVL was in more number than 2012 study. In both study mortality was NIL.
Conclusion The number of GI bleed cases decreased during the study period of 2016. Whether its true fall in number?? Needs to be review in later studies.

LPH-17

Caroli's syndrome associated with autosomal recessive polycystic kidney disease in 2 Indian siblings

Sajan Agarwal
Department of Pediatric, JK Lone Hospital, Near Trimurti Circle, Jawaharlal Nehru Road, Gangawal Park, Rambagh, Jaipur 302 004, India, and Sawai ManSingh Medical College, Jawaharlal Nehru Marg, Gangawal Park, Jaipur 302 004, India

Caroli's syndrome (CS) is a rare congenital disorder characterized by multiple segmental cystic or saccular dilatations of the intrahepatic bile ducts and congenital hepatic fibrosis (CHF). The clinical features of this syndrome reflect both the characteristics of CHF such as hepatic fibrosis, portal hypertension, and renal cystic disease and that of Caroli's disease (CD) named as recurrent cholangitis and cholelithiasis. CS is associated with renal involvement in up to 60 % of patients and implies a dilatation of the collecting renal tubules. We report a case of 2 sisters who were presented with hepatosplenomegaly, growth failure, intrahepatic bile duct dilatation and bilateral autosomal recessive polycystic kidney disease (ARPKD) on imaging with histopathological diagnosis of CHF. Elder sisters also had stage-2 chronic kidney disease (CKD) without any renal symptoms. Both the patients have been advised regular follow up for monitoring the progression of the disease. Prognosis is fairly good unless recurrent cholangitis and renal failure develops. Combined liver and renal transplantation seems the ultimate treatment for this disease in case of end stage renal disease (ESRD) with clinical significant portal hypertension and/or recurrent cholangitis.
In conclusion, patients with CS should be screened for renal cystic lesions and vice versa even if they are asymptomatic.

LPH-18

Can non invasive parameters help us to predict large esophageal varices ? Results from a tertiary centre of Rajasthan

***Kumar Shwetanshu Narayan**, Bhawar Singh Dhandhu, Gaurav Gupta, Sandeep Nijhawan*
Department of Gastroenterology, Sawai Man Singh Medical College, Jawaharlal Nehru Marg, Gangawal Park, Jaipur 302 004, India

LPH-19

Modified or direct transjugular intrahepatic portosystemic shunt is associated with excellent medium term survival in Indian patients with hepatic venous outflow tract obstruction

***Rajesh Padhan**, Kaushal Madan, S S Baijal, Suraj Bhagat, Vaibhav Jain, Deepak Jain, Maneesh Paliwal, Rajan Dhingra, Divij Mehta, Richa Bhargava, Randhir Sud, Neeraj Saraf, Rajesh Puri, Manju Yadav*
Artemis Centre of Excellence for Digestive and Liver Diseases, Artemis Hospital, Gurgaon 120 001, India and Department of Interventional Radiology and Medanta Institute of Digestive and Hepatobiliary Sciences, Medanta-The Medicity,Gurgaon 122 001, India

Background Interventional radiological procedures can prolong survival and delay transplantation in hepatic venous outflow tract obstruction (HVOTO). Data and outcomes of modified transjugular intrahepatic portosystemic shunts (DIPSS) in Indian HVOTO patients is limited.
Aim To determine the outcome of modified TIPS (DIPSS) among HVOTO patients at a tertiary care hospital in North India.
Methods Retrospective analysis of clinical records of all patients who underwent modified TIPSS (DIPSS) for HVOTO between April 2010 to May 2016 .
Result Twelve HVOTO patients underwent DIPSS using covered stents. The mean age was 34.5±6.33 years and 6 were males. Median follow up was 37.5 (12–70) months. The indication of DIPSS was refractory ascites in all. Two patients had acute BCS and rest had acute-on-chronic or chronic presentation. Mean Rotterdam and BCS TIPSS score were 0.499±0.59 and 4.45±0.94 respectively.
Etiology Idiopathic - 6, myeloproliferative disorder with JAK 2 mutation - 4, protein S deficiency −1 and ulcerative colitis −1. The clinical and biochemical parameter improved over mean duration of 21.5±9.29 days and all are free of ascites. Four developed restenosis after 22±6.02 months and all were successfully treated with repeat DIPSS. Minor procedure related adverse events occurred in 3 patients. Transplant free survival is 100 %.
Conclusion Modified TIPS (DIPSS) with a covered stent provided durable patency and excellent medium term survival in HVOTO patients, irrespective of etiology and stage of disease.

LPH-20

To study growth retardation in patients of extrahepatic portal venous obstruction

Gaurav Garg. *S K Singh, V K Dixit, S K Shukla, Shivam Sachan*
Department of Gastroenterology, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, India

Background and Aim Extrahepatic portal venous obstruction is a vascular disorder of liver. It is defined by obstruction of extrahepatic portal vein with or without involvement of intrahepatic portal or splenic vein. It accounts for almost 70 % of pediatric patients with portal hypertension. In this study we assess the effect of EHPVO on growth of children.
Method A total 53 (male-32 female-21) Pediatric patients with EHPVO were enrolled in study conducted between January 2015 to June 2016 in Department of Gastroenterology, IMS, BHU Varanasi.
Results The overall Mean age was 8.14±3.32 years with range of 2–14 years. In male child mean age was 8.14±3.38 years and in female child mean age was 9.45±3.14 years. The mean weight of male and female child was 19.59 ±7.08 kg and 21.67±5.75 kg respectively. The mean height of male and female child was 116.84±16.78 cm and 122.86±16.25 cm respectively. The weight for height (a measure of acute undernutrition) was 86.66+−9. 49 and 85.07+−8.30 in male and female child. The height for age (a measure of chronic malnutrition) was 91.74+−2.58 and 91.01+=3.19 in male and female child respectively. Wasting was found in 10 (18.86 %) patients more in female (23.8 %) than male (15.6 %). Stunting alone was found in 15 patients, more in female (33.33 %) than male (25 %). Both wasting and stunting were found in 5 child (9.4 %) 3 male (9.4 %) 2 female (9.5 %) child.
Conclusions Growth retardation was present in significant proportion of patients. Wasting (alone) was found in 18.86 % cases, stunting (alone) was in 28.3 % of cases. Both wasting and stunting were in 9.44 % cases. Normal growth was in 43.4 % of patients.

LPH-21

Transjugular intrahepatic portosystemic shunt in hepatic venous outflow tract obstruction: Results and comparison of prognostic scores

Shalimar*, Shivanand Ramachandra Gamanagatti*
Departments of Gastroenterology, and Radiodiagnosis, All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India

Background and Aim Transjugular portosystemic shunts (TIPSS) is recommended as the treatment of choice in patients with hepatic venous outflow tract obstruction (HVOTO) based on limited data. Available prognostic scores need validation. Our objective was to evaluate outcomes and utility of prognostic scores in HVOTO patients undergoing TIPSS.
Methods All consecutive HVOTO patients undergoing TIPSS were included. Clinical presentations and outcomes were noted. Cox proportional hazard regression model was used to assess the predictors of outcome.
Results Fifty-four HVOTO who had TIPSS were included; males-28 (52 %); mean age (±SD) of onset of symptoms was 24.2±8.7 years. Clinical presentation was acute in 4 (7.4 %), subacute in 14 (25.9 %) and chronic in 36 (66.7 %). The 1-, 2- and 3-year TIPSS stent patency, cumulative encephalopathy-free rates and survival rates were 91 %, 83 % and 77 %; 86 %, 74 % and 74 %; and 93 %, 84 % and 84 % respectively. Six (11.1 %) patients died during follow up, 3 within the first year. Median time to death was 15 (1–48) months. On univariate analysis, site of block (combined hepatic vein and inferior vena cava vs. hepatic vein alone), response to therapy and All India Institute of Medical Sciences (AIIMS)-HVOTO score were significantly different between survivors and non-survivors. On multivariate analysis, AIIMS-HVOTO score (HR, 2.75; 95 % CI 1.08–6.97) was independently associated with mortality. The 5 year survival with AIIMS-HVOTO score between 2 and 4 was 74 %; none with score between 4.1 and 6 survived beyond 1 year (log rank $p<0.001$).
Conclusion TIPSS improves outcome in patients with HVOTO. AIIMS HVOTO score predicts outcome and can be used for selecting patients for liver transplantation post TIPSS.

LPH-22

Alcohol-related acute on chronic liver failure- Comparison of various prognostic scores in predicting outcome

Shalimar, ***Soumya Jagannath Mahapatra****, Ujjwal Sonika, Gyan Ranjan, Shekhar Singh Jadaun, Saurabh Kedia, Baibaswata Nayak, Bhaskar Thakur, Subrat K Acharya*
Department of Gastroenterology, All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India

Background There is no consensus regarding the best available prognostic score in acute-on- chronic liver failure (ACLF). We compared all available prognostic models in predicting outcome in alcohol-related ACLF.
Methods All consecutive patients with alcohol-related ACLF admitted in a tertiary care center in India were included. Admission SOFA score, APACHE II score,MELD, MELD-Na, CTP score, Maddrey's discriminant function, ABIC score and CLIF-C ACLF score were calculated; receiver operator characteristic (ROC) curves were compared with Hanley and McNeil test.
Results Of the 143 patients with alcohol-related ACLF ; 90 (62.9 %) died over a median (range) hospital stay of 7 (1–45) days. On multivariate cox regression analysis, independent predictors of outcome were hepatic encephalopathy (early: HR 3.52, 95 % CI 1.51–8.17, $p=0.003$ and advanced: HR 4.24, 95 % CI 1.48–12.0, $p=0.007$), arterial ammonia (HR 1.01, 95 % CI 1.00–1.02, $p<0.001$) and serum creatinine (HR, 1.22 95 % CI 1.01–1.48, $p=0.033$). The AUROC was highest for CLIF-C ACLF score; with a cut-off score [PA1] of 44, the sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracy were 81.5 %, 62.5 %, 77.9 %, 67.6 % and 74.3 % respectively. CLIF-C ACLF was significantly better than MELD, MELD-Na, CTP score, DF, ABIC score and Maddrey's DF ($p<0.05$, Hanley and McNeil).
Conclusions Alcohol-related ACLF has a high (62.9 %) mortality over a median hospital stay of 7 days. Among the available prognostic scores, CLIF-C ACLF performs better than other prognostic scores.

LPH-23

Splenic artery aneurysm with extrahepatic portal vein obstruction

P Anbalagan*, Bibin, P Rajan Mittal, P Padmanabhan*
Meenakshi Medical College and Research Institute, Enathur, Karrapettai Post, Kanchipuram 631 552, India

Case 22-year-old, female presented with abdominal pain of 6 months duration. Persistant, dull aching left upper quadrant pain. Associated with feeling of fullness after food. On enamination she was thinly built and nourished. Pallor was present. She had splenomegaly (12 cms below costal margin) on palpation. Contrast CT abdomen showed splenomegaly, multiple periportal and spleno renal collaterals, two large splenic artery aneurysms. Ultrasound with doppler showed features suggestive of portal vein obstruction with portal cavernoma. upper gastrointestinal (UGI) endoscopy showed four columns of Grade III varices, gastric varices (GOV 2). A diagnosis of EHPVO with splenic artery aneurysm was made. Patient underwent splenectomy+ aneurysmectomy+distal splenorenal shunt.
Conclusion SAA with EHPVO is extremely rare presentation and carries high risk of complication due to rupture. Surgery is the best modality of treatment as both aneurysm and portal hypertension can be addressed.

LPH-24

Hepato venous pressure gradient predicts mortality and gastrointestinal bleed in acute-on-chronic liver failure

***Rahul Jain**, Sandeep Thareja, Atul Jha, Pankaj Puri, Priyank Dhiman*
Department of Gastroenterology, Army Hospital (R&R), Delhi Cantt, New Delhi, India

Introduction ACLF is a syndrome that is characterized by higher short-term mortality and increased incidences of complications like GI gleed. Hepato venous pressure gradient (HVPG) measurement has been shown to be the most important diagnostic criteria in the diagnosis of portal hypertension. However HVPG has not been evaluated as a tool to predict mortality and GI bleed in patients of ACLF.
Methods Thirty patients of ACLF were enrolled and their HVPG was measured. The patients were followed up during the course of admission for the occurance of the primary end-points (In hospital mortality and GI bleed). HVPG was also correlated with clinical scores like SOFA and MELD.
Results HVPG was significantly higher in patients who died during hospitalization. Similarly HVPG was significantly higher in patients with a GI bleed. When correlated to MELD a direct correlation was present between HVPG and MELD. A similar correlation was also noted between HVPG and SOFA.
Conclusion HVPG is a safe, important and useful tool in prediction of mortality and GI bleed in patients of ACLF and can be used in clinical settings during the management of ACLF

LPH-25

A clinical profile of acute-on-chronic liver failure

***Atul Jha**, Rahul Jain, Sandeep Thareja, Pankaj Puri, Priyank Dhiman*
Department of Gastroenterology, Army Hospital (R&R), Delhi Cantt, New Delhi, India

Introduction Acute-on-chronic liver failure (ACLF) is a syndrome that is characterized by rapid deterioration of liver function resulting in high short term mortality and increased incidences of complications.
Methods Thirty patients each of ACLF and decompensated cirrhosis were enrolled. Their basis clinical and metabolic parameters were noted. HVPG was measured. The patients were followed up during the course of admission for the occurrence of the primary end points (In hospital mortality) and complications like GI bleed and renal failure.
Results Patients of ACLF had a higher mortality and the rates of other complications were also high. HVPG was noted to be higher in patients of ACLF as compared to decompensated liver cirrhosis.
Conclusion ACLF has a higher mortality and rate of complications as compared to decompensated cirrhosis. Early identifications of ACLF and aggressive therapy can decrease the mortality and have better outcomes.

LPH-26

Predictors of in hospital and 90 day mortality in patients admitted with spontaneous bacterial peritonitis in a tertiary care centre

***Gopu R Babu**, M Ramu, Ponni Krishnan, Bincy, Santosh Kumar Yadav, Shahna S Fathima, Arun Iyer, D Krishnadas, Srijaya, Shanid*
Department of Medical Gastroente1ology, Government Medical College, Ulloor Road, Thiruvananthapuram 695 011, India

Background and Aim Bacterial infections are common in patients with cirrhosis. Spontaneous bacterial peritonitis (SBP) is the most prevalent infection in cirrhosis. SBP occurs in 10 % to 30 % of patients with liver cirrhosis, with mortality ranging from 20 % to 40 %. The model for end-stage liver disease (MELD) was originally created and validated in patients in whom an acute reversible complication like bacterial infection or azotemia was not present and not designed to predict mortality. Of the available models, MELD is the most commonly used to predict mortality in decompensated chronic liver disease. The aim of the present study was to find the predictors of In hospital and 90 day mortality in patients admitted with SBP.
Method Study design-Retrospective observational study, Settings–Department of Medical Gastroenterology, MCH, Thiruvananthapuram, Study period-January 2015-December 2015, Inclusion criteria-Cirrhosis patients admitted with first episode of SBP were included. SBP was defined as ascitic fluid ANC ≥250 cells/mm3, Hospital based electronic discharge data and case records were reviewed. The demographic, clinical, biochemical characteristics of patients were compared and analyzed
Results One hundred and sixty-five patients were admitted with SBP during the period of study. Mean age was 48.5 years. Eighty-four percent patients were male. Alcoholic liver disease and NASH were predominant cause of decompensated cirrhosis. The mortality rate was 20 % for patients with SBP. About 66 % of this death occurred during the in hospital period. On univariate analysis low platelet count, serum creatinine, PT INR was found to predict in hospital mortality. Low serum sodium, prolonged INR and a low ascitic fluid albumin level was found to predict 90 day mortality.
Conclusion Elevated serum creatinine, prolonged INR and low platelet counts were factors which predicted the risk of IP mortality in patients with SBP. Those with low S. Na, and low ascitic fluid albumin needs to be followed up as they are at increased mortality risk during the first three months following SBP.

LPH-27

To access the role of gram positive organism in causing sepsis in patients with cirrhosis

***Dadasaheb Maindad**, Suresh Shenoy, Sandeep Gopal, B V Tantry*
Department of Gastroenterology, Kasturba Medical College, Mangalore 575 001, India

Empirical antibiotic therapy should be design as to cover most likely organisms. Delay in initiation of appropriate therapy leads to increase mortality. Present study was performed to access the role of gram positive organism in causing sepsis in patients with cirrhosis and access sensitivity pattern of these garm- positive organism.
Methodology Study type: Prospective, single centre, observational. This study was performed in KMC, Mangalore, from September 2015 to July 2016. Study was included 146 culture positive infections in 99 patients with cirrhosis of liver. Out of these 42 infections profound to be gram positive infections. These gram positive infections were included in the study. All patients were underwent detail clinical examination, relevant laboratory investigations, bacterial culture and sensitivity.
Results

Infection	HA	HCA	CA	Total no.	Percentage
Cellulites	4	3	4	11	26.19 %
Bacteremia	3	1	5	9	21.42 %
SBP	2	4	2	8	19.0 %
UTI	5	3	4	12	28.85 %
RTI	2	0	0	2	4.76 %
Total	16 (38.09 %)	11 (26.19 %)	15 (35.17 %)	42	100 %

HA hospital acquired, *HCA* health care associated, *CA* community acquired
Table 1 Shows etiology of gram positive sepsis in our patients. staphylococcus, streptococcus, enterococcus are the predominant organisms isolated. 4/42 patients had infection with MRSA. Sensitivity to commonly used antibiotics cefotaxime, ceftriaxone, quinolones is <45 %. Eeven

higher antibiotics piperacillin-tazobactam and cefoperazone sulbactam has only 60 % sensitivity. Teicoplanin,linezolid,vancomycin showed good sensitivity (90 % to 100 %).
Conclusion Initial empirical therapy in our population should cover for frequent gram positive infections, Which should include antibiotics such as teicoplanin, linezolid or vancomycin.

LPH-28

Comparison of scores for predicting in hospital mortality in decompensated chronic liver disease

Shahna S Fathima*, Ponni Krishnan, Krishnadas Devadas, S Srijaya, K S Prasanth, Shanid Abdul Sathar, George Peter, Arun Iyer, Santosh Kumar Yadav, Gopu R Babu, B K Bincy*
Government Medical College, Ulloor Road, Thiruvananthapuram 695 011, India

Background and Aims Several prognostic scores have been used in CLD. MELD the most widely used is more objective than CHILD score. The incorporation of Na to the MELD (MELD-Na) has been shown to improves its predictive accuracy. ALBI score has been recently introduced for prognostication in PBC and HCC. NLR (neutrophil lymphocyte ratio) and PLR (platelet lymphocyte ratio) as markers of systemic inflammation has been used for predicting short-term mortality in solid tumors and vascular disorders.
Aim of this study is to compare these scores for predicting inhospital mortality in patients admitted with decompensated CLD.
Methods Descriptive retrospective study. Data from case records of patients expired in Medical Gastroenterology Department, Government Medical College Hospital, Thiruvananthapuram from February 2015 to January 2016 was collected. Same number of patients were randomly selected of those who got discharged in a stable condition. Continuous variables were described by mean and SD. Qualitative variables were described by frequency distribution. Association of continuous variables were analyzed by T test. Univariate analysis was used to find the significance of association of MELD, MELD Na, ALBI, NLR and PLR with mortality. ROC curve was used to predict optimum cutoff value for significant variables.
Results Ninety-six patients expired in this period. Eighty-eight were CHILD C and 8 were CHILD B. Comparison was done with those who were discharged stably. Significant difference was found in the MELD and MELD Na between the 2 groups. AUROC was 0.707 for MELD and 0.801 for MELD Na. Cut-off value of 21.5 for MELD had sensitivity of 76 specificity of 56.3 while cutoff of MELD Na at 23.04 had a sensitivity of 84.5 and specificity of 67.7.
Conclusions Both MELD and MELD Na are good predictors of inhospital mortality with MELD Na being better than MELD. Other scores like ALBI, NLR, PLR has no role in predicting in hospital mortality in CLD.

LPH-29

Combining chronic liver failure-Sequential organ failure assessment (CLIF SOFA) criteria with Asia-Pacific Association for the Study of Liver (APASL) criteria predicts short-term mortality of acute-on-chronic liver failure (ACLF) better than APASL criteria

Santosh Kumar Yadav*, Krishnadas Devadas*
Department of Medical Gastroenterology, Government Medical College, Ulloor Road, Thiruvananthapuram 695 011, India

Background Acute-on-chronic liver failure (ACLF) is a new entity used to describe patients with acute complication of cirrhosis with organ failure(s). In contrast to acute decompensation of compensated cirrhosis, ACLF has a high 28 day and 90 day mortality, with hope of reversibility after successful treatment of acute insult.
Aims To see if application of CLIF SOFA criteria in patients diagnosed as ACLF by APASL criteria improves prediction of short term mortality (i.e. 28 day mortality and 90 day mortality).
Methods This study, a single center prospective observational study included 100 ACLF patients as per APASL definition, admitted in Department of Medical Gastroenterology, MCH, Trivandrum. These patients were reclassified into ACLF and no ACLF groups using CLIF SOFA criteria.
Results Alcohol was the most common cause of chronic liver disease (62 %) followed by hepatitis B (19 %) and nonalcoholic steatohepatitis (12 %). Active alcoholism was the most common precipitating event in 53 (53 %), followed by infection 31 (31 %). There was more than one precipitating event in 24 (24 %). Out of the 100, 72 patients were classified as ACLF by both CLIF SOFA and APASL criteria (Group A) and 28 patients had ACLF by APASL criteria only (Group B). Bacterial infection (p value 0.024) and coagulation failure (59.7 % vs. 7.1 % p <0.001) was significantly higher in Group A. Mortality at 28 days and 90 days was higher in Group A (44.4 % vs. 7.1 %, p <0.001 and 63.9 % vs. 32.1 %, p<0.004). As per CLIF SOFA ACLF definition, the 72 patients were graded as ACLF grade 1, 11.1 % (n=8), ACLF grade 2, 38.9 % (n=28), ACLF grade 3, 50 % (n=36). In these ACLF patients, the most common organ failure was cerebral failure (80.6 %) followed by liver failure (70.8 %), coagulation failure (59.7 %), renal failure (16.7 %), renal dysfunction (22.2 %), cardiac failure (22.2 %) and respiratory failure (12.5 %). Twenty-eight day mortality in patients with no ACLF, ACLF grade 1, ACLF grade 2 and ACLF grade 3 as per CLIF-SOFA criteria was 7.1 %, 25 %, 25 % and 63.9 % and 90 day mortality was 32.1 %, 37.5 %, 57.1 % and 75 % respectively. Compared to patients without ACLF, ACLF patients as per CLIF-SOFA criteria had significantly higher international normalized ratio (INR), serum creatinine, total leucocyte count, Child-Pugh and MELD score, lower serum sodium and hepatic encephalopathy (p value <0.05).
Conclusions According to our study clinical profile of ACLF in our population is similar to the western population with active alcoholism and infection being most common precipitating event. Combining CLIF-SOFA criteria with APASL definition of ACLF is better than APASL definition alone in predicting 28 day and 90 day mortality.

LPH-30

Portal hypertension: Not a common Niemann

Sharath Madhyastha*, Vinaya Gopalaswamy, Raviraj Acharya, Chethan Manohar*
Department of Medicine, Kasturba Medical College, Manipal 576 104, India

A 26-year-old woman presented with menorrhagia, exertional fatigue and breathlessness for the past 10 years. She had received blood transfusion 2 years prior with which she was symptomatically relieved. On examination, she had pallor and splenomegaly. Chest and neurological examination were normal. Laboratory results showed pancytopenia, low reticulocyte count with microcytic hypochromic blood picture. Iron profile was suggestive of iron deficiency anemia. For etiology workup of pancytopenia, ultrasonography of abdomen and bone marrow studies were done. Ultrasonography showed coarse echotexture of liver with portal vein diameter of 14 mm, minimal ascites, which was not tap able and splenomegaly. Upper gastrointestinal endoscopy showed 4 columns of grade II varices in the esophagus. Prothrombin time was prolonged by 4 s compared to the control. AST and ALT were elevated. There was no history of alcohol consumption. HBsAg and anti-HCV were negative. Workup for autoimmune hepatitis and Wilson's were negative. Bone marrow studies revealed cluster of macrophages with finely vacuolated cytoplasm (foamy macrophages) suggestive of Niemann Picks disease (NPD). Acid sphingomyelinase activity was low. She was managed conservatively with blood transfusion, iron supplementation, beta blockers, and diuretics and discharged. On follow up, no further bleeding

manifestations or decompensation of chronic liver disease. NPD is a rare autosomal recessive lysosomal storage disorder due to accumulation of sphingomyelin in reticuloendothelial system due to deficient acid sphingomyelinase enzyme. Hepatic involvement in NPD is underestimated. It can presents as asymptomatic elevation of AST/ALT or acute liver failure or chronic liver disease with cirrhosis.

Liver-Viral Hepatitis

LVH-01

Hepatitis E and autoimmunity in acute liver failure

G S Sharath Kote*, G S Gurudath, T S Ramesh Kumar, Mohammad Juned Khan, C Palanivelu, Nithyanand Sharma, Santhosh Palve, Piyush, Suganya*
Department of Gstroenterology, GEM Hospital and Research Centre Pvt Ltd, 45A, Pankaja Mill Road, Ramanathapuram, Coimbatore 641 045, India

Hepatitis E virus (HEV) infection is a significant public health problem. The role of HEV infections in patients with autoimmune hepatitis (AIH) is unknown. Using the recent simplified criteria for AIH, the exclusion of viral etiology is one of the 4 parameters. Here we present a case of a patient with acute hepatitis that, according to the simplified diagnostic scoring system was considered to be a definite AIH, which turned out to be positive for HEV. A 62-year-old male, presented with features of acute liver failure. LFT suggestive of intrahepatic cholestasis with high transaminases (>1000) and severe coagulopathy. USG showed normal liver with ascites. CBC showed mild thrombocytopenia. Ascitic fluid analysis showed high SAAG with low protein. Etiological evaluation, viral marker HAV, HBV, HCV(−) and anti-HEV IgM(+), ceruloplasmin, ferritin was normal. Autoimmune markers ANA, SMA, SLA (+) and anti-LKM and AMA (−), serum IgG levels 22 (>1.1xULN). Liver biopsy consistent with AIH and started on steroids, since it was definitive for AIH. HEV-RNA report awaited. Literature review showed similar cases of AIH and positive HEV serology coexisting, where patients were started on steroids based on diagnostic criteria for AIH and later noticing positive for HEV serology. HEV RNA detection will only decide the diagnostic confusion between acute HEV and AIH, though clinical scenario may meets definitive diagnostic score for AIH even in the presence of positive viral serology as in our reporting case. We consider reporting this case because of importance of completely excluding the viral etiology before labelling as AIH.

LVH-02

Unsustained T-cell activation, compromised natural killer cell function and regulatory T-cell mediated suppression are immune signatures characterizing immune tolerant phase of chronic HBV infection

Madhuparna Nandi*, Sourina Pal, Gautam Ray, Kausik Das, Sumantra Ghosh, Soma Banerjee, Amal Santra, Abhijit Chowdhury, Simanti Datta*
Department of Hepatology and Centre for Liver Research, and Pediatric Gastroenterology, School of Digestive and Liver Diseases, Institute of Post Graduate Medical Education and Research, Kolkata 700 020, India

Chronic HBV infection embodies a dynamic interplay between the virus, hepatocytes and host immune system, which is reflected in its natural history by the presence of different disease phases. The immune tolerant (IT) phase represents the classical early phase of infection, associated with high HBV replication without clinical signs of liver inflammation, in contrast to immune-active (IA) phase, characterized by high HBV-DNA, elevated ALT and active hepatic inflammation. We sought to determine distinct immunological mechanisms governing these phases by appraising contribution of key immune players, namely CD3-CD56+ −natural killer (NK) cells, CD4+/CD8+T-cells and CD4+CD25hi-regulatory T-cells (Treg). T-cell subsets were similar in percentages in IT/IA but varied significantly in phenotype/function. IT had significantly higher CD28+T-cells but lower PD-1+T-cells than IA, denoting absence of T-cell dysfunction. While large fraction of T-cells from IT expressed early activation marker, CD69, significant reduction in T-cells expressing late activation marker, HLADR depicted inability of T-cells to maintain sustained activation, thereby delaying viral clearance and restricting tissue damage. Moreover, greatly decreased memory CD45RO+T-cells in IT suggested poor antigen-recall response. However, global/HBV-specific T-cells of IT, unlike IA, were superior producers of IL-2/IFN-/TNF-±, indicating their potential to trigger proinflammatory reactions upon optimal stimulation. Conversely, NK-cells were quantitatively and qualitatively defective in IT with significantly lower expression of CD69/NKG2C-CD94/NKp44/TRAIL/Perforin/CD107a. However, comparable frequencies of CTLA-4/CD39/CD127low/TGF-/IL-10/FOXP3-expressing Tregs were noticed in both groups. Collectively, our data imply that inadequate T-cell activation, smaller memory T-cell pool and compromised NK-cell function along with paralleled Treg activity limit immunological reactivity to high viremia during IT phase.

LVH-03

Mutations in different coding and regulatory regions of HBV of genotype D synergistically contribute to its occult phenotype in chronic HCV carriers

Mousumi Khatun*, Rajiv Kumar Mondal, Priyanka Banerjee, Alip Ghosh, Sumanta Sarkar, Amal Santra, Kausik Das, Abhijit Chowdhury, Soma Banerjee, Simanti Datta*
Centre for Liver Research, School of Digestive and Liver Diseases, Institute of Post Graduate Medical Education and Research, 244 A J C Bose Road, Kolkata 700 020, India

Occult HBV infection (OBI) is characterized by negative hepatitis B surface antigen (HBsAg) serology with positive detection of low level HBV DNA. It is commonly seen in patients with HCV infection but the molecular mechanisms underlying OBI still remain elusive. The present study aimed to assess the prevalence of OBI in HBsAg-negative chronic HCV carriers of Eastern India and to explore the impact of genomic variability of HBV in causing the occult phenomenon. Screening of sera samples by nested PCR assays revealed the presence of OHBV in 17.8 % of HCV-infected patients. Determination of full-length OHBV sequences and comparison with that from HBsAg-positive carriers led to the detection of distinct substitutions/mutations in PreS2, S, P and X ORFs and in X-promoter and Enhancer-II of OHBV. These mutations were introduced in wild-type HBV and their effects were evaluated by transfection in Huh7 cells. In vitro assays demonstrated that S-substitutions resulted in antigenically modified HBsAg that escaped detection by immunoassays whereas those in ORF-P, particularly in reverse transcriptase and RNaseH domains caused significant decline in viral replication capacity. Impairment in Enhancer-II and X-promoter activities were noted due to occult-associated mutations that generated reduced pregenomic RNA and intracellular HBV-DNA. Additionally, Enhancer-II mutations altered the small to large surface protein ratio and diminished extracellular HBV-DNA and HBsAg secretion. Further, mutations in PreS2, X and enhancer-II increased Grp78-promoter activity, suggesting that OHBV could trigger endoplasmic reticulum stress. Thus viral mutations contribute synergistically towards the genesis of occult phenotype and disease progression.

LVH-04

Monocytic-myeloid derived suppressor cells accumulate in patients with chronic hepatitis B and mediate immunosuppression via induction of regulatory T-cells

***Sourina Pal**, Madhuparna Nandi, S K Mahiuddin Ahammed, Soma Banerjee, Amal Santra, Abhijit Chowdhury, Simanti Datta*
Centre for Liver Research, and Department of Hepatology, School of Digestive and Liver Diseases, Institute of Post Graduate Medical Education and Research, 244 A J C Bose Road, Kolkata 700 020, India

Chronic hepatitis B virus (HBV) infection [CHI] is characterized by a weakened virus-specific T-cell response and increased prevalence of regulatory T cells (T_{reg}) that are considered to be important contributors to T-cell hyporesponsiveness. However, mechanisms leading to Treg generation in CHI are poorly understood. Myeloid derived suppressor cells (MDSCs) have emerged as key *mediators of immunosuppression* in cancer and other pathological conditions. Here, we performed an extensive characterization of MDSCs in patients with chronic hepatitis B (CHB) and investigated their role in Treg induction. A significant increase in the frequency of Monocytic(M)-MDSC ($CD11b^+HLADR^-CD33^+CD14^+$) was observed in CHB patients by flowcytometry, as compared to healthy controls (HC) while that of Granulocytic(G)-MDSC ($CD11b^+HLADR^-CD33^+CD15^+$) was similar in both groups. The percentage of M-MDSCs expressing suppressive markers, IL-10, TGF-β, Arg-I, PD-L1, CD39 and CTLA-4 and homing receptors, CCR2 and CXCR3 were significantly high in CHB patients, relative to HC. Further, M-MDSCs from CHB patients displayed greater suppressive potential and migratory ability than G-MDSCs. Parallely, we noted a significant positive correlation between the frequencies of M-MDSC and $CD4^+CD25^+Foxp3^+$Treg in patients with CHB ($r=0.6656$, $p<0.0001$). Co-culture of MDSC and autologous $CD4^+$T-cells, sorted from CHB patients, but not from HC, demonstrated a significant increase in Foxp3 and IL-10 expression by $CD4^+$T-cells. However, the effect was nullified in presence of TGF-β-inhibitor, suggesting that MDSC could induce Treg generation via TGF-β signalling pathway. Collectively, our results highlighted an expansion of M-MDSCs endowed with high immune suppressive activity in CHI and the functional crosstalk between Tregs and MDSCs.

LVH-05

Circulating miRNA expression profiling and its kinetics in chronic HCV patients: Correlation with molecular pathogenesis, clinical parameters and response to pre and post treatment with PEG-IFN-±2a+RBV and DAA

***Raju Nagarapu**, Sandeep K Vishwakarma, Syed Rahamathulla, Shaik Iqbal Ahmed, L Chandrakala, B V S Sastry, Avinash Bardia, Md. Aejaz Habeeb, Aleem Ahmed Khan*
Centre for Liver Research and Diagnostics, Deccan College of Medical Sciences, Kanchanbagh, Hyderabad 500 058, India, and CSIR-Centre for Cellular and Molecular Biology (CCMB), Habsiguda, Hyderabad 500 007, India

Background MicroRNAs (miRNAs) are emerging novel therapeutic targets in several infectious and genetic diseases and play important role in hepatitis C virus (HCV) infection. But there is need to find more appropriate targets to understand HCV pathogenesis and treatment. Here we report, miRNAs expression levels involved in HCV pathogenesis and treatment with antiviral therapy using combination with Pegylated Interferon α2a (PEG-IFNα2a), Ribavirin, Sofosbuvir plus Ledipasvir and Sofosbuvir plus Daclatasvir in HCV infected patients (genotype 1 and 3).
Methodology Circulating miRNAs levels were quantified in serum samples (50 healthy controls and 100 HCV patients, 36 with genotype 1 and 64 with genotype 3) before and during the treatment. HCV viral load was quantified and correlated with miRNAs (miRNA-21, 122, 146, 181 and 155) expression levels which were further correlated with biochemical parameters to understand disease pathogenicity and treatment response.
Results and Discussion miRNA-122 expression level was significantly down-regulated during antiviral therapy as compared to untreated patients in both the genotypes. Specifically, miRNA-122 expression level found significantly downregulated during treatment ($p<0.0001$). However, miRNA-181a expression was progressively increased after treatment and higher expression was observed post-treatment ($p<0.0001$). Biochemical parameters showed respective response with the treatment duration and well correlated with the miRNAs expression.
Conclusion miRNA-122 is one of the most significant responder molecule with the treatment in both the genotypes and can be used as a prognostic, as well as therapeutic biomarker for HCV pathogenesis. It may also provide a direct measure for HCV pathogenesis and treatment response.

LVH-06

Safety and efficacy of Sofosbuvir (SOF), Ledipasvir (LDV) and Daclatasvir (DCT) in thalassemic patients with chronic hepatitis C: A single center experience

***Ruchir Patel**, Prateik Poddar, Alisha Chaubal, Vikas Pandey, Meghraj Ingle, Prabha Sawant*
Department of Gastroenterology, Lokmanya Tilak Municipal Medical College and General Hospital, Dr. Babasaheb Ambedkar Road, Sion West, Mumbai 400 022, India

Background and Aims Children with thalassemia are at higher risk of contracting hepatitis C due to repeated blood transfusions. Literature of direct acting antivirals (DAA) therapy in thalassemic population is limited. *Aim* of this study is to evaluate the efficacy and safety of newer DAAs in chronic hepatitis C thalassemic patients.
Methods All thalassemic hepatitis C patients referred to GI Department in a tertiary care hospital in Mumbai were prospectively evaluated. Treatment nave (TN) and experienced (TE) thalassemic hepatitis C patients with age > 12 years with any genotype (GT) were enrolled after institutional ethics committee approval. Patients with GT1 were given SOF/LDV and GT3 were given SOF/DCT for 12 weeks. Efficacy was evaluated by achievement of ETR and SVR12; safety by clinical and laboratory evaluation.
Results Study population included 12 thalassemic HCV patients; majority being male (67 %), GT1 (75 %), TN (91 %), noncirrhotic (100 %). Mean age was 15.6 years (range: 12–22). RVR was achieved in 11/12 patients (91.7 %). Nine have completed treatment (ETR: 9/9, 100 %). Of the 3 patients who have reached post-treatment week 12, all achieved SVR12 (100 %). No serious adverse event was noted; most common side effect was fatigue followed by weakness and headache. None of the patients required to change baseline thalassemia treatment or frequency of blood transfusion.
Conclusion Newer DAAs are highly efficacious and safe in treating chronic hepatitis C in special population like thalassemia without major side effects or change in the baseline treatment for thalassemia.

LVH-07

Sofosbuvir, Pegylated interferon and Ribavirin in the treatment of chronic hepatitis C: A single center real-life experience

***Harshad Khairnar**, Ruchir Patel, Alisha Chaubal, Dhaval Choksi, Meghraj Ingle, Prabha Sawant*
Department of Gastroenterology, Lokmanya Tilak Municipal Medical College and General Hospital, Dr. Babasaheb Ambedkar Road, Sion West, Mumbai 400 022, India

Background and Aims Before the availability of ledipasvir and daclatasvir in Indian market, combination of Sofosbuvir, Pegylated Interferon and Ribavirin (SPR) was the mainstay of HCV treatment. Aim of this study was to assess the efficacy and safety of SPR regimen in patients with chronic hepatitis C.
Methods Chronic HCV patients who received SPR treatment for 12 weeks were retrospectively evaluated from the hospital HCV database

irrespective of their genotype, previous treatment history and presence or absence of cirrhosis. Clinical and laboratory parameters before and after treatment (RVR, ETR, SVR12) were noted. Primary end-point was achievement of SVR12. Safety was assessed by clinical evaluation.
Results Total 34 patients were included in the study group; majority of them being female (82 %), GT3 (59 %), treatment nave (82 %). Fifty percent patients were noncirrhotic while rest were compensated cirrhotic. Mean age was 47 years with mean baseline HCV RNA of 24,40,315 IU/L. SVR12 rate was 100 % according to per protocol analysis (PPA); 88.2 % as per intention-to-treat (ITT) analysis. According to PPA, RVR and ETR were 100 % while 94 % and 91 % as per ITT. Common side effects were fatigue, headache, anemia and insomnia. There were no therapy related mortality.
Conclusion SPR regimen is highly efficacious, safe and comparable to other interferon free regimens in chronic HCV noncirrhotic and compensated cirrhosis.

LVH-08

First case report of primary Tenofovir resistance from India without HIV coinfection

***Vijay Sharma**, Richa Sharma, Gandhi Gaurav*
Departments of Gastroenterology, Pediatrics, and Pediatric Hematooncology, Manipal Hospital, Manipal Group of Institutions, Sector 5, Main Sikar Road, Vidhyadhar Nagar, Jaipur 302 013, India, Department of Public Health, Regional Institute of Health, Medicine and Research, Jaipur, India, and Department of Gastroenterology, Medipulse Hospital, E4, MIA , Basni II Phase, Jodhpur 342 005, India

Introduction Nucleos(t)ide analogs such as Tenofovir, Lamivudine, or Emtricitabine work well against both HBV and HIV. Tenofovir confers potent and durable HBV-DNA suppression but the best strategy in case of resistance of HBV to reverse transcriptase inhibitor Tenofovir remains unknown. New tests are being developed to study HBV resistance[1, 2]. Levels of Tenofovir resistance in patients with viral failure ranged from 20 % in Europe to more than 50 % in sub-Saharan Africa[3, 4]. It is likely that 7 · 5 % to 17 · 5 % of patients given Tenofovir plus cytosine analogue plus Efavirenz will develop Tenofovir resistance within 1 year of treatment initiation under present practices in sub-Saharan Africa. One study has reported HBV genotypes quasispecies diversity and drug resistance mutations in antiretroviral treatment-naive and treatment-experienced HBV-HIV coinfected patients[5, 6] apart from case reports of prolonged and intermittent treatment of HIV with Lamivudine and Tenofovir, and development of resistant to Lamivudine and Tenofovir, while HIV-RNA remained constantly suppressed. Here we are presenting a case report of resistance to Tenofovir in a patient with hepatitis B virus related hepatitis without HIV coinfection.
Method Patient was 59-years-old female, which consulted Gastroenterologist, baseline hepatitis B viral DNA level was 5,49,1000 IU/mL, and transaminases were more than two times normal. Fibroscan was done to grade and stage fibrosis, her kPa score was 8.6, Alpha-feto protein level was 3.79 IU/mL and HBeAg level was 111.64. Patient was started on Tenofovir disoproxil fumarate 300 mg, one tablet daily (Brand Name Tanvir, CIPLA Limited, which is one of the largest pharmaceutical companies in India, well known for cost effective high efficacy antiviral and other medicines). After one month of Tenofovir treatment first HBV DNA level was 3210 IU/mL. Patient continued same treatment and was on regular follow up at outpatient department. After 6 months HBV DNA level was 674,000 IU/mL, on further history taking patient was on regular follow up, patient regularly purchased medicine from hospital pharmacy, patient confirmed that she took medicine regularly every single day, no history of any other medicine intake which could decrease efficacy of Tenofovir or increase its metabolism or we excluded any drug interaction thoroughly. Clinical evaluation and laboratory findings excluded the presence of systemic diseases that might have been able to explain the drug inefficacy, resistance to medicine and/or rapid loss of medicine from body, there was no past history of exposure to Tenofovir, as patient was highly motivated, educated, college professor she was having all the records of regular visits, pharmacy shop purchase record were also available. On testing HIV and HCV were negative. We suspected possible resistance to Tenofovir. Patient consented for further high cost testing. First patients serum sample was sent for mutation study and genotyping, and tablet Tenofovir was stopped, Tablet Entecavir (Brand name Entavir from Cipla Limited) 1 mg once daily was started, which was well-tolerated. Report of mutation study and genotyping revealed A181T/V mutation with A194T and M204 V/I, these mutations are associated with resistant to Lamivudine, Adefovir, and Tenofovir; there was no reported resistance to Entecavir and Telbivudine. After one month, 3 month and 6 month treatment with Entecavir 1 mg daily, HBV DNA level decreased to 3600 IU/mL, transaminases level normalized on follow up. This unique mutation has been reported from different centers as case reports, mostly in HIV HBV coinfected cases with virological failure. Possible our patient acquired drug resistant hepatitis B virus from some patient with HIV-HBV coinfection, another patient was taking antiretroviral, she did not get infected with HIV but developed hepatitis B hepatitis possibly due to low inoculums size, possible she acquired infection from healthcare worker, this healthcare worker got HIV, possibly patient saved himself after exposure to blood product or body fluid of HIV infected patient took antiretroviral prophylaxis but did not take precaution for HBV, may be patient was in window period that time so HBV was negative, only HIV prophylaxis was taken care off. Replacing Entecavir to failed therapy with Tenofovir is feasible, well-tolerated and results in virological success. Various studies have shown that Tenofovir is a drug of choice as a drug of choice apart from Entecavir for YMDD motif mutation and resistance to Lamivudine[8], now multidrug resistant mutants are developing, future of HBV and HIV control seems difficult. In other reports Hepatologists have used Entecavir plus Tenofovir combination therapy for chronic hepatitis B in patients with nucleos(t)ide treatment failure.[9]
Conclusion This is a first report from India of occurrence of Tenofovir mutation A181T/V, A194T and M204 V/I in a non HIV infected patient with HBV hepatitis, without any prior irregular Tenofovir treatment and without drug interaction.

LVH-09

Evaluation of knowledge and practices of barbers regarding hepatitis B and C viral infections in coastal Odisha

Sambit Kumar Behera, Preetam Nath, Prasanta Kumar Parida, Suryakanta Parida, Kaibalya Ranjan Dash, Girish Kumar Pati, ***Shivaram Prasad Singh***
Department of Gastroenterology, S C B Medical College, Cuttack 753 007, India

Background: Hepatitis B and C viruses have infected millions of people worldwide. During haircut or shaving, barbers may accidentally transmit these infections. Hence, awareness among barbers regarding transmission of hepatitis B and C is of utmost importance.
Methods This cross-sectional descriptive study was performed in 2016 in various salons in coastal Odisha. The community barbers were assessed by a set of preformed questionnaire regarding their awareness about hepatitis B and C viral infections, and their practices during shaving and cutting of hairs of their clients in the salons.
Results One hundred and fifty community barbers were assessed. 95.3 % didn't have education beyond matriculation. Only 1.3 % knew that hepatitis B is a viral disease. None of the barbers had any knowledge about hepatitis C and their mode of transmission. Only 8.3 % believed that hepatitis could be transmitted by razor sharing. None of them had received hepatitis B vaccine. 86.6 % barbers used to wash their hands with water alone before and after every procedure, and 99.8 % used alum as antiseptic. None of the barbers used a different apron/towel/comb for every customer.
Conclusion We found that the level of awareness regarding transmission of hepatitis B and C was extremely low among community barbers. As

barbers play an important role in transmission of these viruses, there is need for initiation of mass awareness programmes among community barbers for control and eradication of these infections in the community.

LVH-10

Comparative analysis of chemokines as key mediators in acute hepatitis A and E viral infection

Rashi Sehgal, *Shiv K Sarin, Nirupma Trehanpati*
Departments of Molecular and Cellular Medicine, and Hepatology, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Background Infection with both hepatitis A (HAV) and hepatitis E (HEV) usually result in a self-limited acute hepatitis. Liver injury in HEV is known to be mediated by immune cells, chemokines, chemotactic cytokines. The pathogenesis and role of immune cells, chemokines are not well studied in AVH-A.
Aim To investigate the role of Th1 chemokines and cytokines in AVH-A.
Methods Fifteen patients each diagnosed with AVH-A, AVH-E and 10 HC were studied. Expression of Th1 chemokines (CXCR3, CXCR5, CCR1, CCR5, CCR6, CCR7 and CCR9) was analyzed using flow cytometry. IFN-, TNF-±, IL-6, IL-12 and IL-2 secreting CD3+T-cells were analyzed after PMA+Ionomycin stimulation.
Results There was no significant difference in liver injury markers in both groups. MFI of CD3+T-cells was reduced in AVH-A compared to AVH-E and HC (35±7 vs. 118±13 vs.; 129±22, p=0.003, p=0.004) but without affecting CD3+CD8+ T-cell (Th1) (25±8 vs. 32±9, p=0.05). MFI of Th1 cell secreting IFN- was increased in AVH-A compared to AVH-E (26±11 vs. 8.1±4, p=0.04). TNF-±and IL-2 secreting cells also increased in AVH-A. MFI of Th1 chemokines was decreased in AVH-A compared to AVH-E (CCR1 24±7 vs. 89±19, p=0.05; CCR5 16±2.4 vs. 31±2.5, p=0.01; CCR9 38±11 vs. 171±20, p=0.05; CXCR3 17±1.7 vs. 132±25, p=0.000 and CXCR5 14±0.66 vs. 24.6±2, p=0.02) and HC (CCR1 24±7 vs. 84±20, p=0.02; CCR5 16±2.4 vs. 70±20, p=0.05; CCR9 38±11 vs. 222±52, p=0.04; CXCR3 17±1.7 vs. 112±3, p=0.02 and CXCR5 14±0.66 vs. 64±12, p=0.03). Th1 CXCR3 (p=0.04) and CXCR5 (p=0.02) chemokines were significantly decreased in AVH-A follow up compared to AVH-E.
Conclusion In AVH-A, decreased Th1 chemokines; CCR1, CCR5, CCR9, CXCR3, CXCR5 result in reduced migration of Th1 cells, which might have important consequences on host's immune defense and liver injury.

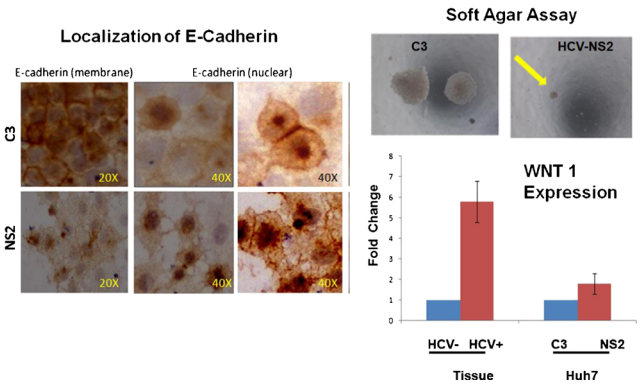
LVH-11

HCV-NS2 protease induces growth arrest in Huh7 cells, accompanied by aberrant nuclear localization of E-cadherin and increased WNT1 expression suggestive of epithelial to mesenchymal transition state

Manish C Choudhary, *Javed Akhtar, Archana Rastogi, Rhisita Nath, Vidhya Natarajan, Ekta Gupta, Nirupma Trehanpati, Gayatri Ramakrishna, Shiv K Sarin*
Departments of Virology, Molecular and Cellular Medicine, Pathology and Hepatology, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Background and Aim HCV Genotype 3 is difficult to treat with DAA and an important risk factor for development of HCC. We investigated the role of HCV-NS2 cysteine protease in regulation of EMT process.
Methods HCV-RNA was isolated from serum sample of 50 year female patient infected with G3a. HCV-NS2 was amplified and cloned in pEGFP-C3 vector and transfected in Huh7 cells. Stable cell clones expressing either vector (C3) or HCV-NS2 were monitored for growth and expression of EMT markers by cytochemistry and qPCR. HCV infected liver biopsies were studied for EMT markers by qPCR.
Results HCV-NS2 showed pan-cytoplasmic localization and resulted in slower growth of Huh7 cells. HCV-NS2 cells showed fewer number of cells in "S" phase and when subjected to synchronization, showed delayed entry into S-phase. Growth inhibition was reflected by fewer colony numbers on soft agar assay. While the HCV-NS2 expressing cells did not show any overt mesenchymal type of phenotypic change, they showed nuclear localization of E-Cadherin compared to its expression on the membrane in C3 cells. Zeb1 was cytoplasmic in HCV-NS2 expressing cells, but was nuclear in C3 cells. Localization patterns of other EMT makers such as Zo1, Slug, and β-catenin remained unaffected. WNT1 was significantly increased in HCV-NS2 expressing cells and in fibrotic liver tissue (p<0.05).
Conclusions HCV-NS2 protease appears to modulate EMT like phenomenon by regulating WNT1/E-cadherin axis, as it influences expression and localization of molecular markers such as E-Cadherin, its transcriptional regulator Zeb1 and WNT1, indicative of an EMT like transition state.

Fig. 1 HCV-NS2 inhibits growth of Huh7, accompanied by changes in expression and localization of EMT markers (E-cadhrein and WNT1)



LVH-12

The decline in liver stiffness in patients of chronic hepatitis B on oral antivirals is affected by reduction in ALT as well as liver fibrosis

Mousmi Mahanta, ***Saurabh Kedia****, Shalimar, Baibiswata Nayak, Harpreet, Nancy Kalra, Sandeep Goyal, Ujjwal Sonika, Dawesh P Yadav, Prasenjit Das, Subrat K Acharya*
Departments of Gastroenterology and Pathology, All India Institute of Medical Sciences, New Delhi 110 029, India

Background Decline in liver fibrosis has become the most important goal of treating chronic hepatitis B (CHB). Fibroscan is a non-invasive means of assessing this decline, however can be influenced by alanine amino transferase (ALT) and age. The present study assessed the decline in liver stiffness (LSM) on antivirals (tenofovir/entecavir) and evaluated the factors which influence this decline.
Methods Patients with CHB who were started on antivirals between July 2009- February 2015 with >1 year follow up and with baseline (>6 K pa) and repeat Fibroscan >1 year after therapy were included in the study. Median LSM values at baseline and at repeat Fibroscan were compared, and then baseline and post treatment factors were compared between patients who had significant decline in LSM (>3 %) vs. those who did not have to identify the predictors for decline in LSM.

Results Of 261 patients with baseline LSM >6 KPa and >1 year follow up, 163 had repeat LSM [median age: 32 (IQR: 25–42) years, median duration: 18 (IQR:12–30) months, 85 % males]. There was a significant decline in the median LSM in all patients [10 (IQR:7.3–16.3) vs. 7.8 (IQR:5.5–11.1), p 5 (15.5 to 8.9, p<2 x ULN this effect of ALT was lost.
Conclusion Reduction in liver stiffness in CHB patients on antivirals is affected both by decline in ALT and fibrosis.

LVH-13

Varicella zoaster induced fulminant hepatic failure

Saurabh Gaur, *V A Kothiwale, Santosh Hazare*
Department of General Medicine, Medicine, and Gastroenterology, Jawaharlal Nehru Medical College, JNMC KLE Univercity Campus, Nehru Nagar, Belagavi 590 010, India

Although acute liver failure due to the varicella-zoster virus is rare, it is frequently fatal. Immunologic impairment is a significant predisposing factor. Classic symptoms at presentation are rash, abdominal pain, and fever. After some days patients go on to develop full-blown liver failure. The diagnosis can be confirmed by histological examination and electron microscopy with fluorescent staining, immunohistochemistry, and in situ hybridization of the liver. In cases of high suspicion, acyclovir therapy should not be delayed.
Case Report A 30-year-old male was admitted to our hospital for evaluation of severe abdominal pain, fever, myalgia, and cutaneous vesicles on his face, scalp and trunk. Two days before admission the patient experienced myalgia and chills. Physical examination on admission showed vesicles suggestive of VZV infection on the face as well as marked epigastric tenderness; there were no other abnormal findings. Treatment with acyclovir was started on the third day after admission. The patient was transferred to our hospital on the third day. Arterial blood gas values obtained at that time were compatible with severe metabolic acidosis. The serum IgM and IgG antibody levels were negative, but a serum VZV PCR assay was positive. Hence diagnosis was confirmed to be varicella zoaster induced acute liver failure.

LVH-14

Combinations of blood group affiliation and Il-28b genotypes impact the outcomes of Peg-IFN±−2/RBV HCV-1 treatment and liver fibrosis in nonresponders

Pavel Ogurtsov, *E Kukhareva, O Tarasova*
RUDN University

Improving performance predicting SVR on antiviral therapy with Peg-INF±−2+RBV and assessment of individual risk of fibrosis progression during interferon therapy is still actual clinical problem especially

LVH-15

To study spectrum of thyroid profile in hepatitis B and hepatitis C related cirrhosis

Varun Mehta, Gursimran Pal Singh Shergill
Associate Professor, Senior Resident

Objective The spectrum of thyroid hormone profiles in hepatitis B and C related cirrhosis were assessed to find correlation between thyroid hormone levels and severity of liver disease.

Methods The study was carried out over a period of one year and involved 85 patients with HBV or HCV related cirrhosis. Of the 85, there were 58 male and 27 female patients with a mean age of 55 years. Patients diagnosed with hepatic cirrhosis due to hepatitis B or C were selected and evaluated for thyroid function. Child-Pugh and model for end-stage liver disease patients were divided into three groups with low, normal, or high range of thyroid hormones, for each TSH, fT3 and fT4. The thyroid hormones were correlated with the severity of liver disease by assessing various factors (irrelevant talk for encephalopathy, ascites, total bilirubin, albumin, prothrombin time, Child-Pugh and MELD scores for severity of liver disease).
Result Patients with a low fT3 levels (fT3 normal range 3.10–6.80 pmol/L) were significantly more likely to have irrelevant talk and hence encephalopathy (p<0.001). Low fT3 levels also correlated with a higher Child-Pugh score C (p<0.001) and were much more likely to have a higher MELD score (p<0.001).
Conclusion The serum fT3 levels are a very good indicator of liver function in those with HBV or HCV related cirrhosis. fT3 levels decrease as the severity of liver diseases increases.

LVH-16

Acute pancreatitis complicating acute HEV infection : A case report

Manish Jain, *Niti Jain, Abid Showkat*
Asian Globus Hospital, E-5/24, Arera Colony, Near Bittan Market, CharImli, Bhopal 462 016, India

Acute pancreatitis complicating severe viral hepatitis is well recognized entity, however, acute pancreatitis occurring in nonfulminant hepatitis is rare. This case describes moderate pancreatitis in a young female, manifesting during the course of nonfulminant acute hepatitis E infection. The diagnosis of acute viral hepatitis E was confirmed by serology and pancreatitis was confirmed by S. lipase/amylase and USG. Patients with acute viral hepatitis presenting with severe abdominal pain should have a diagnosis of acute pancreatitis suspected and appropriate investigations including serum amylase, lipase, biliary ultrasonography and/or contrast-enhanced computed tomography of the abdomen should be undertaken. The identification of this unusual complication of hepatitis E is important, however, the prognosis for patients with acute pancreatitis complicating acute hepatitis E virus infection is good, and uncomplicated recovery with conservative treatment is expected.

LVH-17

A randomized control trial of dual antiviral therapy in acute hepatitis B

Ramakishna, *M Chooracken, R J Mukkada, A P Chettupuzha, P G Mathew, S C Paul, V F Jose, P Augustine, A Koshy*
Digestive Diseases Centre, VPS Lakeshore Hospital, Nettoor P.O, Kochi 682 040, India

Background Acute hepatitis B (AHB) resolves spontaneously in most cases, about 10 % may progress to severe hepatitis requiring therapy. We intended to see if dual antiviral therapy reduces morbidity and mortality.
Aim To determine the benefit of dual antiviral therapy in patients with moderately severe acute hepatitis B (MSAHB) compared to controls.
Methodology Thirty patients of MSAHB diagnosed between June 2014 and December 2015 were randomized to treatment and control group Inclusion criteria: MSAHB defined by bilirubin >5 mg/dL, ALT >400 IU/mL, HBsAg and anti-HBc IgM positive. Exclusion criteria: Alcohol intake of >20 g/day in last 6 months, ultrasound or liver biopsy evidence of chronic liver disease. Fourteen patients were randomized into each of treatment and control groups. Treatment group received Entecavir

0.5 mg/d and Tenofovir 300 mg/d until bilirubin (<3 mg/dL) and ALT (<x2 ULN) values. Tenofovir was continued till HBsAg became negative. Control group received standard care without antivirals.
Results Bilirubin reduction from week 1 to 4 was statistically significant (p<0.05) while ALT reduction was not (p=0.09). Mean Age, hospital stay, HBsAg loss, HBV DNA Q, creatinine, INR and albumin were not significant between the groups. There was no mortality in either group.
Conclusions Treatment of MSAHB with dual antivirals reduced bilirubin and ALT levels faster than the control group, however no difference in mortality, HBsAg loss, duration of hospital stay was noted.

LVH-18

Study on correlation of HBsAg quantification with DNA levels in a patients with chronic hepatitis B

***C Dinesh Reddy**, Gande Challa Rao, Thankappan, M G Srinivas, Ankit, Sri Harsha, M Harsha*
Narayana Medical College Hospital, Chintharedddipalem, Nellore 524 002, India

Chronic hepatitis B is a major health problem affecting more than 350 millions globally. HBsAg is the hallmark for the diagnosis of HBV infection. There is paucity of Indian data regarding serum HBsAg quantification levels (qHBsAg) in treatment-nave chronic hepatitis B (CHB). This study was done to determine correlation of qHBsAg with hepatitis B e antigen (HBeAg) and hepatitis B virus (HBV) DNA levels.
Methods Prospective, on going study. All treatment-nave chronic hepatitis B patients were enrolled in our study. HBsAg quantification wasperformed using the Architect chemiluminescence system.
Results Total 142 patients were included so far. Among 21/142 were HBe-positive and 121/142 were HBe-negative patients. 14/21 (66.6 %) of e-positive belong to young age group. qHBsAg levels were high and correlates with DNA levels in e-postive group but not correlating with DNA levels in e-negative group. Among e-positive ALT elevation (>ULN) were seen in 71 % which is correlating with high qHBsAg levels (>1000 IU/mL). But in e-negative, ALT elevation were only 25 % despite high qHBsAg levels in most of the patients and high qHBsAg levels does not correlate with ALT.
Conclusion qHBsAg levels correlates well with DNA levels in HBe-positive. single point measurement of qHBsAg level could predict the replicative state. High levels also correlates with elevated ALT levels in e-positive state. qHBsAg estimation is cost effective.

LVH-19

Randomized study of sofosbuvir plus ribavirin with and without PEG interferon alpha 2b in treatment of hepatitis C genotype 3 infection

***Anurag Tiwari,** V K Dixit, Ajay Nandmer, Manish Bhaskar, S K Shukla*
Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, India

Background and Aim Sofosbuvir, a polymerase inhibitor is pangenotypic directly acting antiviral for hepatitis C. In this study we evaluate two sofosbuvir containing regimens with or without pegylated interferon (PEGIFN) in patients with chronic hepatitis or compensated cirrhosis caused by hepatitis C genotype 3 infections.
Methods It was a prospective, single centre, randomized open label study. Thirty-nine patients were randomized into two groups: sofosbuvir plus ribavirin with (A) and without (B) PEGIFN alpha 2b for 12 and 24 weeks respectively. Patients with contraindications and treatment experience were excluded. Primary end points were end of treatment response (ETR) and sustained virological response at 12 weeks (SVR12). Rates of adverse effects were secondary end point.
Results Baseline characteristics in both groups were comparable. Two patients in group B did not complete therapy and excluded from analysis. ETR and SVR12 rate in group A were 100 % and in group B were 89.4 % showing 100 % concordance between ETR and SVR12 in either group. Non-specific adverse effects were more frequent in group A than group B (94.4 versus 79 %). Rates of hemoglobin decrease, neutropenia and thrombocytopenia were 100 %, 17 % and 44.4 % in group A and 94 %, 0 % and 15.8 % in group B respectively.
Conclusion Addition of PEGIFN to sofosbuvir and ribavirin achieves higher ETR and SVR12 and reduces duration of therapy. PEG-IFN based treatment leads to higher hematological as well as non-hematological side effects but these are mild and easily manageable during 12 weeks treatment.

LVH-20

A study on HCV genotypes and its association with viral load in south Indian population

***R Vinoth Kumar**, B Harri Prasad, Balakrishnan*
Sree Balaji Medical College and Hospital, 7, CLC Works Road, Chromepet, Chennai 600 044, India

Background and Objectives Hepatitis C virus is one of the leading cause of chronic hepatitis, cirrhosis and hepatocellular carcinoma worldwide. Hepatitis C is divided into 6 distinct genotypes with multiple subtypes worldwide. Identification of genotype is important in designing the therapeutic statagies. This study was undertaken to find out the prevalence of most common geno type in south india.
Methods Thirty-five consecutive new patients with hepatitis C who came to our OPD from October 2013 to September 2015 were enrolled in this study. HCV RNA quantification was done by cobastaqman method and HCV genotyping were determined by nested PCR.
Materials Total number of patients enrol led is 35. 22 patients were males and 13 were females. History of blood transfusions were present in 18 patients (51.42 %). Out of these 35 patients, 22 patients had Genotype 1 (62.8 %). In that 22 patients the most common subtype is 1a which is present in 16 patients (72.7 %). Eight patients had Genotype 3 (22.8 %), 3 patients had Genotype 2 (8.5 %) and 2 patients had genotype 4 (5.7 %). HCV RNA was found to be very high in Genotype 1 compared to other Genotypes.
Conclusions There were various case reports suggesting that genotype 3 is the most prevalent genotype in India. But in our study Genotype 1 accounts for almost 62 % of patients and patients with Genotype 1 has high viral load compared to other genotypes in our part of India.

LVH-21

Prevalence, clinical profile and feto maternal outcome of hepatitis B in pregnency-A observational study from single tertiary care hospital

***Sanatan Behera**, Sagar Mohapatra, U C Patradr Sanata, S K Jena, Heribhakti S Das, Rabinarayan Satapathy*
Department of Hepatology, S C B Medical College Hospital, Cantonment Road, Qr No -CB-6-3/4, Buxibazar, Cuttack 753 001, India

LVH-22

Free screening and vaccination for hepatitis B in health care workers of S C B Medical College, Cuttack, Odisha

***Haribhakti Seba Das**, Umesh Chandra Patra, Sushant K Jena, Sanatan Behera, R P Sahoo, Asit Mallick*
Department of Hepatology, S C B Medical College, Dock Road, Manglabag, Cuttack 753 007, India

Background Health care workers are more prone for hepatitis B, hepatitis B is a health hazard which leads to chronic liver disease and hepatocellular carcinoma. S C B Medical College is a 2000 beded tertiary care hospital. We decided to screen hepatitis B in the nurses, group 4 employee and laboratory staffs working in S C B Medical College and vaccinate those are negative for hepatitis B.
Method We started the programme on world hepatitis day, i.e. 28th July 2015 and the programme is still continuing. Every month on 28th it is conducted and in the Department of Hepatology. Hepatitis B was screened by using the Tridot kit and vaccination was done using the vaccine of Serum Institute genvac B. Non-vaccinated workers were vaccinated on 0, 1 and 6th month as per the three dose schedule. Here we are presenting our one year data from July 2015 to June 2016.
Observation Out of total 1221 screened two were found to have HBS Ag positive. Total 1219 (male 516, female 576) were vaccinated. One hundred and twenty-seven persons took only booster doses as they were vaccinated with complete vaccination schedule earlier. The approximate cost of screening and vaccinating a person was approximately 50 rupees per dose.
Conclusion The hepatitis B positivity rate in the healthcare worker of S C B Medical College is very low, though few have taken proper vaccination. Hepatitis B vaccination is cheap and effective and needs to be given to healthcare workers in every hospital.

LVH-23

Comparison of MELD, CLIF-C consortium score, KCH criteria and ALF earlydynamic model for outcome in viral hepatitis-related acute liver failure

Shalimar, ***Soumya Jagannath Mahapatra****, Saurabh Kedia, Shekhar Singh Jadaun, Gyan Ranjan, Dawesh Prakash Yadav, Baibaswata Nayak, Bhaskar Thakur, Harpreet Kaur, Subrat Kumar Acharya*
Departments of Gastroenterology, and Biostatistics, All India Institute of Medical Sciences, New Delhi 110 029, India

Background and Aims Multiple prognostic scores are available for acute liver failure (ALF). Our objective was to compare the ALFED score with KCH, MELD, MELD-Na and CLIF-C ACLF scores in patients with ALF.
Methods All consecutive patients with ALF at a tertiary care centre in India were included. The KCH, MELD, MELD-Na, ALFED and CLIF-C ACLF scores were calculated. Area under receiver operator characteristic curves (AUROC) were compared with DeLong method. The sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), likelihood ratio (LR) and diagnostic accuracy (DA) were reported.
Results Of the 128 patients included in the study, 83 (64.8 %) died. The predominant etiology was hepatitis viruses 115 (89.8 %). The discrimination of mortality with baseline values of prognostic scores (MELD, MELD-Na, ALFED, CLIF-C ACLF and KCH) was modest (AUROC: 0.65–0.77). The AUROC increased on day 3 for all scores, except KCH criteria. On day 3 of admission, ALFED score had the highest AUROC 0.95, followed by CLIF-C ACLF 0.88, MELD 0.82, MELD-Na 0.78 and KCH 0.53. The AUROC for ALFED was significantly higher than MELD, MELD-Na and KCH ($p<0.001$ for all) and CLIF-CACLF ($p=0.04$). ALFED score 4 on day 3 had the best sensitivity (85.9 %), specificity (90.2 %), PPV (94.4 %), NPV (77.1 %), LR positive (8.8) and DA (87.4 %) for predicting mortality.
Conclusions Dynamic assessment of prognostic scores predicts outcome better. ALFED performs better than KCH, MELD, MELD-Na and CLIF-C ACLF scores for predicting outcome in viral hepatitis-related ALF.

LVH-24

Hepatitis C virus late relapse after sustained virologic response from Peg-interferon, Ribavirin and Simeprevir treatment

Kenich Kitada*, Makoto Kuboki, Osamu Arai, Norikuni Shiabata, Kenji Ohmoto*
Kurashiki Medical Center, Kurashiki, Okayama, Japan

Background and Aims The introduction of direct-acting anti-virals has increased sustained virological response (SVR) rates in chronic hepatitis C genotype 1b infection. To evaluate the long-term durability of viral eradication in patients treated with triple therapy, including direct-acting anti-virals.
Methods Patients who received the treatment with peginterferon-±2a/ribavirin in combination with simeprevir were followed after achieving SVR or undetectable HCV PCR 24 weeks after therapy. All patients were asked to return to follow up visits every 3 months after SVR.
Results Forty-three patients with chronic hepatitis C genotype 1b infection [F/M: 31/12; mean age: 64.0 years (44–81)] achieving a SVR triple therapy were followed. The median follow up was 97 (range: 48–128) weeks. During follow up, viral load of HCV was quantified by real-time PCR (Accu GENE m-HCV RNA quantitative assay [Abbott Real Time HCV (ART) assay]) in all patients. Two cases of late relapses (2/43, 4.6 %) were observed. One patient was 72 years female and another patient was 79 years female, both carried the completed the prescribed treatment. The relapses occurred 9 and 12 months after cessation of antiviral treatment. Neither of the two patients showed a risk behavior regarding HCV infection before reappearance of HCV.
Conclusion In this study, the late relapse rate was higher as 4.6 % compared to previous reports. The fact that both relapses were observed in elderly female patients occurred possibly just by chance, but it seems advisable to confirm a successful HCV eradication within the first year of follow up after achieving a SVR in elderly patients.

LVH-25

HCV related cirrhosis-outcomes of therapy with directly acting antivirals (DAAs)

Swapnil Dhampalwar*, Sunil Taneja, Ajay Duseja, Radha K Dhiman, Yogesh K Chawla*
Department of Hepatology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background Chronic hepatitis C virus (HCV) infection causes progressive fibrosis leading to cirrhosis and hepatic decompensation. DAAs have revolutionalized therapy in HCV cirrhosis.
Aim To assess the sustained virologic response (SVR), 12 week after the end of DAA based therapy.
Methods In this prospective study, total 40 patients of HCV related cirrhosis presenting to Liver Clinic at PGIMER, Chandigarh from October 2015 to April 2016 were included. Of these, 11 were treated with Sofosbuvir and Ribavirin for 24 weeks. The remaining 29 were treated with NS5A inhibitor based combination therapy. Ledipasvir was used for Genotypes 1 and 4 and Daclatasvir in the remaining, with or without Ribavirin. The duration of treatment in this group was either 12 weeks or 24 weeks depending upon the genotype, and inclusion of Ribavirin.
Results The mean age of presentation was 50.15 years with a male predominance (55 %). Genotype 3 was the most common (72.5 %), followed by Genotype 1 (17.5 %) and Genotype 4 (10 %). Out Of 40 patients, 21 (52.5 %) had decompensated cirrhosis (CTP7). Of the 11 patients treated with Sofosbuvir and Ribavirin based therapy, 10 patients achieved SVR 12 (90.9 %). Of the 29 patients, treated with NS5A inhibitor based combination therapy, 17 were still on treatment (about to complete therapy), 11 had end of treatment response (ETR- 37.9 %) and one achieved SVR-12. The detailed analysis including SVR-12 rates will be presented at the conference.
Conclusions Our study presents the real life data from India in patients with HCV cirrhosis treated with DAAs.

LVH-26

Virological response to nucleoside/tide analogues in HBV related chronic liver disease

Manish Kumar Bhaskar
Department of Gastroenterology, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, India

Objective Comparative evaluation of prolonged antiviral therapy as monotherapy (LAM, ADV, TDF and ETV) and combination therapies (LAM+ADV, LAM+TDF) to assess their influence on viral suppression and rapidity of response.
Methods Case–control, single blinded randomized study carried out in CHB patient attending the gastroenterology OPD and scheduled to undergo therapy. Blood sample collected from patients attending OPD and ward after informed consent. One hundred and ninety-eight nave patients were enrolled in the study and randomized to administer (LAM-30, ADV-34, TDF-32, ETV-40, LAM+ADV-33, and LAM+TDF-29). Mean age (38.25±14.3 year) with male preponderance (75 %). CHB without decompensation observed in 44 % and the remaining 56 % had cirrhosis of which 83 % were decompensated. One hundred and seventy patients were compliant and completed first year follow up. Finally after attrition only 156 patients were studied. Patients were monitored every 6 months for compliance to therapy, clinical,biochemical and virological response.
Results Among monotherapy, LAM had poorest response in long term. ADV had relatively good response at 12 months with clinical improvement but were associated with biochemical breakthrough and VBTH at 2nd year in above 2/5th and 1/3rd of subjects but higher rate of seroconversion was found with ADV (36 %). TDF and ETV therapy acted efficaciously in treatment nave cases achieving significant clinical improvement, undetectable DNA (71 %) alongwith higher rate of biochemical remission (71 % vs. 85 % respectively) at 2nd year of therapy. combination therapy (LAM+ADV and LAM+TDF) showed synergistic effect and no resistance in nave cases and worked efficaciously in resistant cases. It was concluded that LAM+TDF revealed no VBTH in 24 months therapy along with no genotypic mutations. In summary, more potent therapies can overcome the resistance and genetic association of mutation.

LVH-27

Hepatitis E : Morbidity and mortality assessment from South India

Suryaprakash Kothe*, H V Aradya, H P Nandeesh, T R Vijay Kumar, Inderjith, Chandrababu*
Department of Gastroenterology, J S S Medical College and Hospital, Opposite J S S Pharmacy College, Mysore-Bangalore Road, Bannimantap, Mysuru 570 004, India

Background Hepatitis-E has self-limiting clinical course, but can be life threatening in certain high risk groups like pregnancy and alcoholic liver disease. The aim of this study is to evaluate predictors of mortality in patients with acute hepatitis-E.
Methods Two hundred and six adult patients with history of jaundice and fever were evaluated at J S S Hospital, from January 2016 to July 2016 . Among them 40 patients with HEV infection were followed up prospectively. Details of their laboratory investigations, clinical course and complications such as decompensation, acute liver failure and mortality were noted. The outcome was compared, and determinants of mortality were evaluated.
Results Out of 40 patients with hepatitis-E, 31 (77 %) were male. Thirty-two (80 %) were discharged after full recovery. Most of them belong to lower social economic status, predominant presenatation was prodrome followed with jaundice. There were about 02 (5 %) pregnant patients, with a mean gestational age of 26 weeks, completed pregnancy uncomplicated. Co-infections were seen in four patients (10 %), hepatitis B in 02 (5 %) patients, one each had hepatitis A and dengue infection, All of them recovered. Two patients (5 %) died, one patient had previous chronic liver disease, and the other had developed multiorgan dysfunction syndrome.
Conclusion This study showed that hepatitis-E is significantly common cause of viral transmitted hepatitis and is associated with mortality in patients suffering from pre-existing chronic liver disease. Coinfection with other hepatotropic viruses was not a determinant of mortality in hepatitis-E patients in this study, and neither was pregnancy.

LVH-28

High SVR with Indian generic direct acting antivirals (DAAs): results from real life, multicentre study of sofosbuvir in HCV infected Indian patients (RELISH-IN)

Rajiv Mehta*, Akash Shukla, Manav Wadhwan, Kaushal Madan, Mrunal Kamat, Subhash Nandwani, Mayank Kabrawala, Prashant Dhore, Manjubala Yadav, Samir Shah*
Surat Institute of Digestive Sciences, Vijay Nagar Gate No-3, Besides Nirman Bhavan, Majura Gate, Surat 395 002, India, KEM Hospital, Acharya Donde Marg, Parel, Mumbai 400 012, India, Fortis Escorts Hospital, Okhla Road, Near New Friends Club, Okhla, New Delhi, Delhi 110 025, India, Artemis Hospital, Sector 51, Wazirabad Village, Gurgaon, Haryana 122 001, India, Department of Hepatology, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India, and HPB Surgery and Transplant, Global Hospitals, Dr E Borges Road, Mumbai 400 012, India

Introduction Oral direct acting antivirals have completely changed the international guidelines for management of hepatitis C. However all the DAAs are still not licensed for use in majority of the countries where disease burden is high. High cost also makes them unavailable to those in need. Indian generics have made it possible for a large number of patients to afford these treatments. There still remains a concern about the efficacy of these indigenous drugs.
Aim To study the efficacy of Indian generics of DAAs in a real life setting in the treatment of hepatitis C in India.
Methods Observational study in which, prospectively collected data of patients with HCV treated with generic DAAs from 5 different sites in India was compiled. Those patients who had completed treatment and HCV RNA data available for week 4/12 post treatment were analyzed. Baseline characteristics of age, sex, cirrhosis status, genotype, pretreatment viral load and SVR 4/12 were determined.
Results Since March 2015, 392 patients were treated with DAAs. One hundred and eighteen Genotype 1, 212 Genotype 3, 3 Genotype 4, 2 Genotype 2 and 1 Genotype 6. One hundred and eighty-three had cirrhosis, 273 treatment naïve and 119 treatment experienced. Fifty-nine had PegIFN/Sof/Riba, 227 Sof/Riba, 56 Sof+DAV+/− Riba, 47 Sof+LDV+/− Riba and 3 PegIFN/Sof/DAV/Riba. Overall in the entire cohort 223/237 (94.09 %) achieved SVR 4 and 187/200 (93.5 %) achieved SVR 12. Baseline characteristics and details of outcomes are shown in Table

DAA	No. of patients	Geno 1	2	3	4	6	Completed treatment	SVR 4	SVR 12
PegIFN/ Sof/Riba	59	27	1	29			58	46/49	33/35
Sof/Riba	227	64	1	142	2	1	213	164/175	149/160
Sof+DAV+/− Riba	56	2		37			17	5/5	3/3
Sof+LDV+/− Riba	47	25		1	1		17	8/8	2/2
PegIFN/ Sof/DAV /Riba	03			3			1	0	0
Total	392	118	2	212	3	1	306	223/237 (94.09 %)	187/200 (93.5 %)

Conclusion Real life data with Indian generic DAAs show high SVR 4 and SVR 12 rates similar if not superior to those seen in phase 3 trials of original molecules. Access to hepatitis C treatment can be vastly improved in high disease burden, low income countries with these low cost and yet effective drugs.

LVH-29

Clinical profile, management and response to theraphy in patients with chronic hepatitis-C with different genotype

M Nagaventhan, *Gopalakrishnan, Porselvi Rajin , Malarvizhi, Chitra, Manimaran, Murali, M S Reavathy, A R Venkateswaran*
Department of Medical Gastroenterology, Stanley Medical College and Hospital, 305 OSH Road, Royapuram, Chennai 600 001, India

Our aim is to study the clinical profile, management and response to therapy in patients with chronic hepatitis C with different genotypes. For the study hepatitis C infection positive patients attending outpatient clinic and inpatients in Medical Gastroenterology Department, Government Stanley Medical College and Hospital was taken. Treatment was then started with combination of weekly injection of pegylated interferon alpha2a (180 mcg/wk) or pegylated interferon alpha2b (1.5 mcg/kg/wk) along with or without daily oral Ribavarin (10 to 15 mg/kg/wk) in a weight based standard dose for a period of 24 weeks in genotypes 2 and 3 and for a period of 48 weeks in case of genotype 1 and 4 as per existing AASLD guidelines. The outcome of the study were measured in terms of RNA values and the log reduction. In case of genotype 1, ETR at 48 weeks was 73 %; in case of genotype 4, ETR at 48 weeks was 100 %. In case of genotype 2 and 3, ETR at the end of 24 weeks was almost 95 %. SVR at 24 weeks after completion of treatment was seen in 95 % to 100 % of non-1 genotypes as compared to genotype 1 which had only 73 % and this difference was found to be statistically significant.

LVH-30

Hepatitis C virus infection in patients on hemodialysis in tertiary care hospital

Mudumala Issac Abhilash, *P Shravan Kumar, M Uma Devi, Ramanna Macherla*
Department of Gastroenterology, Gandhi Medical College, Walker Town, MIGH Colony, Padmarao Nagar, Secunderabad 500 003, India

Background and Aim Hepatitis C virus is a major problem with an estimated global prevalence of 3 %. The prevalence of HCV infection among dialysis patients is generally much higher than healthy blood donors and general population. There is particular concern because it causes significant morbidity and mortality among hemodialysis (HD) patients. The aim of the study was to study the prevalence of HCV infection and its genotype in HD patients, HCV viremia by PCR, demographic profile and risk factors of HCV infection.
Methods This is a prospective cross-sectional study conducted in 225 patients undergoing HD at Gandhi Hospital, Secunderabad. Patients were subjected to screening for anti-HCV antibody using ELISA, HCV RNA using RT PCR technique and genotyping. Statistical analysis of the data was done by Chi-square test using EPIINFO 2000 software with p 0.05 insignificant.
Results Out of 225 hemodialysis patients 38 (16.8 %) patients were anti HCV positive. Duration of dialysis was significantly longer in anti-HCV antibodies positive group with dialysis duration more than 2 years. Seropositivity is more in HD patients having dialysis more than one center. HCV RNA was detected in randomly selected 13/25 (52 %) anti-HCV positive patients. The genotype distribution was as 3a (7) 2a (2), 2b (1), mixed genotypes (3).
Conclusions Duration of dialysis, getting dialysis at more than one center are important associations for anti-HCV antibodies positivity. Genotype 3 was predominant (61.11 %). Detection of genotypes helps in initiation of therapy and prediction of prognosis in patients of chronic renal failure on hemodialysis.

LVH-31

Clinical profile management and response to therapy in chronic HCV patients in relation to vitamin D3 levels

Nagaventhan, ***Gopalakrishnan***, *Porselvi Rajin, Malarvizhi, Chitra, Manimaran, Murali, M S Reavathy, A R Venkateswaran*
Department of Medical Gastroenterology, Stanley Medical College and Hospital, 305 OSH Road, Royapuram, Chennai 600 001, India

Our aim was to measure the serum vitamin D3 levels in all patients with chronic hepatitis C infection and study whether it has any effect on outcome and SVR across various genotypes. All patients who showed evidence of HCV infection in the form of anti-HCV antibody positive or HCV RNA detectable by PCR assay. No evidence of decompensation either clinically, biochemically or radiological. Treatment was then started with combination of weekly injection of pegylated interferon alpha2a (180 mcg/wk) or pegylated interferon alpha2b (1.5 mcg/kg/wk) along with or without daily oral Ribavarin (10 to 15 mg/kg/wk) in a weight based standard dose for a period of 24 weeks in genotypes 2 and 3 and for a period of 48 weeks in case of genotype 1 and 4 as per existing AASLD guidelines. Vitamin D3 levels were measured in all these patients and replacement given for vitamin D3 deficient patients. Patients groups with normal vitamin D3 levels attained a higher SVR as compared to those with a deficiency across all the genotypes 1 to 4, this difference was found to be statistically insignificant (p 0.068

LVH-32

Study on chronic HCV patients with sofosbuvir in tertiary care centre

Gopalakrishnan, *Nagaventhan, Arun, Porselvi Rajin, Malarvizhi, Chitra, Manimaran, Murali, M S Reavathy, A R Venkateswaran*
Department of Medical Gastroenterology, Stanley Medical College and Hospital, 305 OSH Road, Royapuram, Chennai 600 001, India

To find out the efficacy of sofosbuvir in chronic HCV patients in tertiary care centre in the following groups. HCV patients with DCLD, various genotypes of HCV. Recently rapid evolution in treatment has occurred from injectable based therapy with modest efficacy to interferon free oral regimen of DAAs Sofosbuvir. Compared to previous treatments, sofosbuvir-based regimens provide a higher cure rate, fewer side effects, and a two- to four-fold reduced duration of therapy. Sofosbuvir allows most patients to be treated successfully without the use of peginterferon an injectable drug with severe side effects. It is a prospective study conducted in patients admitted in GSH from April 2015 onwards with HCV infection. Approximately 54 patients undergoing treatment with Sofosbuvir. HCV patients with DCLD cancer chemotherapy patients HCC with HCV infection corrosive injury with HCV HBV +HCV coinfection. Various genotypes Interferon ineligible patients HIV+HCV+cancer patients.

Liver-Others

LO-01

Management of hepatic encephalopathy in advanced cancer - A case series

Rahul D Arora

Department of Palliative Medicine, Tata Memorial Centre, Tata Memorial Hospital, Ernest Borges Marg, Parel, Mumbai 400 012, India

Background Hepatic decompensation in metastasis is considered the functional equivalent of cirrhosis.
Case description Patient one - Metastatic carcinoma gallbladder with nodal and liver metastasis, post PTBD with SEMS, presented with fever, worsening jaundice and altered sensorium, managed as acute cholangitis with stent block and hepatic encephalopathy. *Patient two* - 50-year-old female, known case of metastatic cholangiocarcinoma diagnosed as acute cholangitis with stent block and planned for PTBD after optimisation of INR. Pharmacological management - Rifaximin and bowel decontamination, broad spectrum antibiotics, fresh frozen plasma (correction of coagulopathy), intravenous KCl. (hypokalemia). *Patient three* - Case of carcinoma colon (neuroendocrine differentiation) with hepatic metastasis causing compression at the level of the sectoral bile duct leading to conjugated hyperbilirubinemia. Planned for PTBD and stenting, presented with complaints of vomiting, itching and features suggestive of hepatic decompensation in the form of drowsiness and day night reversal (minimal hepatic encephalopathy).
Discussion Utility of Rifaximin and intravenous L Ornithine and L Aspartate in hepatic decompensation with stent block being optimised for biliary drainage procedure. Management of complications- encephalopathy, electrolyte imbalance as a result of diarrhea due to hepatic decompensation, coagulopathy. Role of injection Midodrine, Octreotide and intravenous albumin for presumptive management of hepatorenal syndrome in the absence of feasibility for transplantation.
Conclusion Implementation and feasibility of the protocol for management of hepatic rncephalopathy in the absence of ICU and hepatic extracorporeal support needs to be studied further.

LO-02

Coagulopathy of liver disease in metastatic renal cell carcinoma - A case report

Rahul D Arora
Department of Palliative Medicine, Tata Memorial Centre, Tata Memorial Hospital, Ernest Borges Marg, Parel, Mumbai 400 012, India

Background Coagulation abnormalities in liver disease can be multifactorial and causes such as thrombocytopenia, antigenic, functional factor deficiency and accelerated fibrinolysis may lead to active bleeding.
Case Report Twenty-seven year old male, a known case of metastatic renal cell carcinoma with distant spread to the liver and spleen who had undergone therapeutic paracentesis for ascites presented with complaints of multiple episodes of blood in urine. Examination findings included anasarca, hepatosplenomegaly and inferior vena caval obstruction. Coagulation profile revealed an elevated PT and INR along with a normal APTT. Component transfusion with fresh frozen plasma (FFP) and cryoprecipitate were considered for correction of coagulopathy in the setting of coagulopathy of liver disease/secondary dysfibrinogenemia in liver disease in the setting of advanced malignancy. Symptomatic improvement was seen after transfusion of three units of FFP along with tranexamic acid.
Discussion Secondary dysfibrinogenemia due to altered carbohydrate structure (increased fibrinogen sialylation) which impairs the ability to form fibrin polymers is seen in severe liver disease in the setting of primary, secondary hepatic tumors and renal cell carcinoma. The degree of coagulopathy has not been shown to be predictive of bleeding outcomes and transfusion is indicated only in presence of active bleeding and invasive procedures.
Conclusion The type and quantity of blood component to be transfused needs to be decided after a careful consideration of the general condition, prognosis, cardiovascular status, hepatic synthetic function and other comorbidities.

LO-03

Etiological profile of cirrhosis in a tertiary care center of North India

Amar Deep*, Ajay Vardaan, Suchit Swaroop*
Experimental and Public Health Laboratory, Department of Zoology, University of Lucknow and Department of Gastroenterology, King George's Medical University, Chowk, Lucknow 226 003, India

Background and Aims Etiological profile of cirrhosis is changing across India. Alcohol is reported as the most common cause of liver cirrhosis across the world. Other than alcohol the most common etiologies include viral hepatitis and nonalcoholic fatty liver disease (NAFLD). There is less data regarding the etiology of liver cirrhosis in North Indian population from Uttar Pradesh.
Methods The study was based on observations. The study was carried out by the Department of Medical Gastroenterology, King George's Medical University, Lucknow from February 2014 to July 2015. All consecutive patients diagnosed with liver cirrhosis were included. Cirrhosis was diagnosed on the basis of clinical data, imaging, laboratory and biochemical parameters and presence of varices on upper gastrointestinal endoscopy.
Results A total of 100 patients were evaluated. Among these the most common etiology was alcohol in 26 patients (26 %) fallowed by hepatitis C in 19 patients (19 %), NAFLD in 13 patients (13 %) and a combination of alcohol and HCV in 21 patients (21 %). Wilson disease and cardiac cirrhosis were seen in one (1 %) patient each respectively. Acute kidney injury was seen in 7 patients (7 %). During data analysis, the Child-Turcotte-Pugh stages A, B, C of liver cirrhosis were seen in 19 (19 %), 36 (36 %) and 45 (45 %) patients respectively. Ascites was the main complain in 73 patients (73 %) fallowed by upper gastrointestinal bleed in 27 patients (27 %).
Conclusion Alcohol remains the most common cause of liver cirrhosis while HCV has taken the second and HBV has taken third position. Most of the patients present with advanced liver disease. Ascites is the most common presentation. NAFLD is now becoming an important cause of cirrhosis.

LO-04

To study the incidence and prevalence of renal dysfunction in stable cirrhotic patients with normal serum creatinine with help of renal biomarkers

Amit Gulhane*, Dharmesh Kapoor, Sethu Babu*
Department of Gastroenterology and Hepatology, Global Hospitals, Lakdikapul, Hyderabad 500 004, India

Aim To study incidence and prevalence of acute kidney injury (AKI) in stable cirrhotic patient having normal serum creatinine with help of renal biomarkers.
Methods A prospective cohort analysis of patients with Child A and early Child B was performed. All patients' baseline liver functions, kidney functions along with renal biomarkers such as serum cystatin C and urinary NGAL were performed. GFR was calculated by DTPA scan, C-G method, MDRD (6 variables) formula and CKD-EPI creatinine-cystatin C equation. The endpoint of the study was 1 year from the initial evaluation or an episode of renal dysfunction whichever was earlier.
Results Nine out of 45 cirrhotic patients with normal serum creatinine found to have renal dysfunction at baseline as assessed by GFR <60 mL/min/ 1.73 m^2 (DTPA scan). Two out of 45 patients followed up developed AKI during study period. Serum cystatin C was found to have high sensitivity (100 %) and specificity (61.1 %) with AUROC was 0.853. However, urinary NGAL level did not show statistically significant distribution. By using Perason correlation between GFR calculated DTPA scan with CKD-EPI creatinine-cystatin C equation showed (r=0.392) $p<0.05$.

Conclusions The diagnosis of renal dysfunction based on serum creatinine in cirrhotic patients is like 'Iceberg' phenomenon. Serum cystatin C is helpful in identifying early renal dysfunction prior to derangement of serum creatinine. Urinary NGAL role in stable cirrhotic for early diagnosis of renal dysfunction require further study. GFR calculated with combination of creatinine and cystatin C provides more precise value than equations based on serum creatinine alone.

Parameter	GFR >60 mL/min/ 1.73 m2		GFR <60 mL/min/ 1.73 m2		*t* value	NAFLD *p* value
	Mean	SD	Mean	SD		
Age	49.36	10.22	45.33	14.20	.97	.33
BMI	25.20	3.40	25.25	4.83	.03	.97
T. Bil	1.69	.98	1.13	.46	1.66	.10
Alb	3.73	.61	3.37	.64	1.56	.12
INR	1.37	.40	1.31	.23	.44	.66
Urea	19.69	6.18	23.67	10.44	1.48	.14
Creat	.69	.18	.79	.18	1.55	.12
Cystatin-C	1.00	.23	1.29	.23	3.45	0.001
Ur. NGAL	56.21	76.37	93.57	89.03	1.27	.21
GFR BY EPI-CKD 2012 CYSTATIN C+CREAT	86.14	22.45	59.78	15.48	3.31	0.002
MDRD	129.45	41.96	113.17	43.69	1.03	.30
CG formula	127.73	42.98	100.49	22.76	1.82	.07

When baseline characteristics of the cirrhotic patients enrolled in the study, categorized on the basis of presence or absence of renal dysfunction as defined by GFR<60 mL/min/1.73 m2 by DTPA scan, it was observed that serum cystatin C and eGFR calculated by EPI-CKD (creatinine+Cystatin C) 2012 equation had strong correlation with renal function.

LO-05

Rare case of overlap syndrome in rare phenotype

G S Sharath Kote*, G S Gurudath, Ramesh Kumar, M J Khan, Palanivelu, Nithyananda Sharma, Santhosh Palve, Suganya*
Medical Gastroenterology, GEM Hospital, 45, Pankaja Mills Road, Sowripalayam Pirivu, Ramanathapuram, Coimbatore 641 045, India

Autoimmune hepatitis (AIH) with primary biliary cirrhosis (PBC), even though rare entity but, most common form of overlap syndrome (10 % of AIH). In one of cohort study, of 130 consecutive patients with a diagnosis of PBC, 12 cases (9.2 %) overlap syndrome (with AIH) (10 females, 2 males). Here we present a case of AIH overlap with PBC in a male patient. A 40-year-old male patient, aprroximately 40 g alcohol consumption per day, admitted with jaundice since 2 months associated with itching, no prodromal symptoms. No past history of complications of CLD. No liver diseases in the family. Examination revealed icterus, mild hepatomegaly without ascites. Investigations showed mild anemia (10 g %), LFT s/o intrahepatic cholestasis (total bili: 4.3, D: 3.4, SGOT:252, SGPT-223, ALP-187, Alb-3.3, Glob-4.2, GGT-70), INR-1.43, serum IgG levels were 28 (>2 ULN) viral markers were negative. USG showed coarse echotexture of liver. Endoscopy was normal. Serum ferittin was 928 ng/mL with TS <45 %, cerulopasmin and 24 h urinary copper was normal. Autoimmune markers ANA ++, ASMA ++, antimitochondrial antibody +++. Now patient with phenotypical features of CLD with cholestatic feature and AMA positivity show an direction towards the overlap syndrome (AIH and PBC). Liver biopsy revealed interface hepatitis with lymphoplasmocytic infiltration and bile duct proliferation. With that it was concluded that patient is having overlap syndrome of AIH with PBC according to Paris criteria. Importance of suspecting an overlap in autoimmune hepatitis patients that presenting with cholestasis which makes a big difference in therapeutic intervention and prognosis.

LO-06

Prevalence and risk factors for hepatogenous diabetes

Pavan Hanchanale*, V Jayanthi, J Varghese, S Vijaya, M Rela*
Institute of Liver Disease and Transplantation, Global Health City, 439, Cheran Nagar, Perumbakkam, Medavakkam, Chennai 600 100, India

Aims To determine the prevalence of impaired glucose tolerance in the patients of liver cirrhosis and risk factors predisposing these patients to develop hepatogenous diabetes (HD).
Methods Study was cross sectional serial intake study conducted in period between 1st June 2014 and 30th May 2015. Consecutive adult in-patients with cirrhosis and normal fasting blood sugar (<126 mg/dL) and HbA1c (<6.5 %) level within the preceding 3 months of registration with were enrolled. All registered patients underwent 75 g OGTT, diabetes was defined as GTT 2-hour blood glucose level was ≥200 mg/dL. Patients were grouped as normal and HD as per GTT, were followed at 3 and 6 months.
Results Total 158 patients were enrolled, 74 (46.8 %) were known diabetic with cirrhosis and 84 (53.1 %) were without diabetes. 2 hr-GTT was normal in 51 (60.7 %) cirrhotic and abnormal in 33 (39.3 %) patients, 23 (69.7 %) of 33 patients had an IGT; the remaining 30.3 % had new onset diabetes. Overall prevalence of IGT was 14.6 % and was significantly higher than new onset diabetes in 6.3 % (p<0.001). Patients in Child C status were 2.0 times at a greater risk for developing HD (RR 2; 95 % CI 95 % CI 1.1 to 3.6).
Conclusion Overall prevalence of HD in cirrhotic patients to be 20.8 % with impaired glucose tolerance in 14.6 % and new onset diabetes in 6.3 %. Risk of acquiring HD in cirrhosis with CTP C was at 2 times.

LO-07

Anti-HBs levels of admitted adult patients with pancreatitis from a tertiary care hospital

Arun Kumar Sharma*, B Kumar, S K Sinha, U Dutta, R Kochhar*
Department of Superspeciality of Gastroenterology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background Worldwide, hepatitis B virus (HBV) still remains a major public health problem. Vaccination against HBV is a part of our National Immunisation Programme since 2013, but its coverage is inadequate. The anti-HBs status of adult patients of acute or chronic pancreatitis patients is not known.
Objectives To know anti-HBs levels in patients of acute pancreatitis, acute on chronic pancreatitis and chronic pancreatitis admitted in Gastroenterology Department, Nehru Hospital, PGIMER, Chandigarh.
Methodology A prospective study was done on admitted patients of acute pancreatitis, acute on chronic pancreatitis and chronic pancreatitis between August 2015 and June 2016 (exclusion HBV infected patients). Clinical features of patients, routine blood investigations and abdominal ultrasound findings were recorded. Three mL. of blood was collected from each patient and serum stored at −20 °C. Tests for HBsAg, anti-HCV and anti-HBs were done by ELISA.
Results The study group included 188 patients (155 male, 31 female) with a mean age of 41.29 yrs.±12.505. Overall 163 patients (86.7 %, 163/188) of acute or chronic pancreatitis had nil level of anti-HBs antibody. 07 patients (3.72 %, 7/188) had anti-HBs level of <10 mIU/mL. Rest 18 patients (9.57 %, 18/188) had anti-HBs level >10 mIU/mL. All were non-reactive for HBsAg and anti HCV test.

Conclusion: 86.7 % of adult patients with acute or chronic pancreatitis undergoing hospital treatment were susceptible to hepatitis B virus infection. Vaccination against HBV should be advised in admitted adult patients after anti-HBs testing.

LO-08

Study of minimal hepatic encephalopathy in cirrhotic patients

P Bibin, *Rajan Mittal, S N K Chenduran, P Padmanabhan*
Department of Medical Gastroenterology, Meenakshi Medical College, Enathur, Kanchipuram 631 552, India

Background and Objective: Minimal hepatic encephalopathy (MHE) is a state in which, patient with cirrhosis regardless of its cause show a number of quantifiable neuropsychological defects. The prevalence of this MHE has been reported to vary from 30 % to 84 % depending on the tests and population used. In view of this and its possible impact on daily life, routine assessment of MHE is recommended. The present study is being aimed to identify and analyze MHE in hepatic cirrhosis patients which also helps in avoiding mortality and morbidity in this sub group.
Method Total of 40 patients were included in this study. This is a cross sectional study done in patients with cirrhosis of liver, involving administration of five neuropsychological tests (NCT-A, NCT-B, line tracing, serial dotting and digital symbol test) in the patients and comparing it with the normal controls. MHE was diagnosed when there is >2 standard deviations from the control group in 2 or more tests.
Results The mean age in the present study was 47 years for the cases. Child-Pugh grade B was present in 36.3 % of the patients. Fifty-nine percent of cirrhotics had MHE which was statistically significant.
Conclusion MHE is highly prevalent in cirrhotics and neuropsychological tests are effective in diagnosing MHE.

LO-09

Crytogenic cirrhosis- Mystery decoded on explant evaluation!

Mayank Jain*, V Jayanthi, Mukul Vij, S Shruthi, Chandan Kumar Kedarishetty, Joy Varghese, Kavya Harika, Mohamed Rela*
Institute of Liver Disease and Transplantation, Global Hospital, 439, Cheran Nagar, Perumbakkam, Chennai 600 100, India

Aim of the study To determine a definite cause of liver disease in patients with cryptogenic cirrhosis on explant liver pathology.
Methods This retrospective study was done at Global Health City, Chennai. We analyzed the records of all adult patients who had undergone liver transplantation at our centre between January 1, 2014 to 30th June 2016. All patients with alcoholic liver disease, hepatitis B and C infection, biopsy proven autoimmune liver disease were excluded. The study group included patients who were labelled as non alcoholic steatohepatitis (NASH) and cryptogenic cirrhosis in pretransplant evaluation. Explant pathology reports were collected and a search for more definite diagnosis was made.
Results Fifty-seven patients (22.70 %) out of 251 LT patients formed the study group. Based on clinicopathological findings, a more definitive diagnosis was made in 43 (76 %): NASH (27, 47.36 %), autoimmune liver disease (6, 10.52 %), Severe iron overload suggesting hemochromatosis (5, 8.77 %), noncirrhotic portal fibrosis (2, 3.5 %), overlap syndrome (1, 1.75 %), Wilson's disease (1, 1.75 %) and Caroli's disease (1, 1.75 %). In the NASH group, native livers had focal steatosis, Mallory's hyalin, glycogenated hepatocytic nuclei, high-grade inflammation, and 3+ bile duct proliferation. Most of these patients had one or more of the following comorbidities-diabetes (20, 74 %), hypertension (10, 37.0 %), coronary artery disease (8, 29.6 %), obesity (6, 22.22 %) and hypothyroidism (4, 14.8 %).
Conclusions (1) Cryptogenic cirrhosis results from varying etiologies, which can be defined by a careful clinicopathologic analysis in a majority (76 %) of cases; (2) Nonalcoholic steatohepatitis and autoimmune liver disease are the common underlying causes of cryptogenic cirrhosis; (3) Most patients of NASH have associated diabetes, hypertension and coronary artery disease.

LO-10

Hepatic osteodystrophy in patients with chronic liver disease

Aditya D Shah*, Shanthi Vijayaraghavan, P Ganesh, S Shanmuganathan*
Sri Ramachandra Medical College, No.1, Ramachandra Nagar, Porur, Chennai 600 116, India

Background Hepatic osteodystrophy is defined as bone disease associated with cirrhosis. Osteoporosis is associated with increased risk of fractures. Osteoporosis is an important and common complication in individuals with cirrhosis. The exact prevalence of osteoporosis in Indian patients with hepatic cirrhosis is unknown. The present study was undertaken to assess the correlation between the severity of liver disease and the presence and severity bone disease in patients with CLD.
Methods A prospective study to be carried out at Sri Ramachandra Medical College and Research Institute, Chennai from August 2015 to June 2016. Forty-six patients (38 male and 8 female) fulfilling the inclusion and exclusion criteria were included in the study along with equal number of age and sex matched controls. BMD was measured using DXA scan of hip and lumbar spine.
Results Low BMD (T<−1.0) was found in 72 % of the patients with chronic liver disease. Patients with CTP C were more like to have a low BMD. Higher MELD score was associated with more of HOD. Seventy-seven percent of the patients with alcoholic related CLD had HOD. Vitamin D deficiency was present in majority of the patients with CLD (89 %) vs. controls (76 %).
Conclusion The prevalence of hepatic osteodystrophy was higher in Indian population as compared to Western literature. This rate was proportional to severity of the underlying liver disease. Hence highlighting the idenfication of hepatic osteodystrophy and early management in patients with CLD is required.

LO-11

Targeted killing of hepatocellular carcinoma derived chemoresistant cancer cells using gold nanoparticles tagged anti-tumor drugs

Sandeep Kumar Vishwakarma*, Avinash Bardia, L Chandrakala, N Raju, B V S Sastry, G Sravani, Md. Aejaz Habeeb, Marshal Dhayal, Aleem A Khan*
Centre for Liver Research and Diagnostics, Deccan College of Medical Sciences, Kanchanbagh, Hyderabad 500 058, India, and CSIR-Centre for Cellular and Molecular Biology (CCMB), Habsiguda, Hyderabad 500 007, India

Hepatocellular carcinoma (HCC) is the fifth most common solid tumor worldwide and the fourth leading cause of cancer-related death, with an estimated death rate of more than 5,00,000 per year. Existing treatment including loco-regional or systemic chemotherapy, fail largely due to the chemo resistance properties of cancer cells. High doses of drugs lead to systemic toxicity resulting in a multitude of unwanted adverse reactions due to their lack of availability at tumor site, poor tumor intake of drugs and rapid elimination. In addition most conventional methods for delivering chemotherapeutic agents fail to achieve therapeutic concentration of drugs, despite reaching toxic systemic levels. In present study, we investigated the effect of tagged anti-tumor drugs with ultra-small gold nanoparticles (AuNPs) to investigate their effect on HCC and drug resistant

HCC cells. We observed that nanoformulated drugs (AuNP-QC, AuNP-SF and AuNP-CC) are more effective on normal tumorigenic as well as drug-resistant HCC cells. Among three nanoformulated drugs (QC, SF and CC), AuNP-tagged SF is more effective in killing of normal tumorigenic as well as drug-resistant HCC cells.
Conclusion This study offers a controlled, safe and more effective drug delivery approach at very less concentration of drugs with pre-determined rates for predefined periods at the target normal and drug-resistant cancer cells. This strategy could overcome the shortcoming of conventional drug formulations/approaches therefore could demise the side effects and improve the quality of life of patients.

LO-12

Real-time assessment of cellular dynamics based on flow cytometry analysis of nanoparticles internalization within the cells

Sandeep Kumar Vishwakarma, *Avinash Bardia, L Chandrakala, N Raju, B V S Sastry, G Sravani, Md. Aejaz Habeeb, Aleem A Khan*
Centre for Liver Research and Diagnostics, Deccan College of Medical Sciences, Kanchanbagh, Hyderabad 500 058, India

Nanoparticles are considered a primary vehicle for targeted therapies because they can pass biological barriers, enter and distribute in cells by energy-dependent pathways. Until now, most studies have shown that nanoparticle properties, such as size and surface, can affect how cells internalize nanoparticles. However, there is a lack of screening systems that can rapidly assess the dynamics of nanoparticle uptake and their consequential effects on cells. Established in vitro approaches are often carried out on end point analysis, rely on time-consuming bulk measurements and vary from one cell population to other. As such, these procedures provide averaged results, do not guarantee precise control over the delivery of nanoparticles to cells and cannot easily generate information about the dynamics of nanoparticleâ cell interactions and/or nanoparticle-mediated compound delivery. Here, we report a flow cytometry-based approach for identification of nanoparticles internalization/release from the cells at different time points. The study provides a novel strategy based on side scatter analysis of nanoaprticles larger than 40 nm in size. We also report that the different phases of cell growth can also influence nanoparticles uptake. Combining nanotechnology with flow cytometry and imaging techniques, we present a multi-variant platform to monitor nanoparticles uptake and intracellular processing in real-time and at the single-cell level. As proof-of-concept application, the potential of such a system for understanding nanoparticles delivery and processing was investigated in HCC cells for controlled delivery to HepG2 cells. Conclusively, this approach represents a novel cost-saving and time-effective screening tool for studying the dynamics of cell “nanomaterial interactions.

LO-13

High contrast molecular and functional imaging using highly biocompatible novel bi-metallic super paramagnetic iron oxide and gadolinium (Gd-SPIO) nanoparticles

Sandeep Kumar Vishwakarma, *Avinash Bardia, L Chandrakala, N Raju, B V S Sastry, G Sravani, J Venkateswarlu, Md. Aejaz Habeeb, Aleem A Khan*
Centre for Liver Research and Diagnostics, Deccan College of Medical Sciences, Kanchanbagh, Hyderabad 500 058, India

In medicine, nanotechnology has sparked a rapidly growing interest as it promises to solve a number of issues associated with conventional therapeutic agents, including their poor water solubility (at least, for most anticancer drugs), lack of targeting capability, nonspecific distribution, systemic toxicity, and low therapeutic index. Nanoparticles and their payloads have also been favorably delivered into tumors by taking advantage of the pathophysiological conditions, such as the enhanced permeability and retention effect, and the spatial variations in the pH value. Gd-SPIO nanoparticles offers feasibility to acquire real-time high contrast image and non-invasive monitoring of cells including their bio-distribution, migration, survival, and differentiation using MRI. The present study demonstrates a novel hydrolytic approach for the sysnthesis of bi-metalic Gd-SPIO nanoparticles with homogenous size, shape, uniform distribution and phase purity. The study revealed that various concentrations of Gd-SPIO nanoparticles do not influence the cellular mechanisms involved in cell survival and proliferation which proves high biocompatibility nature of Gd-SPIO nanoparticles with cells. TEM and prussian blue staining showed uptake of nanoparticles within the endosomes of cells. We did not observe any significant change in hematological and biochemical parameters after 72 h of Gd-SPIO nanoparticles infusion in Wister rats. Enhanced signal intensity during low field MRI (1.5 T) with iron oxide and gadolinium provides its further clinical implications as dual contrast imaging agent.

LO-14

Repopulation of human hepatic progenitor cells in decellularized liver scaffold as a platform for bioengineered extracorporeal organ

Aleem A Khan, *Sandeep Kumar Vishwakarma, Avinash Bardia, L Chandrakala, N Raju, B V S Sastry, G Sravani, Md. Aejaz Habeeb*
Centre for Liver Research and Diagnostics, Deccan College of Medical Sciences, Kanchanbagh, Hyderabad 500 058, India

Acute as well as chronic liver failures are major fatal problems which lead up to 60 % to 80 % mortality every year. In acute condition, systemic inflammation and accumulation of toxic compounds (ammonia) in liver results in multi-organ failure which leads to hepatic encephalopathy. Pharmacological drugs are not enough capable of removing toxins from liver. Whereas, in chronic condition, liver transplantation is the only option. However, liver transplantation is limited due to timely unavailability of enough donors, post-transplantation complications and high cost involvement. The present study demonstrates a promising strategy of using natural platform of bioartificial extracorporeal liver support system (BELSS) prepared through decellularization and repopulation of goat liver with human hepatic progenitor cells. This model system is able to detoxify 2.5–5.0 mM ammonium chloride in vitro and provides a bioreactor module for higher volume of cells which can efficiently detoxify ammonia. This natural bioartificial liver can also be used as extracorporeal support system of failing liver of patients waiting for liver transplantation. In conclusion, we demonstrate an emerging novel strategy of making humanized liver using human hepatic progenitor cells for bioartificial liver development which could be used as in vitro drug testing model or extracorporeal device.

LO-15

Bacterial infections in patients with liver cirrhosis

T G Sundaram, *Mukul P Agarwal, Ashwani Kumar, Shiva Narang*
Department of Medicine and Microbiology, University College of Medical Sciences (University of Delhi), and Guru Teg Bahadur Hospital, Dilshad Garden, Delhi 110 095, India.

Background Bacterial infections are among the most common causes of hospitalization in cirrhosis and represent the most important factor for acute decompensation. Thus early diagnosis and treatment of infections are of paramount importance.
Aim and Objective We assessed the prevalence of bacterial infections in patients with cirrhosis. We also studied the various factors which are associated with infections.

Methods A total of 50 patients who were diagnosed with liver cirrhosis on the basis of biopsy or with clinical or radiological evidence of liver cirrhosis were recruited for the study. Patients who had received antibiotics in the past week were excluded. Patients were assessed for the presence of spontaneous bacteremia, spontaneous bacterial peritonitis and its variants, urinary tract infections, lower respiratory tract infections, skin infections and other infections as indicated by the clinical picture.
Results In this study, we found out that the prevalence of bacterial infections in cirrhosis was 50 % (25 out of 50). A total of 32 infections were detected, with 7 patients showing evidence of two infections. Of the infections detected, SBP and its variants were the most common (46.8 %). UTIs comprised 25 %, spontaneous bacteremia 12.5 %, pneumonia 9.3 %, cellulitis and spontaneous bacterial empyema 3.1 %. The factors that were significantly associated with bacterial infections were gastrointestinal hemorrhage, advanced liver failure (Child-Pugh class C), lower platelet count and lower serum protein and albumin.
Conclusion Thus it is clear that bacterial infections are common in cirrhosis, particularly among certain high risk groups, making early intervention of utmost importance.

LO-16

Clinical spectrum and treatment outcomes of autoimmune hepatitis in India: A single tertiary care centre experience from Western India

Nikhil Sonthalia, *Pravin M Rathi, Samit S Jain, Ravindra G Surude, Vinay Pawar, Ashok R Mohite, Qais Contractor*
Departments of Gastroenterology, Topiwala National Medical College and B Y L Nair Hospital, Mumbai Central, Mumbai 400 008, India

Background and Aims Previously thought to be an uncommon disease, autoimmune hepatitis (AIH) is on rise in the Indian population. The aim was to describe the natural history and treatment outcomes of AIH.
Methods A prospectively maintained data-base from January 2011 till March 2016 was analyzed. Out of 1153 patients of acute or chronic liver disease who were screened 125 (10.84 %) were diagnosed as AIH and 101 were finally enrolled. Clinical, serological, histological parameters and treatment outcomes with follow up till 12 months were analyzed.
Results The mean age of presentation was 40±15 years with 91 (90.1 %) females. Out of 101 AIH, type I was in 64 (61.3 %), type II was in 5 (4.95 %), seronegative AIH was in 12 (11.88 %), AIH-cholestasis overlap in 9 (8.91 %), AIH-PBC overlap in 8 (7.92 %) and AIH-PSC overlap in 3 (2.97 %). Associated other autoimmune diseases included autoimmune hypothyroid in 25 (24.75 %), diabetes mellitus in 21 (20.79 %), rheumatoid arthritis in 4 (3.96 %), ulcerative colitis in 4 (3.96 %) and vitiligo in 3 (2.97 %). Out of 101, 68 (67.32 %) achieved remission, 21 (19.80 %) where incomplete responders, and 12 (11.88 %) were treatment failures at the end of one year. Seronegative-AIH patients presented as severe-AIH, significantly more than seropositive-AIH (50 % vs. 20.27 %, p=0.022).
Conclusion About 10.84 % patients of acute or chronic liver disease had AIH which is higher than what has been reported from India in the past. Seronegative AIH presents more commonly with severe AIH but has similar outcomes compared to other variants.

LO-17

Cirrhotic cardiomyopathy is less prevalent in patients of Budd-Chiari syndrome as compared to patients with cirrhosis due to other causes

Pratin Bhatt*, Tejas Modi, Amit Gupte, Jatin Patel, Shobna Bhatia, Akash Shukla*
Department of Gastroenterology, 9th Floor, Multistorey Building, K E M Hospital, Parel, Mumbai 400 012, India

Background and Aim Cirrhotic cardiomyopathy (CCM) occurs in 23 % to 28 % of patients with cirrhosis. There is no data regarding cardiac dysfunction in Budd-Chiari syndrome or its impact on treatment outcome. It is associated with poor control of ascites and high morbidity after TIPSS, and liver transplantation. We undertook prospective study on cardiac parameters in patients of Budd-Chiari syndrome (BCS) undergoing radiological intervention or receiving medical therapy and compared them with patients of cirrhosis due to other causes (CLD).
Methods Consecutive patients of BCS and cirrhosis (controls matched for CTP score) were evaluated with baseline electrocardiogram (ECG), surface 2D echocardiography (ECHO) and dobutamine stress test for ionotropic and chronotropic incompetence. CCM was defined if ejection fraction was <55 % (systolic dysfunction-SD), DD present (E/A ratio <1), prolonged QTc or abnormal dobutamine stress ECHO/ECG. Comparison between two groups (BCS and CLD) was done with regards to cardiac tests. BCS patients undergoing radiological intervention were evaluated for symptom of heart failure, need for ICU stay and mortality.
Results We enrolled 33 BCS patients [age: 32 (11.65) years; 15 males; 12 CTP A] and 33 patients with CLD [age: 47 (11.21) years; 27 male; 14 CTP A]. Mean duration of symptoms was 4.5 and 4.2 years in BCS and cirrhosis groups respectively. Mean age of the patients was 32.4 years in BCS group and 47.1 years in cirrhosis group. There was no other statistical difference in the 2 groups. In BCS group all the patients had Clichy index <5.1. According to Rotterdam index 1, 7 and 25 BCS patients were in class 1, 2 and 3 respectively. Six patients in BCS group had cardiomyopathy as compared to 19 patients in CLD group (p=0.005). Echocardiographic
Table 1 Comparison between BCS and cirrhosis—echocardiographic change

Variables	BCS n=33	Cirrhosis n=36	p value (2 sided)
EF %	60 (4.2)	57.3 (7.1)	0.079
E wave (cm/sec)	89.9 (23.8)	102.6 (29.4)	0.046
A wave (cm/s)	60.7 (15.6)	72.9 (22.4)	0.006
E/A ratio	1.33 (0.4)	1.5 (0.8)	0.226
E’	14.6 (4.0)	14.3 (3.1)	0.899
A’	8.6 (2.6)	9.5 (2.7)	0.144
E’/A’ ratio	1.73 (0.8)	1.6 (0.6)	0.809
LV EDV	70.1 (20.9)	84.7 (32.6)	0.047
LV ESV	29 (9.2)	36.3 (15)	0.020
RV EDV	28.6 (12.5)	35.4 (4.7)	0.009
RV ESV	12.4 (5.2)	15.6 (5.9)	0.014
LVID(S)	2.6 (0.7)	2.6 (0.7)	0.68
LVID(D)	3.9 (0.4)	4.5 (0.6)	0.001
RVID(D)	1.2 (0.4)	1.2 (0.4)	0.146
Pulm artery pressure (mmHg)	25.3 (6.2)	28.2 (7.2)	0.199
PAT (msec)	117.8 (11.4)	121.5 (19.4)	0.505
QTc (msec)	423.9 (22.7)	447.78 (35.4)	0.001
SD	2	3	1.0
DD	0	6	0.02
QTc abnormal	5	17	0.005
DOB abnormal ECG	0	4	0.11
DOB abnormal echo	0	2	0.49
CCM	7	21	0.003

In subgroup analysis in CTP A group, 4 patients in BCS group and 7 patients in CLD group had cardiomyopathy (p=0.453). In CTP B and C group, 2 patients in BCS group and 12 patients in CLD group had cardiomyopathy (p=0.003).
In BCS group, 19 patients were underwent radiological intervention (12 TIPSS, 4 IVC stenting, 3 HV stenting). After intervention, no patient required prolonged ICU stay (>48 h) or ventilator support. Mean duration of stay in hospital was 9.31 days in all BCS patient post intervention, while mean duration was 11.08 days, 5.25 days and 7.66 days in TIPSS, IVC stenting and HV stenting respectively. There were no episodes of hypotension or congestive heart failure post intervention in abnormal cardiac dysfunction in any patient. There was no mortality in intervention group. There was one death in anticoagulation group. Three patients were lost to follow up in BCS group.
Conclusion Patients with BCS had lower prevalence of cardiomyopathy compared to patients with cirrhosis despite similar duration of illness and severity of disease. Thus CCM does not affect immediate outcomes in patients undergoing radiological interventions.

LO-18

Urinary neutrophil gelatinase-associated lipocalcin in identifying type of acute kidney injury in cirrhosis

Suhas Udgirkar, *Pravin Rathi, Sanjay Chandanani, Vinay Pawar, Nikhil Sonthaliya, Ravi Surude, Q Contractor*
Department of Gastroenterology, Topiwala National Medical College and B Y L Nair Hospital, Mumbai Central, Mumbai 400 008, India

Background Acute kidney injury (AKI) is prone to increase mortality in patients with cirrhosis. Identification of kidney failure etiology and recognition of those at the highest mortality risk remains a challenge.
Aims We aimed to deteremine cutoff level and an accuracy of uNGAL for diagnosing AKI in cirrhosis and association in predicting mortality at 30 days in AKI in cirrhosis.
Methods We Prospectively enrolled patients at single institute from western india with cirrhosis and were investigated by uNGAL by CMIA upon hospital admission (within 24 hrs). FeNa calculated from urine and serum creatinine and urinary sodium values. Kidney failure type was determined blinded to NGAL measurements. Patients were followed for 30 days.
Results Thirty patients are enrolled till date. Three (10 %) patients had normal kidney function, 4 (13 %) stable chronic kidney disease, 8 (27 %) prerenal azotemia, 12 (40 %) HRS, and 3 (10 %) intrinsic acute kidney injury (iAKI). Patients with HRS had uNGAL levels intermediate between pre-renal azotemia [median (IQR) 240 (140-360) v. 110 (0 to 135) ng/mL, and iAKI [460 (360–700)]. Three patients died. Patients with intrinsic AKI had highest uNGAl level. Level of uNGAL directly increased chance of mortality.
Conclusions Early results from this study show that patients with HRS have uNGAL levels intermediate between those with prerenal azotemia and iAKI. uNGAL level and Fe Na can differentiate between HRS and prerenal AKI.

LO-19

Routine testing of Cyp2C9 and VKORC1 mutations is not warranted in patients of HVOTO with warfarin therapy

Vinit Kahalekar, Urmila Thatte, Nithya J Gogtay, Shobna Bhatia, ***Akash Shukla***
Seth G S Medical College and KEM Hospital, Parel, Mumbai 400 012, India

Aims We conducted this study to assess genetic determinants for dosing warfarin (CYP2C9*1, 2, 3 and VKORC1) and their association with occurrence of adverse events due to warfarin in patients with HVOTO.
Methods Sixty-six consecutive patients of HVOTO taking warfarin for at least 3 months were cross sectionally evaluated for presence of warfarin mutations (of CYP2C9 enzyme (i.e. CYP2C9*1, CYP2C9*2, CYP2C9*3) and VKORC1) by restriction fragment length polymorphism. All patients were maintained at an INR of 2–3. The genotypes were then compared to dose of warfarin and incidence of complications due to warfarin using ANOVA and Chi-square test.
Results Thirty-one out of 66 (47 %) patients were found to have mutations in at least one of the genes. Thirteen (42 %) patients had mutations of Cyp2C9, 15 patients of VKORC1 and 3 patients had mutations of both. Fourteen out of 66 (21.2 %) patients had hemorrhagic complications due to warfarin at a median follow up 3 [1–4] years. The incidence of hemorrhagic complications was similar in patients with and without mutations [9/31 vs. 5/35, p=0.14; OR 2.45 (95 % CI 0.72–8.34)]. Mean warfarin dose required was similar in patients without (4.5±2.2 mg/dL) and with any mutation (3.72 ±1.84 mg/dL, p=0.098). The frequency of complications and dose of warfarin didn't correlate with baseline Rotterdam score.
Conclusions The dose and complications of warfarin did not differ in patients with and without mutation(s) of Cyp2C9 and VKORC1. Routine testing of Cyp2C9 and VKORC1 mutations is not warranted in patients of HVOTO with warfarin therapy.

LO-20

Primary liver cancer in patient embolized for liver hemangioma

Irene Christodoulou*, Dimitra Gonezou, Georgios Dounias, Ioannis Tsakiridis, Nikolaos Peitsidis, Fani Tsiompanou, Grigorios Pagonis*
2nd Surgical Department G Papanikolaou Hospital, Thessaloniki, Greece

Objective Aim of this presentation is to emphasize the difficulty for diagnosis in patients with hemorrhagic phenomena due to anticoagulants.
Methods This is the case of a 68-year-old man with intra-abdominal hemorrhage due to the rupture of a suspected liver hemangioma and INR (International Normalized Ratio) 2, 40 due to acenocoumarol. The computed tomography described a giant hemangioma and a senond option for liver cancer. The hemorrhage was stopped with a catheter embolization. In the following days, the patient suffered from fever and abdominal pain and a number of intrahepatic abscesses was diagnosed secondly and was successfully treated with antibiotics. The a-fetoprotein test was negative. Ten months later, the patient appeared with a new computed tomography which talked for multiple intrahepatic abscesses and lesions which seemed to be new in comparison to his last examinations. Then the a-fetoprotein was found to be raised, significantly, and a biopsy was this time taken from the larger lesion.
Results A liver cancer of good differentiation was found, in the cavity-like lesion where a liver abscess was drained during the first admission of the patient. The patient was send to the Oncologic Hospital of our city, so as to receive a combined treatment.
Conclusions The hemorrhagic predisposal, negative a-fetoprotein and the presence of liver abscesses were three factors that distracted us from the necessity of liver biopsies, however the cancer was present and we did not catch the chance to find it in the first admission of the patient.

LO-21

Micronutrient assessment in chronic liver disease/cirrhosis of north Indian patients

Indu Arora*, Deepak Gunjan, Namrata Singh, Ujjwal Sonika, Anoop Saraya*

Department of Gastroenterology and Human Nutrition, All India Institute of Medical Sciences, New Delhi 110 029, India

LO-22

Prospective evaluation of prognostic factors that predict 30 day outcome in cirrhotic patients requiring intensive care

R Maidur, *B Sukanya, N Joshi, Y Ragahvendra, K P Bubun, V Kunal, R Gaurav, K Ajit*
Department of Medical Gastroenterology Nizam\'s Institute of Medical Sciences, Punjagutta, Hyderabad 500 082, India

Background and Aims The mortality in subjects with critically ill liver cirrhosis ranges between 36 % and 86 %. Various scoring systems and markers have been used to predict mortality in this set of patients. This study aimed identify the factors influencing the outcome in cirrhotic patients admitted to ICU and to compare various scoring systems.
Methods Consecutive liver cirrhosis patients admitted with critically illness were enrolled. Severity of illness was estimated using CTP, MELD, MELD Na, APACHE II, SOFA, CLIF-SOFA score on day of admission and reassessed on day 7. Subjects were followed for 30 days.
Results A total of 96 subjects were enrolled. Mean age at presentation was 50 ±8.067 years among non-survivors compared to 45±9.32 years among those who survived beyond 30 days. Alcohol was the commonest etiology seen in 76.1 % (n=64) of cirrhosis in our subjects. Significantly higher (p<0.001) mean serum ferritin levels were noted in non-survivors (922.95±319.858 ng/mL) when compared to survivors (368.17±113.873 ng/mL).
Conclusions Presence of oliguria, upper gastrointestinal bleed, hepatic encephalopathy, low mean arterial pressures, infections, requirement of vasopressors, low platelet count, high lactate, low pH levels, increased serum bilirubin and creatinine were predictive of higher mortality. ICU scores like SOFA, APACHE II performed better than liver specific scores like CTP, MELD and MELD Na. However, CLIF-SOFA score was superior to all other scores. Day of admission scores were superior to day 7 scores in predicting short term mortality.

LO-23

Prevalence of hepatopulmonary syndrome in patients of Budd-Chiari syndrome is low

Sangeet Sawrav, *Jasleen Kohli, Tejas Modi, Abhinav Jain, Shobna Bhatia, Akash Shukla*
Seth G S Medical college and KEM Hospital, Parel, Mumbai 400 012, India

Background and Aims The prevalence of HPS in cirrhosis is 6.7 % to 30 % and in BCS is 27.6 %. Therefore, we conducted this study to assess the prevalence of HPS in BCS.
Methods We performed a single centre, prospective, controlled observational study of 76 patients with primary BCS and 126 patients with cirrhosis as controls. Patients with SpO2<97 % underwent contrast enhanced echocardiography (CEE), ABG analysis in both sitting and supine positions was performed. MAA scan was performed wherever feasible. HPS was graded based on PaO2 (mild, moderate, severe and very severe - PaO2 ≥80, 60 to 80, 50 to 60 and ≤50 mm of Hg respectively).
Results HPS was diagnosed in only one (1.32 %) patient with BCS and 7 (5.55 %) patients with cirrhosis. The median CTP and MELD scores were similar in two groups. The BCS patient with HPS was 11 year boy with hepatic vein thrombosis with symptom duration of 1.5 years. He had severe HPS with grade IV dyspnoea, platypnoea, cyanosis, clubbing and orthodeoxia on ABG (sitting PaO2-54.4 and supine 80.5 mm/Hg). Out of 7 cirrhotic HPS patients, two had mild, one moderate and four had severe HPS. All 7 patients had dyspnoea, two had platypnoea, 5 had central cyanosis, 6 had clubbing and 5 had orthodeoxia. MAA scan showed shunt fraction range of 8.76 % to 79.5 %. Severity of HPS was not related to severity of liver disease.
Conclusion HPS is uncommon in BCS and much lower than previously reported. Dyspnoea and clubbing are associated with HPS.

LO-24

Does appetite predict outcome ofclinical illness in patients with acute-on-chronic liver failure?

Sayd Mohamed Rajeeb, *Ashish Goel, Uday Zachariah, C E Eapen, Vimala Selvaraj*
Department of Hepatology, Christian Medical College, Vellore 632 004, India

Introduction An early and proper diagnosis of acute on chronic liver failure (ACLF), together with the identification of indicators associated with disease severity is critical for outcome prediction and therapy. Anorexia is part of body's acute response illness. It is cytokines set up inflammatory cascade and these inflammatory cytokines have been implicated in both hepatic injury and liver regeneration. In ACLF, patients with higher cytokines levels has a poorer prognosis than those with lower cytokines level.
Objective This study is to determine does loss of appetite predict outcome of illness in patients with ACLF and its correlation with cytokine TNF±.
Methods Prospective observational ongoing study. Sample size : 75 consecutive patients with ACLF appetite was assessed with simplified nutritional assessment score (SNAQ) in patient admitted with ACLF. Patients with hepatic encephalopathy, alcohol withdrawal was exluded from the study.
Results Interim analysis of 19 patients 17/19 (89.47 %) were male patients. Total 4/19 (21.45 %) patients had expired in the hospital. Commonest etiology was alcohol intake for acute and chronic liver disease. Commonest clinical presentation was ascites and jaundice. Mean SNAQ score at presentation was 10.3. Mean SNAQ score at second day of admission was 13.7 and among the patient who survived SNAQ score was associated with improvement in the outcome of illness.
Conclusion Low appetite at presentation in ACLF patients is admitted with poor outcome and improvement of appetite is associated with improvement of general condition and better outcome.

LO-25

Effect of goal directed ammonia lowering therapy in acute-on-chronic liver failure patients with hepatic encephalopathy

Tanmay S Vyas, *S K Sarin, Rakhi Maiwall*
Department of Hepatology, Institute of Liver and Biliary Sciences, D 1, Vasantkunj, New Delhi 110 070, India

Background Hepatic encephalopathy (HE) in ACLF patients is associated with higher mortality. Ammonia, in addition to cytokines, has central role in pathogenesis of HE in ALF/ACLF. We studied the effect of goal (<70 μg/dL) directed ammonia-reduction-therapy on short-term disease-outcome in ACLF with grade III/IVHE.
Methods From November-2014 to December-2015, out of 276 ACLF patients, 86 with grade III/IVHE were enrolled (NCT02321371) and received aggressive purging with lactulose for first 24 h. Ammonia level was measured 12 hourly for 3 days. Those who didn't achieve the target ammonia ≤70 μg/dL in 24 hours (n=73), were randomized to lactulose-continuation (n=35) or rifaximin-addition (n=38) arm. Patients were followed up for 30 days. Management of sepsis/coagulopathy/shock/GI bleeding (if present), were done as per the standard institutional protocol.

Results Patients who achieved PEP in 72 h (n=29, 13 within 24 h and 16 in next 48 h) had significantly lower baseline ammonia (169±43 vs. 216 ±79) and HE grade (100 % vs. 73.7 % in grade III) but also lower baseline MELD (25.7±5.1 vs. 31.2±7.5) in comparison to those who didn't achieve PEP. They also had more recovery in HE grade III/IV to II/I/0[29/29 (100 %) vs. 14/57 (24.6 %)] and lower 30-day-mortality [3/29 (6.3 %) vs. 45/57 (93.8 %)]. The level of ammonia correlated with grade of HE. Rifaximin failed to show any added advantage over lactulose [achievement of PEP:8/38 (21.1 %) vs. 8/35 (22.9 %); improvement in grade of HE:15/38 (39.5 %) vs. 16/35 (45.7 %); 30-day-mortality:13/38 (34.2 %) vs. 15/35 (42.9 %)].
Conclusions Monitoring and targeting ammonia is important in management of ACLF patients with HE. Addition of rifaximin has no added advantage over Lactulose in management of HE in ACLF patients. Studies should be done to find out effective ammonia-lowering therapies in ACLF patients with HE to reduce mortality.

LO-26

Evaluation of vitamin A level in patients with cirrhosis of liver

Kandarp Saxena, *Ravikant, Pavan, Vivek Mishra, S P Misra, M Dwivedi*
Department of Hepatology and Gastrpenterology, M L N Medical College, Allahabad 211 001, India

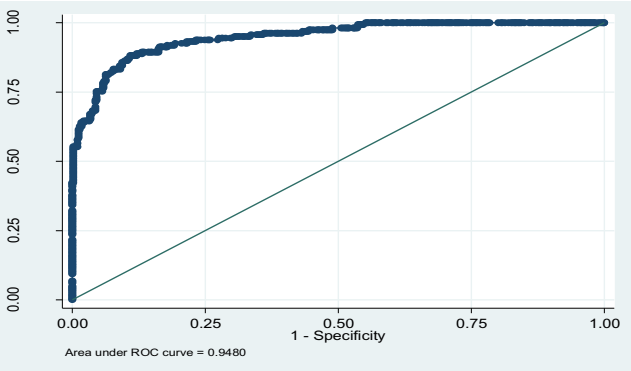
Aims and Background Vitamin A deficiency was well known fact in cholestatic liver disease but its exact prevalence in patients with cirrhosis of liver due to non-cholestatic liver disease was unknown. It was due to inadequate intake, faulty absorption and altered liver metabolism. Objective symptoms (night blindness) occurred in very few so serum retinol was measured to know the vitamin A status.
Methods Patients with cirrhosis of liver attending between November 2014 to July 2016 were evaluated for clinical features of vitamin A deficiency. Serum vitamin A level was estimated by solid phase extraction coupled with HPLC–MS. Normal range being >1.05 mmol/L. Apparentaly normal persons vitamin A level was evaluated for comparision. Statistical method (Univariate multivariate analysis, Student t test, Chi-square test) used.
Results Out of 120 patients with liver cirrhosis, 45 patients alcoholic, 35 HBV related cirrhosis, 21 HCV related cirrhosis, 14 NASH, 3 Wilson's disease and 2 AIH. Six had HCC. Low serum retinol level was found in 78 (65 %) of them and levels were related to severity of liver disease (CTP and MELD score) but not to the etiology of cirrhosis. Of 110 controls only 6 (5.5 %) had low serum retinol. All patients with HCC had low vitamin A level but correlation between Vitamin A deficiency and HCC could not be established
Conclusion Vitamin A deficiency was highly prevalent in cirrhotics and serum level was inversely related with severity of liver disease.

LO-27

Predictors of HCC development in nonalcoholic fatty liver disease: A prospective observational study

Kapil Jamwal, *Guresh Kumar, Shiv K Sarin*
Department of Hepatology, and Clinical Research, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Introduction Nonalcoholic fatty liver disease (NAFLD) is an emerging disease in developing world. Although alcohol and infections (hepatitis B and C) are the most common etiologies of HCC in India, NAFLD is one of the commonest cause of HCC in India.
Methods Consecutive patients diagnosed between 2011 and 2015, with NAFLD on histology, imaging, fibroscan, and or raised AST/ALT levels in the absence of any other liver disease January 2011 till December 2015 were analyzed.
Results In the study, 4220 patients were diagnosed with NAFLD including fatty liver, NASH cirrhosis and NASH HCC (2668, 1388 and 164 respectively). One thousand seven hundred and seventy patients were histologically confirmed with NAFLD with 1100 being fatty liver and 670 as NASH (NASH and cirrhosis). Prospective data was available for 590 patients (164 NASH HCC and 426 NASH cirrhosis). The patients in both groups were compared. The factors which predicted HCC on univariate analysis were with OR and p valve: male 1.91 and 0.01, age 1.22 and <0.001, diabetes mellitus 2.1 and 0.01, high HVPG 1.7 and 0.04, CTP 1.34 and 0.001 and MELD score 1.29 and <0.001. On multivariate analysis age, MELD score and diabetes mellitus predicted HCC with an OR of 1.22 (CI 1.18–1.28), 1.29 (1.19–1.39) and 4.08 (2.19–7.63) respectively. The AUROC was 94.8 (CI 92.3–97.3) with a sensitivity of 78.26, specificity of 93.1, PPV of 83.4 and NPV of 91.73.
Conclusion NASH HCC is not uncommon in India, presence of diabetes mellitus, high MELD score and advanced age predict development of HCC in NAFLD.



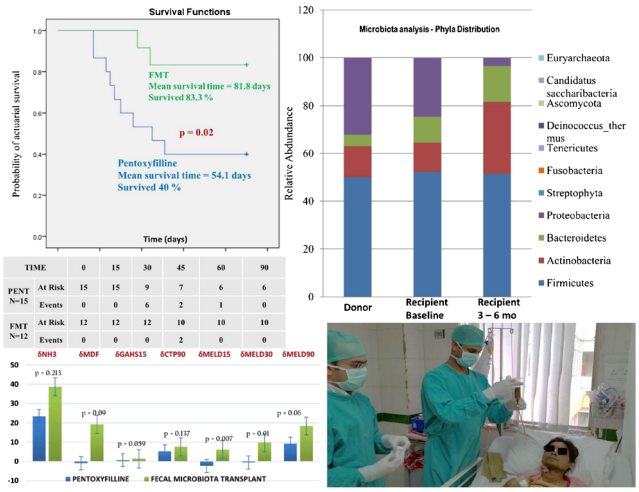
LO-28

Outcomes of fecal microbiota transplantation in steroid ineligible severe alcoholic hepatitis-A randomized control trial (NCT02458079)

Cyriac Abby Philips, *Saggere Murali Shasthry, Apurva Pande, Kapil Dev Jamwal, Vikas Khillan, Md. Shabbir Hussain, Shvetank Sharma, Guresh Kumar, Rakhi Maiwall, Manoj Kumar Sharma, Ankur Jindal, Shiv Kumar Sarin*
Departments of Hepatology, Microbiology, Cellular and Molecular Medicine, and Clinical Research, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Background Severe alcoholic hepatitis (SAH) has high short-term mortality in the presence of infections, worsening organ failure and steroid ineligibility (SI-SAH). Definitive treatment-liver transplantation (LT) is confounded by infection, scarcity of donor, ethical issues, lack of allocation priority and recidivism. Intestinal dysbiosis play central role in the pathogenesis of SAH. Microbiota modulation in SI-SAH using healthy fecal microbiota transplant (FMT) could improve 1 and 3-mo outcomes.
Methods Out of 776 alcoholic liver disease patients (March 2015 – May 2016), 26.1 %, SAH; 74.3 %, SI-SAH.121 patients excluded, 30 randomized to either pentoxifylline (PTX, n=15, 400 mg Q8H for 28 days) or FMT (n=15, ILBS Protocol: after donor screening using standard guidelines, 30–40 g of freshly acquired stool homogenized within 6 h+100 mL of normal saline in home blender, triple filtered through

sterile gauze), extract infused through nasoduodenal tube daily for 7 days. Primary end-point-survival@3mo. Secondary end-points, improvement-laboratory parameters/severity indices. Stool microbiota metagenomics performed@baseline (recipients/resp. donors); 3–6 months (recipients).
Results Twenty-seven patients completed 3 months follow up. Baseline variables comparable between groups. Survival@3mo-83.3 % FMT-83.3 % and PTX-40 %. Clinically evident ascites/encephalopathy@3mo, new onset renal dysfunction higher in PTX.90 days MELD/MELD-Na significantly lower in FMT group. Donors and recipients had comparable phyla compositions@baseline. Firmicutes dominated in donors and up to 3–6 months among recipients with increase in Bacteroides and decrease in Proteobacteria. Increased relative abundance in *Bifidobacterium*from baseline@3-6mo. Distinct microbial community variation noted post-FMT. No serious adverse effects or complications were seen (**Fig.**).
Conclusions FMT in SI-SAH patients doesn't replace microflora, but modifies it, with co-existence between donor and recipient species and improvement in 1 and 3 months survival severity scores and liver related complications, than PTX.SI-SAH patients could be safely bridged to LT using ILBS-FMT protocol.



LO-29

Decreased CSF1 production causes loss of hepatic macrophage pool in cirrhosis

Dhananjay Kumar*, Smriti Shubham, Sheetalnath Rooge, Swati Arora, Lovkesh Anand, Rakhi Mahiwal, Viniyendra Pamecha, Chagan Bihari, Anupam Kumar, Shiv K Sarin*
Departments of Molecular and Cellular Medicine, Hepatology, Pathology, and HPB Surgery, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Background Unlike acute liver injury in efficientre solution of damage compromised native regeneration potential and progressive scarring leads to end-stage manifestation of cirrhosis in CLD. cause of inefficient resolution not well understand. Hepatic macrophages play role in resolution of damage and regeneration.
Aim Study the alteration in hepatic macrophage in response to ALF and CLD in comparison to healthy.
Methods Hepatic macrophage were analyzed in CLD, ALF and healthy (n=17, 54 and 15). biopsy/explants tissue by IHC macrophage marker (CD68). Macrophage growth factors CSF1, GCSF and GM-CSF, were analyzed in hepatic vain plasma. Numbers of hepatic macrophage were statically correlated with level of growth factors using multivariate regression.
Results Hepatic macrophage highest in ALF followed by healthy and lowest in CLD. Cirrhosis liver showed decrees hepatic macrophage in comparison to both ALF and healthy liver while ALF liver showed significant increased in hepatic macrophage in comparison to healthy (p=0.0033), suggesting loss of macrophage reservoir in CLD. to further understand the cause of loss of macrophage in cirrhosis we analyzed macrophage growth factors in hepatic vain plasm of ALF and CLD. Level of CSF-1 (ALF294.2±− and CLD44±pg/mL); GCSF (ALF35±and CLD15.4 ±pg/mL) were significantly decreased in cirrhosis in comparison to ALF. GMCSF level were slightly increased in CLD but not significant. Multivariate regression analysis showed only CSF1 significant correlation with CD68 score [R2=0.488.F (3–43)=15.602, p<0.0001] suggesting the loss of CSF1 as causative factors for poor hepatic macrophage reservoir in CLD.
Conclusion Compromised CSF1 production in CLD leads to poor hepatic macrophage in cirrhosis. This might be responsible for inefficient resolution of damage and compromised native regeneration in CLD. Exogenous administration of CSF1 or macrophage in CLD may accelerate the resolution of damage and native liver regeneration in cirrhosis.

LO-30

Terlipressin related adverse effects in patient of cirrhosis- A prediction model for prevention

Ashok Choudhury*, Anand Kulkarni, Apurva Pandey, Chandan K Kedarisetty, Pawan Wagle, Priyanka Jain, Guresh Kumar, Shiv K Sarin*
Department of Hepatology, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Aims Terlipressin is prefreed drug for acute variceal bleed (AVB) and hepatorenal syndrome (HRS). There is limited data on the degree and severity of adverse events (AE) and their predictors in patients of cirrhosis on use of terlipressin.
Methods AE among cirrhotic receiving IV terlipressin were recorded prospectively. As a protocol, terlipressin used as bolus for AVB and as infusion for HRS. A strict screening before therapy and monitoring done for AE.
Results Four hundred and twenty-four patients, 89.4 % male with high CTP-11 (7–15) and MELD 24 (6–40). Indications were AKI-HRS in 212 (50 %), AVB in 202 (47.4 %) and septic shock in 11 (2.6 %). AE seen in 15 %; more so when used for AKI (OR-3, 95 % CI=1.67–5.38, p=0.01). AE were gastrointestinal in 7.3 % (loose motions-29, bowel ischemia-2) cardiac-3.3 %, peripheral cyanosis (2.1 %), lactic acidosis (1.9 %), hyponatremia and muscle cramps (1 each) and mostly reversible (Table 1). The cumulative dose at 24 h did not influence the occurenece of AE (1.9 ±0.6 vs. 1.7±0.5 mg, p=0.36). Platelet<100×10^3, albumin <2.25 g/dL and total bilirubin ≥6 mg/dL were independent predictors for AE, while use for AVB protective. A prediction model was derived with AUROC-0.73, sensitivity and specificity- 68 % and NPV of 92 %. The overall mortality 34.9 %. Mortality with AEs (40.6 % vs. 37.5 %, p=0.64), use of terlipressin for AVB (35.7 %) or AKI (41.5 %) did not influnce the outcome.
Conclusion Use of terlipressin is associated with AEs upto15 %, mostly minor and reversible. Its use for AKI needs caution, and the proposed prediction model considering above variables would help in prevention and early detection of AEs.

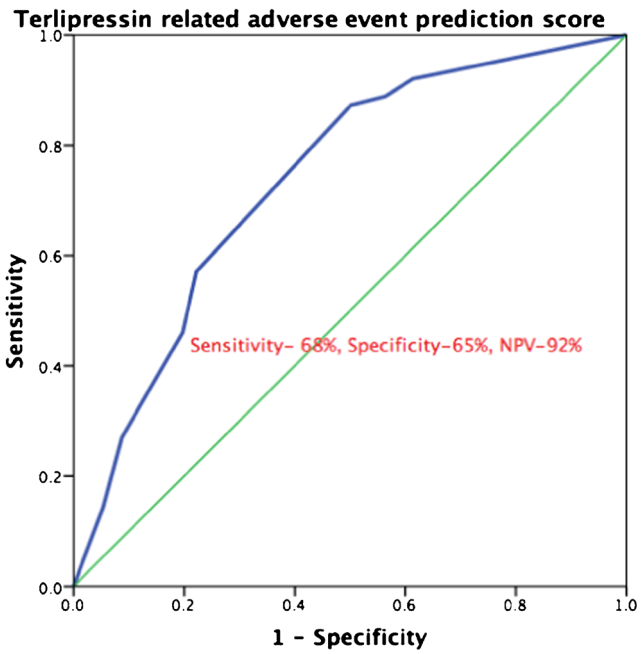
Table-1 Terlipressin adverse event and course

Adverse effects	*N*	%	Measure taken and outcome	CTCAE grading
Gastrointestinal				
Loose motion	29	48.4	Dose reduction, recovered	II
Bowel ischemia	2		Withdrawal, recovered	III
Cardiac				
HTN	1	21.8	Withdrawal, recovered	III
Bradycardia	8		Dose reduction, recovered	II
Tachycardia	3		Withdrawal, recovered	III
Ischemic (Takosubo)	2		Withdrawal, recovered	II
Vascular				
Cyanosis	9	14.1	Withdrawal, recovered −7, Gangrene-2	III IV
Lactic acidosis	8	12.5	Dose reduction, recovered-4	II
			Withdrawal, recovered-1	III
			No recovery-3	III
Electrolyte				
Hyponatremia	1	1.6	Withdrawal, recovered	III
Muscular				
Cramps	1	1.6	Withdrawal, recovered	III

Table 2 Prediction model for terlipressin related adverse events

Parameter	Value	Points
T Bilirubin in mg/dL	>=6	3
	<6	1
S Albumin in gm/dL	<2.25	2
	>=2.25	1
Platelet count in 10^3/mL	<100	2
	>=100	1
Bleed as an indication	Yes	1
	No	3
Total score		10
Max =10 min=4		

Fig-1: The ROC of model



LO-31

Dengue fever in cirrhosis patients can lead to acute hepatic decompensation and increased mortality

Anand Kulkarni, *A K Choudhury, P Jain, C A Philips, Ekta Gupta, S K Sarin*
Departments of Hepatology, Clinical Research, and Virology, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Background and Aim Dengue fever (DF) is a global viral infection and its presentations range from classical to severe fatal dengue hemorrhagic fever/dengue shock syndrome (DHF/DSS). Elevation of the AST and ALT develops in 65 % to 97 %. Outcomes of DF in cirrhosis patients are largely unknown. We compared the clinical and biochemical parameters in subjects with no liver disease (Group A), chronic hepatitis (Group B) and cirrhotics (Group C) with DF.
Methods Retrospective data between April 2016 - July 2015 included 95 patients with serologically confirmed DF and presentations were categorized as DF, DHF, acute-on-chronic liver failure (ACLF) and acute liver failure (ALF) as per existing definitions.
Results Seventy-one patients were in Gr. A, 12 in Gr. B and 12 in Gr. C. Sixty-one percent patients were males with higher mean age in Gr. C [A:39.18±1.6,B: 40.83±16.2 and C:50.92±7.90 years,(p=0.02)]. Presentations varied from DF (93.7 %), DHF (2.1 %), ACLF (3.1 %) to ALF (1.1 %). Investigations revealed hemoconcentration in Gr. A and B, but not in Gr. C [(12.88±2.55 g/dL, 13.56±1.76 g/dl, 9.23±1.88 g/dL (p<0.001)], non-significant thrombocytopenia was seen in Gr. C compared to A and B. Coagulation failure was more evident in Gr. C [INR-A: 1 (0.9,6.6), B:1 (0.8,2), C: 2 (1,7.59) {p<0.001}]. Moreover, higher bilirubin [A:0.96 (0.3,27.6), B:0.9 (0.3,2.6), C:5.25 (0.48, 25.6) mg/dL (p=0.002)], lower AST [A:129 (13,5876), B:171 (41,539), C:38.5 (17,111) IU/l] and ALT [A:95 (10,4217), B:194 (63,488), C:38 (10,177) IU/L (p<0.001)] and worsening hypoalbuminemia [A: 3.52 ±0.77, B: 3.9±0.42, C: 2.56±0.54 g/dL (p<0.001)] were noted in Gr. C cirrhotic patients. Mucosa associated bleeding was seen more in Gr.A and B, without overt variceal or mucosal bleed in Gr C even in the wake of worsening coagulation and thrombocytopenia. Presence of cirrhosis was associated with longer hospital stay (A: 4.83±2.38, B: 7.33±2.3 and 13 ±5 days, p<0.001) and increased mortality (A: 1.4 %, B: 0 and C: 25 %, p<0.001). The prognostic predictor of ACLF in univariate and multivariate analysis was INR (OR-1.93, 95 % CI=1.15–3.24, p=0.013).
Conclusions Dengue infection in cirrhosis patients portends poor outcomes in the absence of classical features. A high index of suspicion is recommended for early detection of DF in endemic areas.

Parameter	**Group A No liver disease (n=71)**	**Group B chronic hepatits (n=12)**	**Group C cirrhosis (n=12)**	***p*** **value**
Age (years)	39.18±1.6	40.83±16.28	50.92±7.90	0.022
Male	39 (54.9 %)	10 (83.3 %)	9 (75 %)	0.1
Jaundice	6 (8.5 %)	1 (8.3 %)	7 (58.3 %)	<0.001
UGI bleed/ Mucosal bleed	1 (1.4 %)	1 (8.3 %)	0	0.261
Altered sensorium	2 (2.8 %)	0	0	0.70
Ascites	5 (7 %)	0 (0)	7 (58.3 %)	<0.001
Gallbladder edema (on USG)	27 (38 %)	2 (16.7 %)	6 (50 %)	0.219
Hb (g/dL)	12.88±2.55	13.56±1.76	9.23±1.88	<0.001

TLC ($\times 10^3/mm^3$)	4.3 (1.6–31.9)	3.8 (2–8.8)	3.85 (2.1–6.6)	0.651
Platelet ($\times 10^3/mm^3$)	9 9 (9–354)	80.5 (11–281)	65 (15–110)	0.027
INR	1 (0.9–6.6)	1 (0.8–2)	2 (1–7.59)	<0.001
Creatinine (mg/dL)	1 (0.22–9.25)	0.72 (0.15,2)	1 (0.01–10)	0.144
Total bilirubin (mg/dL)	0.96 (0.3–27.6)	0.9 (0.3,2.6)	5.25 (0.48–25.6)	0.002
Direct Bil (mg/dL)	0.2 (0.1–19.4)	0.14 (0.07–1.6)	2.06 (0.06–12.8)	0.002
AST (IU/L)	129 (13–5876)	171 (41–539)	38.5 (17–111)	<0.001
ALT (IU/l)	95 (10–4217)	194 (63–488)	38 (10–177)	<0.001
SAP (IU/L)	75 (39–500)	98 (41–458)	119.5 (28–282)	0.092
GGT (IU/L)	40 (8–556)	75 (11–195)	47.5 (15–396)	0.465
Total protein (g/dL)	6.12±0.73	7.16±0.70	6.91±0.86	0.005
Albumin (g/dL)	3.52±0.77	3.9±0.42	2.56±0.54	<0.001
Globulin (g/dL)	3.65±0.9	3.35±0.58	3.45±0.63	0.528
Hospital stay (in days)	4.83±2.88	7.33±2.3	13±5	<0.001

LO-32

SNAIL mediated epithelial to mesenchymal transition in early stage of liver fibrosis

Sheetalnath B Rooge*, Kavita Gaur, Avishek K. Singh, Aditi Varshney, Smriti Shubham, Dhananjay Kumar, Swati Arora, Shahajad Ali, Archana Rastogi, Anupam Kumar, Shiv K Sarin, Puja Sakhuja*
Molecular and Cellular Medicine, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India, Department of Pathology, G B Pant Institute of Postgraduate Medical Education and Research, New Delhi, Delhi 110 002, India, and Departments of Hepatology and Pathology, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Background Epithelial to mesenchymal transition (EMT) is associated with chronic inflammation, cancer. Potential role of EMT in progression of hepatic fibrosis is ill defined.
Aim To investigate the role of EMT in chronic hepatitis and cholangitis induced liver fibrosis.
Methods Liver biopsies of patients with chronic hepatitis (CH, n=63), chronic obstructive biliary pathology (COBP, n=65) and no significant pathology (NSP, n=55) were studied for EMT by immunohistochemistry using (α-SMA, Vimentin, E-cadherin, SNAIL and TGF-β). Staining was scored as 0-no stain, 1-1-25 %, 2-25-50 %, 3-50-75 % and 4-above 75 %, and recorded. EMT associated genes were analyzed by RT-PCR in the same cohort (CH=21, COBP=20, NSP=18). Mann–Whitney rank test and Spearman Rho test was used. p-value<0.05 was considered significant.
Results Mean age for CH, COBP and NSP groups was 35.27±10.4, 35.31 ±10.2 and 26.48±13.72 respectively. Mean IHC score of α-SMA (0.95 ±0.11, 1.71±0.15, 0.38±0.09); Vimentin (1.39±0.09, 1.86±0.17, 0.65 ±0.12); E-cadherin (0.72±0.07, 0.44±0.09, 1.07±0.13); SNAIL (0.62 ±0.10, 0.93±0.13, 0.57±0.14); TGF-β (0.44±0.10, 0.83±0.14, 0.80 ±0.18) for CH, COBP and NSP groups respectively. Significant decrease in E-cadherin (p=0.005) and increase in α-SMA (p=0.001), and Vimentin (p=0.008) in COBP in comparison to CH suggesting increased EMT in COBP. COBP patients showed increased levels of SLUG, SNAIL, TWIST, Vimentin in RT-PCR, supporting increased EMT in COBP. CH (r=−0.38, p=0.03) and COBP (r=−0.47, p=0.03) groups, fibrosis score inversely correlated with expression of SNAIL. E-cadherin loss and gain in SNAIL expression was higher in early fibrosis (not significant) suggesting that EMT might contribute to early hepatic fibrosis in both hepatitis and cholangitis.
Conclusion EMT may contribute to early hepatic fibrosis in chronic hepatitis and cholangitis. The degree of EMT was more prominent in cholangiocytic inflammation.

LO-33

Incidence, predictors and outcome of ventilator associated pneumonia in critically ill cirrhotics admitted to a liver intensive unit

Amrish Sahney*, R Maiwall, L G Mitra, H Kumar, B C Sharma, S K Sarin*
Departments of Hepatology, Critical or Intensive Care Medicine, and Pulmonary Medicine, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Background and Aim There is limited data on the incidence, predictors and outcome of ventilator associated pneumonia (VAP) in critically ill cirrhotics.
Methods We prospectively studied 318 consecutive cirrhotic patients requiring mechanical ventilation (MV) during June 2014 to February 2015. VAP was diagnosed based on clinical pulmonary infection scoring system (CPIS). Study end-points included development of VAP, new organ failure, ICU stay and 30 day mortality.
Results Total of 303 cirrhotics (mean age 49±12.2 years, 75 % males, 60 % ethanol related with mean CTP 11.4±1.7 and MELD score 27.1±9.1) were included. The main reasons for MV support was respiratory failure in 25 %, severe sepsis with metabolic acidosis in 45 % grade III/IV hepatic encephalopathy in 16.5 % and massive variceal bleed in 13.5 %. One hundred and seven developed VAP during ICU stay. Risk factors of VAP were sepsis at admission (HR: 4.0, p<0.01), severe encephalopathy (HR: 3.6, p<0.01), bilirubin >5 mg/dL (HR: 2.9, p=0.03), INR >2 (HR: 1.9, p<.05) and respiratory failure (HR: 3.5, p<0.01). Presence of VAP was significantly associated with prolonged ICU stay (16±6 days vs. 9±4 days, p<.05) and higher mortality at day 30 (81 % vs. 61 %, p<.05). Predictors of mortality in patients with VAP were presence of FiO2 requirement >60 % (HR: 3.0, p<0.01), bilirubin level >5 mg/dL (HR: 1.4, p<0.05) and development of shock during ICU stay (HR: 4.0, p<0.01).
Conclusion 1/3rd of cirrhotics on MV developed VAP and had higher mortality, ICU stay and new organ failure.

LO-34

Bone forming cells are decreased in osteopenic and osteoporotic condition of cirrhosis patients

Chhagan Bihari*, Deepika Lal, Archana Rastogi, Shalini Thapar, Dhananjay Mathur, Anupam Kumar, Shiv K Sarin*
Departments of Pathology, Radiology, Cellular and Molecular Medicine, and Hepatology, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Background Bone loss is commonin cirrhotic cases. The regeneration of bone occurs through the osteoblasts, which are derived from Nestin+ mesenchymal stem cells (MSCs) of the bone marrow (BM).
Aim To assess bone forming cells and to study role of BM-MSCs in osteoporosis and osteopenia in cirrhotics patients.
Methods Sixty-one cirrhotics who underwent BM examination, were included. BM was studied for osteoblasts, osteocytes and nestin+BM-MSCs and Dual energy X-ray absorptiometry (DEXA) of the lumbar spine and femoral neck was available at baseline. These were compared with noncirrhotic

controls (n=50). Osteoporosis or osteopenia defined according to WHO criteria. BM-MSCs were confirmed by CFU-F forming ability. Osteogenic and adipogenic differentiation potential of BM-MSCs was analyzed.
Results Cirrhotic patients showed reduced osteoblasts (p<0.001), osteocytes (p=0.02) and nestin+MSCs (p=0.001) compared to noncirrhotic control. Of 61 cirrhotics, 13 had normal bone density (Gr. A), 25 osteopenia (Gr. B) and 23 osteoporosis (Gr. C) with higher CTP scores (7.8±2; 8.1±1.6 and 10±1.8, p=0.002). In cirrhotics, number of osteoblasts, osteocytes and Nestin+MSCs were significantly lower in Gr. C (Gr. A: 17±2.2, 28±4.8 and 14±2;Gr. B: 12±4.3,20±6 and 11±2.7; Gr. C 6 ±2.5, 12±4.2 and 6±2.9) (p<0.001 each). Whole body T score correlated with osteoblasts (r=0.669, p<0.001) and MSCs (r=0.701, p<0.001). CFU-F was lower in cirrhotics (3.5±0.98) than controls (11.46±0.96), p=0.008. Cirrhotic BM- MSCs showed decrease in osteogenic markers.
Conclusion Osteoprogenitor cells are significantly lower in cirrhotics, and malfunctioning of these can contribute to ineffective bone regeneration and occurrence of osteoporosis.

LO-35

Hepatocellular carcinoma are we different from World ?

Neeraj Nagaich, *Radha Sharma, Prashant Katiyar, Jayant Sharma, Abhinav Sharma, Yashvardhan Nagaich, Alok Choudhry, Ankur Setia, Chandraprakash Tanwar, Subhash Nepalia, Sandeep Nijhawan*
Department of Gastroenterology, Sawai Man Singh Medical College, J L N Marg, Jaipur 302 004, India, Department of Gastroenterology Metro MAS Hospital, Shipra Path, Near Technology Park, Mansarovar, Jaipur 302 020, India, Department of Gastroenterology, Fortis Escorts Hospital, Jawaharlal Nehru Marg, Near World Trade Park, Malviya Nagar, Jaipur 302 017, India and Departm

Hepatocellular carcinoma (HCC) is the most common primary hepatic malignancy. Majority of HCC occur in Asia and Africa. In India there is extreme paucity of data on HCC. The mean incidence of HCC (per 100,000 population) in four population-based registries was 2.77 and 1.38 for male and female respectively (5–8). Based on autopsy studies prevalence of HCC in India varies from 0.2 % to 1.6 % (9). One of the study from India has shown HCC incidence rate of 1.6 % per year in cirrhotic patients (10). Hepatitis B virus (HBV) infection is the most common risk factor of HCC in India (11–13). Most of the patients in India present during advance stage of HCC with majority of patients having underlying cirrhosis at time of diagnosis. There is a considerable geographical variation in risk factor, clinical feature and survival in HCC. There are only few studies from different regions of India. There is paucity of data regarding demographic profile, risk factor and clinical feature of HCC from northwest part of India. Aim of this study was to review the risk factor, clinical feature and tumor characteristics from a tertiary centre in northwest part of India. This study concluded that phenotype of HCC in northwest India is very similar to that described in other region of India. Hepatitis B infection is the most common risk factor of HCC and most of the patients present in advance stage of disease. Universal hepatitis B vaccination can be helpful in reducing the burden of HCC in society

LO-36

Study of plasma von-Willebrand factor and immature platelet fraction as predictors of in-hospital outcomes in patients with acute on chronic liver cell failure

Saurubh Jaisawal, *Uday G Zachariah, Ashish Goel, C E Eapen, Joy Mammen, Sukesh Nai*
Department of Hepatology,Williams Building, Christian Medical College and Hospital, Vellore 632 004, India

LO-37

Adiponutrin (rs738409) gene polymorphisms increases the risk and progression of alcoholic liver disease in Asian Indians

Chandak Sachet, *D N Amarapurkar*
Bombay Hospital and Medical Research Center, 12, Marine Lines, Mumbai 400 020, India

Background The 148 Isoleucine to Methionine protein variant (I148M) of patatin-like phospholipase domain-containing 3 (PNPLA3) has recently been identified as a major determinant of liver fat content. Several studies in different ethnicities confirmed that I148M influences the full spectrum of liver damage: from simple steatosis to nonalcoholic steatohepatitis and progressive fibrosis to hepatocellular carcinoma. Furthermore, I148M turned out to represent a major determinant of progression of alcohol related steatohepatitis, and to influence fibrosis. However, there are sparse studies reporting a positive association of PNPLA3 rs738409 polymorphism with alcoholic liver disease in the Asian Indian population.
Methods In a prospective study 55 patients were recruited with alcoholic cirrhosis, 20 patients with alcoholic fatty liver, 25 patients as chronic alcoholic with no liver disease. Alcoholic fatty liver and cirrhosis was diagnosed on the basis of biochemistry, imaging and exclusion of other liver diseases. Seventy controls were evaluated on clinical, liver biochemistry and imaging parameters. Institutional ethics committee approval was obtained and all subjects gave written informed consent.rs738409 gene polymorphism was analyzed by polymerase chain reaction-restriction fragment length polymorphism. Genotype frequencies of cases and controls were compared by chi-square test.
Results G/G homozygous and C/G heterozygous genotype (G allele) combined frequency was significantly higher at 60 % in Alcoholic cirrhosis of liver, 70 % in alcoholic fatty liver, as compared to 40 % in chronic alcoholic without liver disease and 37.1 % in control population. C/G and G/G genotype showed significant association with alcoholic fatty liver and alcoholic cirrhosis when compared with the control group.
Conclusion Adiponutrin (rs738409) gene polymorphism is significantly associated with Alcoholic liver disease. The G allele genotype (G/G and C/G) increases the susceptibility and progression of Alcoholic liver disease in Asian Indian population.

Genotype disease	C/C	C/G	G/G	C/G+G/G	p value
Alcoholic fatty liver (n=0)	6	4	10	14/20 (70 %)	0.0021
Alcoholic cirrhosis (n=55)	21	23	10	33/50 (60 %)	0.0246
Chronic alcoholic (n=25)	15	5	5	10/25 (40 %)	0.7
Control (n=70)	44	18	8	26/70 (37.1 %)	

LO-38

Spontaneous resolution of post-traumatic hepatic artery pseudoaneurysm presenting as hemobilia, hemocholecystitis and shock

Sajan Agarwal, *Raj Kumar Gupta, Anamika Gora, Manohar Lal Gupta, Sitaraman Sadasivan, Anu Bhandari, Vinita Chuturvedi*
Department of Pediatric, Radiology, and Pediatric Surgery, SMS Medical College and Hospital, Jawaharlal Nehru Marg, Gangawal Park, Jaipur 302 004, India

Post-traumatic hepatic artery pseudoaneurysm is a rare, but life threatening condition. Symptoms can occur days or even months after the trauma. Here we report an unusual case of spontaneous resolution of post-traumatic hepatic

artery pseudoaneurysm presented as hemobilia and hemocholecystitis in hemodynamically unstable condition, one month after a blunt abdominal trauma while awaiting for intervention. A 12-year-old child was presented to us with complaints of hematemesis, melena and severe right hypochondrium colicky pain for last 2 days. He had a history of blunt abdominal trauma (accidental fall from height) 1 month back requiring admission in outside hospital. Worked up during previous admission showed liver laceration with mild hemoperitoneum in ultrasound abdomen which was managed conservatively along with packed red blood cell transfusion (PRBC). There was no history of gastrointestinal bleed at that time. Child was discharged 1 week after trauma without any further follow up. At the time of admission to us, the child was hemodynamically unstable. Her abdominal examination revealed mild distension with tenderness over the right hypochondrium and epigastric region but no free fluid, any palpable lump or any features of pneumoperitonium. His investigations showed complete blood counts (Hb-4.5 g/dL, TLC-14,500 /mm^3, Platelets-2.4 lac/mm^3), deranged liver function tests (serum bilirubin total/direct 1.44/1.07 mg/dL, AST/ALT 101/154 IU, alkaline phosphatase 397, GGT 269, total protein/ albumin 6.0/3.6 g/dL) with normal serum amylase and lipase. Contrast enhanced computed tomography (CECT) abdomen showed heterogenous lesion with multiple hypodense area in segment 5 and 6 of liver suggestive of resolving/healing contusion, gallbladder showed sludge ball? clot with pericholecystic mild collection noted suggestive of hemocholecystitis (Fig. 1A). A focal area (14 × 8 mm) of staining in arterial phase was seen in segment 5, suggestive of pseudoaneurysm of right hepatic artery branch (Fig. 1B). CT angiography confirmed the presence of pseudoaneurysm (Fig. 1C). Other abdominal viscera and vessels were normal in imagings.

He was resuscitated and after hemodynamic stabilization, angiographic embolization of pseudoaneurysm was planned by our interventional cardiology team. On 3rd day of admission, child developed chicken pox and procedure was deferred for sometime. After that, child's condition gradually improved with no further episode of hematemesis and abdominal pain on conservative management. Repeat imaging ultrasound abdomen with Doppler (done on day 7 of admission) showed thrombosis of pseudoaneurysm with reduced distension of gallbladder and a normal common bile duct. Repeat CECT abdomen with CT angiography (done 10 days after admission and approx 6 weeks after trauma) showed complete resolution of pseudoaneurysm (Fig. 2A and 2B). Child was discharged 2 weeks after presentation with significant improvement in liver function tests. The child remained asymptomatic for the next 1 months in follow up.

In conclusion, angiographic embolization is the ideal choice of management in complicated cases and should be done as early as possible. But in present report, despite complications patient ultimately had a good outcome with full return to activities without any intervention. So we conclude that spontaneous resolution of post-traumatic pseudoaneurysm can occur even in hemodynamically unstable and symptomatic cases.

LO-39

Prevalence of PUD and *H pylori* incidence among patients with chronic liver disease in comparison with non cirrhotics with dyspepsia

N A Rajesh
SRM Medical College and Research Center, Chennai

Introduction Gastrointestinal bleeding in 5 % to 15 % of patients with CLD is from PUD. Often these are missed in acute upper gastrointestinal (UGI) bleed due to compromised visibility in blood filled lumen and therapy is directed towards varices.

Objective 1. To study the prevalence of PUD and its association with *H pylori.* 2. Comparison of incidence with that of non CLD patients with dyspepsia study.

Design Prospective study Setting: Teritiary Care Teaching Hospital with 1200 beds, Medical Gastroenterology.

Methods Prospective study involving 245 consecutive patients with CLD and 1185 patients with dyspepsia without cirrhosis from June 2015 to June 2016. These patients underwent UGI endoscopy, the presence of ulcers were noticed. Grading of varices was documented. Biopsies were taken from the edges of the ulcer and from 4 sites in antrum and subjected for HPE and *H pylori* staining.

Results Twenty-eight (11.4 %) patients with CLD had PUD. Surprisingly the frequency of gastric ulcers (64.28 %) was higher than DU (35.7 %). Among the 28 patients, 12 patients (42.85 %) were detected to have *H pylori* infection. Among noncirrhotics with dyspepsia, the incidence of PUD was 10.46 % of which 77.4 % had DU. Among the 124 patients 66.1 % were *H pylori* positive.

Conclusion The study showed that PUD is fairly common in CLD and frequency is comparable to that of incidence of PUD in population with dyspeptic symptoms without cirrhosis. 42.8 % of PUD patients with CLD had *H pylori* association. This study reinforces the importance of careful screening for PUD as source of bleed in all CLD patients presenting with acute bleed.

LO-40

Non-alcoholic fatty liver disease: non invasive assesment for diagnosis and staging

Samrat Ashok Shah
Department of Medicine, Jawaharlal Medical College, Nehru Nagar, Belgaum 590 010, India

Background Nonalcoholic fatty liver disease (NAFLD) is one of the most common causes of chronic liver disease in India. Liver biopsy is gold standard method for the diagnosis and staging of fibrosis,but is invasive and is associated with complications. Clinical background of diabetes, obesity or metabolic syndrome with altered liver enzymes, presence of fatty liver changes in ultrasonography,serum ferratin level and newer techniques like transient elastography (FibroScan), which measures liver stiffness, are novel, noninvasive methods to assess liver fibrosis.

Aim To ascess usefulness of liver stiffness measurement by fibroscan in the evaluation of liver fibrosis in nonalcoholic fatty liver disease patients and to co-relate liver stifness score with LFTs, ultrasonographic evidence of fatty liver changes and serum ferratin levels.

Methodology Cross sectional study conducted at J N Medical College, Belgaum, Karnataka, India. Total 70 NAFLD patients with background history of diabetes or obesity or metabolic syndrome underwent ultrasonography and biochemical tests for LFTs and serum ferratin levels. Transient elastography was performed on all patients. Liver stiffness measurement was done using M probe for adults and XL probe for obese patients.

Results There was significant co-relation between liver stiffness measurement and biochemical parameters measured . Serum ferratin levels were significantly higher in patients with high liver stiffness score.

Conclusion Clinical variables like Type 2 diabetes mellitus, obesity, elevated serum transaminase levels, elevated serum ferattin levels, Ultrasound evidence of fatty liver and liver stiffness score by transient elastography can be used to assess severity of fibrosis in patients with NAFLD

LO-41

A study of hormonal abnormalities in chronic liver disease

P Manju Bhargav*, G Ray*
B R Singh Hospital, Sealdah, Kolkata 700 014, India

Background Liver is involved in the metabolism and biological actions of a number of hormones in the body hence liver diseases are often associated with hormonal abnormalities.

Methods The serum levels of cortisol, insulin, prolactin, thyroid and sex hormones in 100 randomly selected cases of chronic liver disease was measured and compared to lab standards. Subgroup analysis was done for different etiologies and severity (by MELD score and Child class).
Results Cortisol levels were normal but increased with disease severity. Fasting insulin levels were higher than normal independent of the severity or etiology. TSH levels were slightly above normal (19 % had treatable hypothyroism and 54 % had subclinical hypothyroism). It was higher in hepatitis C. This was paralleled by both FT4 and FT3 levels. FSH levels were higher in males (58 % had high levels) but below normal in females (65 % had low levels). It is independent of etiology in both sexes but levels significantly decreased with increasing severity. LH levels were higher in all males compared to normal levels in all females without relation to severity or etiology. Testosterone levels were lower in males (97 % had low levels) but normal in females (46 % has slightly high levels) independent of etiology or severity. Overall estradiol levels are higher than normal in both sexes but numerically much higher in males especially with alcohol etiology. Prolactin levels were high in all cases.
Conclusion Hormone levels vary with etiology and severity of liver disease bearing clinical implications.

LO-42

High prevalence of liver fibrosis and pre-symptomatic cirrhosis among Indian diabetics-A fibroscan based study

Kaushal Madan, ***Prince Kumar****, Arpit Jain, Dheeraj Kapoor, Richa Bhargava, Maneesh Paliwal, Rajan Dhingra, Divij Mehta*
Artemis Centre for Digestive and Liver Diseases, Department of Internal Medicine and Department of Endocrinology, Artemis Hospital, Sector 51, Gurgaon, Haryana 122 001, India

Background There is limited data on the prevalence of fibrosis/cirrhosis among Indian patients with type 2 diabetes, which can be easily collected by using a non-invasive method like fibroscan as a screening tool.
Aim To study the prevalence of hepatic fibrosis in Indian patients with type 2 diabetes mellitus and to evaluate the factors associated with it.
Methods Consecutive patients of type 2 diabetes mellitus, presenting to the Department of Medicine or Endocrinology of Artemis Health Institute, were subjected to a fibroscan examination using Fibroscan-502 Touch machine (EchoSens, Paris). Advanced fibrosis was defined as a liver stiffness value of >7.0 kPa and cirrhosis was defined as a value >11.5 kPa. Factors associated with advanced fibrosis and cirrhosis were evaluated using univariate and multivariate analysis.
Results Between July 2015 and February 2016, 94 patients with diabetes were seen, of which 8 were excluded and 86 were enrolled. 63 (72.4 %) were males and the mean age was 51.2 (10.28) years. The median duration of diabetes was 5 years (0.5–40). The prevalence of advanced fibrosis (≥F2) and cirrhosis (F4) was 33 % (28/86) and 15.5 % (13/86) respectively. The factors associated with advanced fibrosis were: Low platelets [2.08×10^5 (1.29–4.32) vs 2.44×10^5 (1.24–4.50) / cu mm; p=0.03) , high AST [32.05 (16.9–81.5) vs. 23.7 (11.4–73.1) IU/L; p=0.001], high ALT [38.4 (14.1–127.6) IU/L vs 26.3 (13.3–85.9) IU/L; p=0.002] and high GGT [39.1 (11.1–223.7) IU/L vs. 22.9 (7.2–235.2) IU/L; p=0.001]. Factors associated with cirrhosis were high waist circumference [102 (91–129) cm vs. 98 (76–135) cm; p=0.03], low platelet counts [p=0.05], high AST [p=0.0001], high ALT [p=0.006] and high GGT [p=0.001].
Conclusions Thirty-three percent of type 2 diabetes have advanced liver fibrosis and 15 % have cirrhosis. High AST, high ALT, high GGT and low platelets are associated with the presence of advanced fibrosis and cirrhosis in these patients. Diabetics with higher waist circumference are more likely to have cirrhosis.

LO-43

Postoperative outcomes in patients with breast cancer and abnormal preoperative liver function tests: A retrospective audit

Srijan Mazumdar*, Sridhar Sundaram, Pravir Gambhire, Prachi Patil, Shaesta Mehta*
Department of Digestive Diseases and Clinical Nutrition (Medical Gastroenterology), Tata Memorial Hospital, Dr. E Borges Road, Parel, Mumbai 400 012, India

Background Cirrhosis increases postoperative mortality. Limited evidence suggests that asymptomatic liver function test (LFT) abnormalities without cirrhosis do not predict postoperative complications. Patients with breast cancer are increasingly seen to have abnormal LFT and referred for fitness for surgery. Obesity is a risk factor for breast cancer and these patients may have underlying undiagnosed NAFLD. No data are available regarding postoperative outcomes in patients with abnormal preoperative LFT undergoing breast cancer surgery.
Methods Fifteen consecutive patients with breast cancer who were referred for fitness for surgery with abnormal LFT were audited for postoperative liver related 90 day outcomes. None had pre-existing liver disease or recent history of hepatotoxic drugs. Patients were evaluated with routine lab investigations and were screened for metabolic syndrome. Whenever appropriate, additional testing for chronic hepatitis/ chronic liver disease was done.
Results Fourteen out of 15 patients were female. Mean age was 47.8 years and mean BMI 26.12 kg/m2. Four patients had chronic viral hepatitis (3-HBV, 1-HCV) but none of them had cirrhosis. The mean bilirubin was 0.76 mg/dL, ALT 71.86 U/L, AST 67.6 U/L and albumin 3.98 gm/dl. Mean HBV DNA was 70.2 IU/mL. Five patients had fatty liver (two-grade 2 and three- grade 1). One patient had cryptogenic cirrhosis, who decompensated after 29 days of surgery (CTP B, MELD −8). There was no other liver related morbidity or mortality seen.
Conclusions In conclusion, abnormal LFT without cirrhosis does not increase the risk of postoperative liver related morbidity and mortality in breast cancer surgery.

LO-44

Spontaneous bacterial infection-Organisms isolated and their antibiotic sensitivity: Indian perspective

Manish Jain*, Abid Saukat, A Tripathi*
Asian Globus Hospital, E-5/24, Arera Colony, Near Bittan Market, Char Imli, Bhopal 462 016, India

Spontaneous bacterial infection (SBP) is noted in 15 % to 30 % of decompensated cirrhotic, Indian data on bacterial isolates and antibiotic sensitivity is lacking.
Method Prospective study was conducted in 15 decompensated CLD with spontaneous infection of ascites. Cases with ascitic fluid PMN cells >250 were subjected to ascetic fluid C/S and results were analyzed.
Results Seventy-three percent had positive culture. Eighty-two percent had community acquired SBP. E coli [36 %] followed by klebsiella [18 %] were common isolates. Superbug infection was noted in 18 % [2/11]. These cases had community acquired SBP with E coli and Klebsiella as isolates.

LO-45

Case series of patients with sclerosing cholangitis

D Allwin James, K *Veeraraghavan, M Kani Sheik, Rathnakar Kini, K Prem Kumar, Thangavelu Pugazhendhi*

Postgraduate Institute of Medical Gastroenterology, Madras Medical College, Chennai 600 003, India

Introduction Sclerosing cholangitis is a chronic cholestatic liver disease characterized by ongoing inflammation, destruction, fibrosis and stricture formation of intrahepatic and extrahepatic bile ducts. Sclerosing cholangitis may be primary or secondary.

Aim To study the series of cases with progressive cholestatic jaundice who were diagnosed as sclerosing cholangitis based on imaging in a tertiary care hospital in southern India between July 2015-June 2016.

Methods Totally 3 cases who presented with progressive cholestatic jaundice with imaging features suggestive of sclerosing cholangitis were included in the study. Their clinical profile and etiological work up were studied.

Results Of the three cases studied, two were males and one was female. All were elderly with age more than 50 years. All had progressive obstructive jaundice and significant loss of weight. First patient had cholangiocarcinoma with cerebral and lung metastasis with secondary sclerosing cholangitis with CA-19-9 >12,000 and second patient had autoimmune profile showing PML with GP 210 positivity. Third patient had ASMA and GP 210 positivity in serology.

Conclusion Here we present a series of three patients who had progressive cholestatic jaundice, diagnosed as secondary sclerosing cholangitis based on their clinical profile, one with cholangiocarcinoma and rest having serological positivity.

LO-46

Pediatric living donor liver transplants in India– Experience of the first double century

Neelam Mohan, *S Karkra, M Dhaliwal, V Raghunathan, D Goyal, P Bhangui, S Goja, P Kumar, N Gupta, A Jolly, S Bhalotra, V Vohra, S Baijal, A Soin*

Institute of Liver Transplantation and Regenerative Medicine, Medanta - The Medicity, Gurgaon 122 001, India

Aim To assess the outcome of pediatric patients after living donor liver transplantation (LDLT).

Methods Retrospective analysis of prospectively collected data of 200 LDLT in 197 pediatric patients from August 2003 to July 2016.

Results Out of 200 liver transplants done on 197 patients, 120 were males (60 %) with median age 60mth+/− 60.583; range 4–228 months and with median body weight of 16 kg+/− 14.983 (4.2–80 kg). Indications were chronic liver disease (CLD) in 135 out of which cholestasis was there in 92 (70.3 %) (biliary atresia 72). Fifty-seven patients presented with acute or acute on chronic liver failure (cryptogenic 13, HAV 5, Wilson disease 24, autoimmune hepatitis 8 and tyrosinemia 5, neonatal hemochromatosis 1, drug induced 1). Overall metabolic causes were there in 66 (Wilson's disease 29, tyrosinemia 13, PFIC 10, Alagille's syndrome 3, citrullinemia 3, primary hyperoxaluria 2, maple syrup urine disease 2, protein C and S deficiency 1, GSD-1, neonatal hemochromatosis 1, Factor 7 deficiency 1). Other indications were autoimmune hepatitis 13, cryptogenic cirrhosis 8, chronic hepatitis B 1, tumor −2, Re transplant-3. Parents were the donors in 141, close relatives in 50. There was 7 swap donor and 2 domino graft. The grafts included left lateral 104 (52 %) of which 26 were reduced, left lobe 68 (34 %), right lobe 26 (13 %) and whole liver in 2 cases (domino). Immediate complications included hypertension (31 %), acute rejection (25 %), hyperglycemia (22.5 %), sepsis (33.2 %), CMV hepatitis (17 %) and chylous ascites (7.5 %). Biliary complications were seen in 28 out of which 17 biliary leak and 18 biliary stricture. In biliary leak 13 had PCD, 3 re-explore 1 PTBD and biliary stricture 11 had PTBD 2, ERCP and PTBD 2, ERCP 2, re-explore 1, ERCP and re-explore 1. Portal vein thrombosis was seen in 9 (6 had re-laparotomy, 3 managed conservatively) and hepatic artery thrombosis in 9 cases (1 died, 1 re-transplanted, 1 left iliac to HA conduit, 3 arterilization of portal vein. Two re-explore and thrombectomy, 2 had both arterilzation and re-explore). Mean hospital stay was 29 days (13–63). Six patients had chronic rejection, 4 died, 1 underwent re-transplant, others awaiting re-transplant. One year survival rate was 91 % with an overall survival of 89 % at mean follow up of 29 months (1–85).

Conclusion Pediatric LDLT is well established in India with results comparable to the best centers in world. Immediate complications, although frequent, were managed successfully. Long term complications were uncommon. Transplantation in small babies is very challenging. A multidisciplinary team is the key to success.

LO-47

LRLT as a cure for metabolic disorders with or without liver injury-Etiology, timing, selection criteria, specific issues and outcome

A Rai*, N Mohan, S Karkra, D Goyal, M Dhaliwal, V Raghunathan, A Rastogi, S Goja,P Bhangui, T Srinivasan, V Vohra, A Soin*

Department of Pediatric Gastroenterology, Hepatology and Medanta Institute of Liver Transplantation and Regenerative Medicine, Medanta The Medicity, Gurgaon 122 001, India

Inherited metabolic disorders (IMD) that can be cured by living related liver transplantation (LRLT) include those, with liver injury such as tyrosinemia (Tyr), Wilsons disease (WD), PFIC or those with no liver injury such as primary hyperoxaluria (PH), organic acidemia (OA), urea cycle defects (UCD).

Aims To analyze the etiology, selection criteria specific issues and outcome in children undergoing LRLT for IMD.

Methods Retrospective analysis was done on pediatric patients undergoing LRLT from September 2004 to April 2016 for metabolic disorders. Etiology, timing of transplant, selection criteria, specific issues and outcome were analyzed. Except for maple syrup urine disease (MSUD), parents were accepted as donors.

Results One hundred and ninety-seven children underwent LRLT, 63 (32 %) had IMD. Mean age 73 mths (4–212), mean weight 23 Kg (5–66) and 47 were males. Eighty-four percent (*n* 53) had liver disease; WD=28 (44 %, mean age 112 months), Tyr 11 (17 %, mean age 17 months); PFIC 7 (12 %). Allagille syndrome 4, Prt. C and S deficiency leading to Budd-Chiari syndrome 2 and glycogen storage disease 1. IMD with no liver injury included. Citrulinemia 4, PH 2, MSUD– 2, Factor 7 deficiency 1, and Crigler-Najjar 1. Forty-six percent (*n*=29) IMD had presented with ALF of which WD were 24 and Tyr 5. Non- affordability of NTBC and development of HCC on NTBC were other criteria for LT in Tyr. Both PH patients underwent combined liver kidney transplant. There were 3 (4.7 %) biliary strictures which were managed with PTBD/ERCP. No vascular complications seen. The mean hospital stay was 23 days. One year survival was 95 % with overall survival of 92 % on a mean FU of 4.2 years. 2 WD's patients died due to severe hemolysis and renal failure in early post transplant period while 1 died of PTLD after 2 years. Two patients died due to sepsis. Donor's were parents in 38 (mother's 28), grandparents/close relatives 15 (40 %). Swap transplantation was done in 1 MSUD case. Both MSUD explants livers were used as domino grafts.

Conclusion Identifying the etiology, multidisciplinary approach, right timing for LRLT before the onset of debilitating secondary complications, along with addressing specific disease-related issues and complications is important in the successful outcome of LT for IMD.

LO-48

Bacteriological profile of spontaneous bacterial peritonitis in cirrhotic patients

Sujit Chaudhuri, ***Agnibha Dutta****, Ayusmati Thakur, Debasis Datta, Shelly S Ganguly, Sudipta Ghosh*

Departments of Gastroenterology, and Microbiology, AMRI Hospitals, Salt Lake, and Department of Gastroenterology, Fortis Hospitals, Kolkata, India

Introduction Infection is a common cause of mortality and morbidity in cirrhotic patients and infection of ascitic fluid, Spontaneous bacterial peritonitis (SBP) is the commonest source. Knowledge of local microbial profile will ensure appropriate empirical antibiotic therapy in suspected SBP.
Aims and Objectives To isolate bacterial organisms from suspected SBP patients and determine its antibiotic sensitivity profile.
Methods Ascitic fluid of cirrhotic patients admitted in two tertiary care hospitals in Eastern India were examined between July 2014 and July 2016. Bedside cultures samples were obtained in blood culture bottles under recommended aseptic precautions and ascitic fluid absolute neutrophil count (ANC) of more than 250/mm3 were taken as diagnostic criterion for SBP.
Results and Analysis Of the 266 patients tested, 55 (20.68 %) patients had ascitic fluid ANC >250/mm3. Of them 13 (24 %) patients had a positive culture. The bacteria obtained are E. coli 3 (23 %), K. pneumoniae 2 (15 %), A. baumanii 2 (15 %), 1 (8 %) each of Enterococus faecalis, Enterobacter sp., Staphylococcus aureus, Burkholderia cepacia and Burkholderia diminuta. One had a fungal growth. Seven of the 12 bacterial culture isolate were resistant to cefotaxime and ceftriaxone. All the gram negative organisms were sensitive to Imipenem, Tigecycline and Colistin.
Conclusion Ascitic fluid culture is essential in managing suspected SBP patients and incidence of multi-drug resistant organism is very high in the patient population studied. The recommended use of Ceftriaxone or Cefotaxime as empiric treatment of SBP in tertiary care set up, with patients having high exposure to different antibiotics and organisms, may be questioned.

LO-49

Predictors of non-recovery in cirrhosis with acute kidney injury

***Madhura Prasad**, V G Mohan Prasad, P Karthikeyan*
VGM Hospita, 2100, Trichy Road, Rajalakshmi Mills Stop, Singanallur, Coimbatore 641 005, India

Acute kidney injury (AKI) in cirrhosis increases mortality. This study was done to determine the predictors of non- recovery in patients admitted with cirrhosis and acute kidney injury over a period of two years (2012–14) in a gastroenterology and hepatology specialized hospital. The definition of AKI was based on the AKI network criteria. The incidence of renal dysfunction in cirrhotics in this study was 9.26 %. The mean age of the patient population was 51.33 (SD±10.32) years. In this study, 66 % had type 1 and 34 % had type 2 h. The percentage of patients with various stages of AKI were as follows: I-75.47 %, II-18.86 %, III- 5.66 %. Among the patients, 29/44 cases, 54.71 % recovered. Among the non-responders, five patients (5/44, 9.43 %) died. High MELD, MELD Na, Child-Pugh score and Child-Pugh class and low EGFR were associated with worse outcome. In ROC curve, both MELD and MELD Na had AUC >0.75. MELD Na was not found to be superior to MELD (Omnibus test of Model Coefficient). Kaplan-Meier curves showed that the mean estimate of survival was more for type 2 h as compared to type 1 h for patients with higher levels of bilirubin and for age >48 years. High MELD, high MELD Na, high CTP and low EGFR (MDRD) are significantly associated with non-recovery. These scores are based on simple baseline variables, which require no extra cost to analyze and yet provide highly reliable and valuable information about the prognosis of the cirrhotics with acute kidney injury.

LO-50

Post transplant scenario and uesissefulness of plasmapher

***N Arun**, A R Venkateswaran, Revathy, Chitra, Manimaran, Malarvizhi, Murali*
Government Stanley Medical College Hospital, 305 OSH Rd, Royapuram, Chennai 600 001, India

Aim Plasmapheresis have been used successfully in liver transplant patient with hyper hyper bilirubinemia.
Method/Study Design Sixteen-year-old male a case of Wilson disease/ DCLD/CHILD B/MELD 14 underwent DDLT at Government Stanley Medical College Hospital in March 2016. Postoperatively patient had downhill course in the form of portal vein thrombosis for which relaparotomy and portal vein thrombectomy and iliac vein grafting was done. Patient had hyper hyperbilirubinemia from (13th POP). Liver biopsy done twice didn't show any rejection. Patient was started on plasmapheresis for 5 cycles after which condition improved markedly with decreasng trends in bilrubin and good general condition.
Conclusion Plasmapheresis is safe and successful method for treatment of post liver transplant hyper hyper bilirubinemia and the outcome was good.

LO-51

Cardiac dysfunction in alcoholic and nonalcoholic cirrhosis

***Kumar Shwetanshu Narayan**, Manoj Kumar, Gaurav Gupta, Sandeep Nijhawan*
Department of Gastroenterology, Sawai Man Singh Medical College, J L N Marg, Jaipur 302 004, India

Aim Cirrhosis is a chronic liver disease with systemic complications. Cardiac involvement in cirrhosis is less studied and rarely reported. Present study was done to assess the cardiac dysfunctions in alcoholic and non alcoholic patients in comparison with controls.
Methods Our study was cross sectional in design in which newly diagnosed cases of cirrhosis were included along with healthy controls. Subjects underwent clinical, biochemical and endoscopic evaluation and 2D echocardiography was done to assess cardiac function. Study period was from June 2015 to May 2016.
Results In total, 40 alcoholic cirrhosis and 60 nonalcoholic cirrhosis patients were compared with 40 healthy controls. Increased ejection fraction, diastolic dysfunction, pulmonary artery systolic pressure and QTc prolongation were present in cirrhotic group in comparison with healthy controls and were statistically significant (p value <0.05). However, other left ventricular (LV) systolic function parameters like LV internal dimension in systole and diastole and interventricular septal diameter in diastole and LV mass were comparable between cirrhotic patients and controls.
Conclusion Present study brought out the pattern of cardiac involvement in cirrhotic patients. Further these data can be helpful in planning prospective trials for effective therapeutic measures to prevent cardiac dysfunction in cirrhotic patients.

LO-52

Histopathological data review of granulomatous hepatitis –A retrospective study

***V K Priya**, A Kumar, A S Puri, S Sachdeva, P Sakhuja*
Department of Gastroenterology, GIPMER, 1, Jawaharlal Nehru Marg New Delhi 110 002. India

Introduction Granulomas in liver are found in 2 % to 15 % of liver biopsies. Etiology of granulomas vary geographically. HCV, sarcoidosis, PBC are the common causes in the west whereas tuberculosis is the commonest cause in Asia. There are only few studies addressing this issue in India.
Aims and Objectives To analyze the clinical, demographic biochemical and histopathological data in cases of granulomas in liver.
Methods This is a retrospective data review of histopathological records from 2011 to 2015 done at GIPMER, New Delhi. Thirty-five cases with liver biopsy with granulomas in liver were studied.

Results PUO was the indication in 28 (80 %), Two (5.7 %) were diagnosed as sarcoidosis previously, 3 (8.5 %) had HCV positivity, One (2.8 %) had for hepatitis B positivity. There were 17 females and 18 males. Mean age was 25.83±2 years. Six (17 %) had jaundice, 2 (5.7 %) had evidence of extraintestinal Koch's. Thirty-one (88 %) patients had evidence of tuberculosis. Four (11 %) had AFB positive.
Conclusions Tuberculosis is the most common cause found. AFB was positive in only 4 which can be improved with nuclear methods.

LO-53

Acute-on-chronic liver failure: Clinical profile and outcome: Experience from a tertiary care center in North India

***Ajay Nandmer**, Vinod Dixit, Anurag Tiwari, Manish Bhaskar, Sunit Shukla*
Department of Gastroenterology, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, India

Introduction Acute-on-chronic liver failure (ACLF) is defined by APASL as acute hepatic insult manifesting as jaundice and coagulopathy, complicated within 4 weeks by ascites and/or encephalopathy in a patient with previously diagnosed or undiagnosed CLD. However, data regarding clinical profile, precipitating events and factors predicting mortality from this part of the country is largely unknown.
Methods This is a retrospective study done in the Department of Gastroenterology, Sir Sunderlal Hospital, IMS BHU, Varanasi over a period of 3 years from July 2012 to June 2015. Data was collected from medical record section of hospital regarding identification of acute insults, underlying chronic etiologies, presence of organ failure, short-term survival. Institute Ethical committee clearance was taken.
Results Ninety-three patients (mean age 51 years, 61 males and 32 females) who presented with either raised bilirubin (n=82), international normalized ratio (INR) >1.5 (n=75), acute onset ascites (n=78), or hepatic encephalopathy (n=56) were included in study. Sixty-four patients died (68.8 %). Hepatic encephalopathy was significantly associated with mortality (p1 precipitating event, additional organ failure, total leukocyte count, INR, and serum creatinine were significantly higher in patients with ACLF.
Conclusions ACLF has high mortality rate. HE was significantly associated with mortality. Sepsis, organ failure, TLC, INR, and serum creatinine were significantly higher in patients with ACLF.

LO-54

Frequency of non-alcoholic steatohepatitis on histopathology in patients of type 2 diabetes mellitus with duration of more than 5 years

***Ajay Nandmer**, Vinod Kumar Dixit, Sunit Shukla, Anurag Tiwari, Manish Bhasker*
Department of Gastroenterology, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, India

Objective To determine the frequency of non-alcoholic steatohepatitis (NASH) on histopathology in patients of type 2 diabetes mellitus with duration of more than 5 years.
Place and Duration of Study This is a retrospective and prospective study done in the Department of Gastroenterology, Sir Sunderlal Hospital, IMS BHU, Varanasi over a period of 2 years from July 2015 to June 2016.
Methodology Patients with type 2 diabetes mellitus of more than 5 years duration having raised alanine transaminases level and fatty liver on ultrasonography were selected. Informed consent was obtained and liver biopsy was performed in all patients by experienced gastroenterologist. All samples of biopsy were sent for histopathology. Those patients with hepatitis B, C and D and steatosis like alcoholic and hypertriglyceridemia were excluded from the study.
Results Out of the 97 cases, 56.26 % (58/97) showed nonalcoholic steatohepatitis on the basis of histopathology. The mean age of the patients was 50.72±8.48 years. Median (interquartile) duration of diabetes mellitus of the cases was 9 years . Out of 148 NASH cases, 56.1 % (83/148) were males and 43.9 % (65/148) were females.
Conclusion Nonalcoholic steatohepatitis is an increasingly important and unrecognized spectrum of chronic liver disease associated with high prevalence of diabetes that is often overlooked and diagnosed with complications. So early recognition of these patients can prevent further complications.

LO-55

A case report on primary hepatic amyloidosis

***Rohan P Reddy**, P Shravan Kumar, M Umadevi, M Ramanna*
Departmen. of Gastroenterology, Fifth Floor, Gandhi Hospital, Musheerabad, Secunderabad 500 003, India

Hepatic amyloidosis is a rare disease that presents as an infiltrative disease involving the liver. Amyloidosis is a systemic disease characterized by extracellular deposition of amyloid protein in many organs. The wide range of presenting symptoms encountered makes rapid clinical diagnosis difficult. Even when suspected clinically and radiologically, the diagnosis of amyloidosis depends on a tissue biopsy to confirm the presence of amyloid deposits. A 38- year-old female was admitted with the complaint of bilateral pedal edema for the last one month. It was associated with loss of weight (10 kgs). There was no history of decreased urine output, shortness of breath, abdominal distension or PND episodes. On examination their was a large palpable liver which was firm in consistency. Her CBP, RFT's, ECG, 2D-Echo were completely normal. LFT's showed elevated SGOT (88U/L) and SGPT (96U/L) with other parameters being completely normal. USG of abdomen confirmed hepatomegaly (17 cm) with normal echogenicity. CECT-ABD confirmed similar findings. Liver biopsy was performed with an 18 gauge Bard gun-biopsy needle. Microscopically, diffuse amyloid deposits were found and the Congo red stain was positive. Additional examinations were done to evaluate the extent of amyloidosis involvement. Bone marrow aspirate showed a small increase in the percentage of plasma cells 8 %. Colonic mucosa biopsy also showed amyloidosis. These examinations confirmed the diagnosis of AL, which was later, classified as primary systemic AL.

LO-56

Effect of nutritional, clinical and socioeconomic parameters on progression of chronic liver disease

***Manish Kumar Bhaskar**, V K Dixit*
Department of Gastroenterology, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, India

Objective To study the socioeconomic and demographic profile of CLD patients, assess the nutritional profile by clinical parameters, anthropometric measurements and biochemical parameters.
Method Prospective study carried out in total 376 patients of CLD related with all etiology with male 319 and female 57 (M:F=5.6) with mean age of 42.9±11.9 years who attended gastroenterology OPD. Baseline characteristic were recorded and studied, follow up data was studied for a period of 6 months and 12 months. The nutritional analysis was done by using 24 h dietary recall method.
Results (M:F/5:1). 46 % of CLD patients belonged to lower class. CLD was more common in rural (69 %) areas compared to urban (31 %). Mean dietary intake calories (1340–1264 kcal/day) protein (45. 2–40.6 gm/day), carbohydrate (221.8–212.8 gm/day) and fat (21.1–16.2 gm/day). After 6 months of follow up there were significant changes observed in MAC (0.00) and TSF (p=0.042) in counseled cases. According to SGA score there were significant

improvement observed in cases comparedto control. Observation showed that clinical and biochemical parameter were also improved in counseled patients. TSF and MAC decreases significantly according to the CTP, positive correlation was found between these two parameters and the severity of cirrhosis. *Conclusion* PCM was frequently found and appears to related with degree of liver injury and etiology of liver disease. Improvement in MAC and TSF value in nutritionally counseled patients showing impact of counseling. Improvement in SGA score,biochemical parameters was noted.

LO-57

Evaluation of hyponatremia as a predictor of severity in cirrhosis of liver

M Harsha, Y Harishkumar, G Challarao, Dinesh Reddy, ***Ankit Makadia****, M Sreeharsha, M G Srinivas*
Narayana Medical College, Opposite Narayana Engineering College, Muthukur Road, Chinthareddypalem, Nellore 524 003, India

LO-58

Atazanavir induced asymptomatic hyperbilirubinemia in people living with HIV/AIDS (PLHIV)

R Dewan, S Anuradha, ***Lokesh Khandelwal****, P Kumar, S Kataria, V L Malsawmdawngliana*
Department of Medicine, Maulana Azad Medical College, Bahadur Shah Zafar Marg, Delhi Gate, New Delhi, Delhi 110 002, India

Background The most common adverse effect of antiretroviral drug Atazanavir (ATV) is unconjugated hyperbilirubinemia due to competitive inhibition of UDP glucoronyl transferase (UGT) enzyme. The incidence and duration of hyperbilirubinemia is variable. Genetic predisposition, high CD4 counts and concurrent use of Ritonavir are common risk factors.
Objective To evaluate the incidence of hyperbilirubinemia in PLHIV receiving ATV and its impact on medication adherence and clinical outcomes.
Methods Four hundred and eighty PLHIV receiving Ritonavir boosted ATV for one year or more were included in this observational study. Incidence, severity and duration of hyperbilirubinemia (total bilirubin of more than 2.5 mg/dL), fluctuations in bilirubin levels, abnormal liver enzymes and clinical outcomes were analyzed.
Results: 73.2 % were males and 26.8 % females with mean age of study population was 36.5±10.73 years. Two hundred and fifty-four (52.9 %) patients developed hyperbilirubinemia, maximum bilirubin value reached up to 14.5 mg/dL. In most, there were fluctuations in bilirubin levels with persistent hyperbilirubinemia in 169 subjects and in 85 subjects bilirubin value came to normal at some point. Minimum duration for development hyperbilirubinemia was 1 month and mean duration was 6.77 ±6.23 months. No correlation with CD4 count was found. Liver enzymes raised to >3 times normal only in 1.9 % and 1.76 % subjects with or without hyperbilirubinemia respectively. In both the groups response to treatment and increase in CD4 count was comparable. None of the subject discontinued treatment due to hyperbilirubinemia.
Conclusions Asymptomatic hyperbilirubinemia is common with use of Ritonavir boosted ATV and it does not impact clinical outcomes adversely.

LO-59

Clinical presentation and management of hepatic hydatid cyst cases using percutaeneous aspiration injection and reaspiration (PAIR)

S K Singh*, V K Dixit, S K Shukla, Shivam Sachan, Gaurav*
Department of Gastroenterology, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, India

LO-60

An interesting case of overlap syndrome

Sumanth Simha Vankineni*, Shanthi Vijayaraghavan, P Ganesh, S Shanmughanathan*
Sri Ramachandra Medical College and RI, Ramachandra Nagar, Porur, Chennai 600 116, India

A 38-year-old female presented with complaints of hyperpigmentation of face, upper and lower limbs for the past 6 months, generalized itching of the body for the past 4 months. She had no complaints of abdominal pain, fever, jaundice, vomiting, hematemesis, bleeding P/R, melena, pale stools. She was hypothyroid and was on oral thyroxine replacement. Clinical examination was unremarkable. Lab tests revealed normal hemoglobin and WBC count, and a platelet count of 44,000/cumm. LFT showed normal bilirubin, raised AST 113 U/L, ALT 99 U/L, and Alk. phosphatase 262 U/L. Her PT was 14.2 s, INR 1.2. ANA 2+, AMA 3+, IgG of 2670. dsDNA, anti-LKM and SLA were negative. TFT was normal. US abdomen was normal. Liver biopsy showed features of primary biliary cirrhosis Stage II. Hence, a diagnosis of overlap syndrome (primary biliary cirrhosis-autoimmune hepatitis) was made. The patient was started on Tab. Wysolone 40 mg/day, Tab. Azathioprine 50 mg/day, and Tab. Udiliv 300 mg TID.

LO-61

Serum C-reactive protein: Usefulness in assessing severe alcoholic hepatitis

K Mohanraj, *G Ramkumar, K Muthukumaran, R Balamurali, A Aravind, A Murali, T Rajkumar Solomon*
Kilpauk Medical College, Chennai 600 010, India

Objective To determine the usefulness C-reactive protein (CRP) in severe alcoholic hepatitis.
Methods A total of 150 alcoholics with elevated transaminase activity and negative HBsAg, anti-HCV and anti-HIV antibodies were included in the study during the study period of August 2014 to July 2016. All patients underwent standard liver function tests, CRP determination and discriminant function score. None of the patients had signs of infection or inflammatory disease and none of them were taking antibiotics. The severity of alcoholic hepatitis was assessed by discriminant function, MELD score and CRP levels.
Results Out of 150 patients 140 were male and 10 were female. Out of 150 patients, 45 patients had elevated bilirubin levels. Out of 150, 33 patients had severe alcoholic hepatitis assessed by DF >32 and MELD >21. Out of 33 patients with severe alcoholic hepatitis 29 had elevated CRP levels >19 mg/dL with significant p value (<0.05). The area under the ROC curve of CRP was 0.88.
Conclusion CRP is one of the marker in assessing severe alcoholic hepatitis.

LO-62

Bric to PFIC for transplant

N Arun*, Venkateswaran. A Revathy, Malarvizhi, Chitra, Manimaran, Murali, Nagavendan, Gopalakrishnan*
Government Stanley Medical College, 305 OSH Road, Royapuram, Chennai 600 001, India

Aim Benign recurrent intrahepatic cholestasis can progress to progressive familial intrahepatic cholestasis with decompensation can be listed for transplant.

Study: Twenty-one-year-old male who had 3 episodes of intermittent jaundice from 12 years of age onwards. Initial 2 episodes patient had jaundice for 1 month followed by asymptomatic period.last episode lasted for 7 month with evidence of decompensation in the form of ascites, coagulopathy, worsening jaundice with cholestatic picture in the form of pruritus with pale stools. His Wilson's workup, autoimmune workup,viral markers, AMA, came as negative. Liver biopsy done showed evidence of portal fibrosis with inflammatory changes proved to be bric which is progressing to pfic in the form of decompensation. Patient initiated transplant workup in view MELD around 20 and has been listed.
Conclusin Benign recurrent intrahepatic cholestasis however its of benign course usually no cirrhosis may rarely progress to progressive familial intrahepatic cholestasis with decompensation and patient needs liver transplant to survive.

LO-63

Dysregulation of adipokine and cytokine gene expression in liver and systemic circulation of nonalcoholic fatty liver disease patients

Baibaswata Nayak, *Neelanjana Roy, Suraj Kumar Nongthombam, Anand Kumar, Neeti Nadda, Shalimar, Subrat K Acharya*
Department of Gastroenterology, All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India

Adipokines are implicated in fat induced inflammatory response and thought to modulate inflammation in liver in nonalcoholic fatty liver disease (NAFLD) patients. The adipokine induced inflammatory response leads to increased production of pro-inflammatory cytokines such as IL1b, IL6 and TNF±. The present study was undertaken to compare adipokine and cytokine gene expression in hepatic tissue and systemic circulation among NAFLD groups (BMI 25) and CHB disease control. The relative gene expression of transjugular liver biopsy by real time PCR and adipokine and cytokine assay by ELISA was carried out. Hepatic gene expression of IL-6 and TNF±found significant in comparative Ct expression analysis among NAFLD and CHB control. In systemic circulation, inflammatory cytokine was not found significant but adipokine level was significant. The mean±SD value of leptin in 25 BMI NAFLD Group (n=24) is 2011±1928 pg/mL, CHB Group (n=20) is 929.7±958.7 pg/mL and healthy control is 518.9±429.6 pg/mL (n=27) respectively (p=0.008). The Adiponectin level was 222.5±158.7 µg/mL; 65.82±84.08 µg/mL, 64.65±75.44 µg/mL and 135.2±133.9 µg/mL in NAFLD (25 BMI), CHB and healthy control respectively. The visfatin and resistin level were higher (85.36±24.47 ng/ml and 3.7±2.9 ng/mL) in 25 BMI NAFLD. There is reduced level antinflammatory adipokine in >25 BMI group than

LO-64

Anthropometry in non alcoholic fatty liver disease

Pravallika Vutukuru, *K N Mohamed Saeim, Mahvash Iram, K R Pradeep, N K Anupama, Amit Yelsangikar, Naresh Bhat*
Department of Pharmacy Practice, Al-Ameen College of Pharmacy, Lalbagh Main Gate, Hosur Road, Bengaluru 560 027, and Department of Gastroenterology, St Philomena's Hospital, 4, Mother Theresa Road, Vivek Nagar Post, Near Life Style, Bengaluru 560 047, India

Introduction Non-alcoholic-fatty-liver-disease (NAFLD) is considered as the hepatic manifestation of metabolic syndrome is an important cause of chronic liver disease. Gold standard for diagnosis and prognostication involves invasive procedure like liver biopsy. Non-invasive and bedside tools are necessary for rapid assessment and predicting risk of advanced chronic liver disease. Anthropometry and serum biomarkers are promising modalities for diagnosing NAFLD.
Objectives To evaluate the correlation between anthropometric measures and non-invasive scores in NAFLD.
Methods Prospective observational study conducted in a tertiary care hospital in Bangalore over 6 months. Consecutive patients with fatty liver diagnosed by abdominal ultrasound were included in the study. Significant alcohol consumption, pregnancy, drugs and other causes of fatty liver were excluded.
Results A total of 85 patients (46 male and 39 females) were included in the study. The neck circumference was found to be elevated in 36 out of 39 female patients ($p<0.001$). The Waist circumference was found to be elevated in all females (39) and (36/46) male patients (p<0.001). The Waist hip ratio was found to be elevated in (38/39) females and (45/46) male patients (p<0.001). The BMI was found to be elevated in (31/39) females and (31/46) male patients (p<0.001). These correlated well with the NAFLD fibrosis and APRI scores to predict advanced fibrosis
Conclusion Simple bedside anthropometric measurements can be used for rapid diagnosis and prognostication of NAFLD.

LO-65

Prevalence of hyponatremia in liver cirrhosis and its correlation with severity of liver cirrhosis

J L Joeimon, *K Mohan Raj, R Karthikeyan, R Kayalvizhi, G Ramkumar, K Muthukumaran, R Balamurali, K Kavitha, P Vaishnavi, A Aravind, A Murali, T Rajkumar Solomon*
Department of Digestive Health and Diseases, Kilpauk Medical College, Poonamallee High Road, Kilpauk, Chennai 600 010, India

Aim The aim of this study was to correlate hyponatremia with severity of liver cirrhosis

Methods Data of patients with cirrhosis were collected during August 2015 to July 2016. Total of 94 patients were included in the study. The serum sodium levels were noted and severity of cirrhosis was analyzed using Child-Pugh score. The prevalence of hyponatremia was classified as serum sodium concentrations of â‰¤135 mmol/L. Out of 94 patients, 6 belonged to Child-Pugh Class A, 42 to Class B and 46 to Class C.
Results Out of 94 patients, 45 had hyponatremia. Out of the 45 patients having hyponatremia, 25 had serum sodium 130 mmol/L. Out of the 45 patients having hyponatremia, 1 belonged to Child-Pugh Class A (2.2 %), 14 to Class B (31.2 %) and 30 to Class C (66.6 %). 16.66 % of patients in Child-Pugh Class A, 33.33 % of Class B and 48.93 % of Class C had hyponatremia,
Conclusion Hyponatremia may indicate severity of liver cirrhosis.

LO-66

An open label randomized study to evaluate the efficacy and safety of lactulose versus rifaximin in cirrhotics with covert hepatic encephalopathy

Parag G Deshmukh, *Ashokananda Konar*
Peerless Hospital, 360, Panchasayar, Kolkata 700 094, India

An open label randomized study to evaluate the efficacy and safety of lactulose vs. rifaximin in cirrhotics with covert hepatic encephalopathy The presence of minimal HE is common in

patients with cirrhosis, appears to influence the patient\'s quality of life and driving ability, and confers an increased risk that overt HE will develop in the patient. Treatment with lactulose improved both cognitive functions and HRQOL; improvement in the latter was linked to improvement in cognitive function. All cirrhotic patients attending the outpatient Liver Clinic at Peerless Hospital and B.K Roy Research Centre, who fit in the inclusion criteria, were enrolled in this study. Informed consent was taken from each patient before their enrollment for the study. All patients were subjected to CFF and psychometric tests. Those patients who were diagnosed to have MHE were randomized and treated with either lactulose or rifaximin for six months. Repeat psychometric test and CFF were carried out and results were assessed. 83.01 % patients were diagnosed to have MHE. The mean number of abnormal NP test results decreased significantly among patients in both the groups after 6 months of treatment (0 months, 2.74 [95 % CI 2.38–3.08];6 months. Patients with 2 abnormal psychometric tests had CFF significantly lower than with normal psychometric tests (35.6±2.3 vs. 40.7±2.4 Hz, p=0.001)

LO-67

Prevalence of nonalcoholic fatty liver disease and nonalcoholic steatohepatitis in the morbidly obese in India

Jagdish Singh, *Y Batra, D Goel, V Malhotra, J V Vij, V P Bhalla*
Department of Gastroenterology, B L K Super Speciality Hospital, Pusa Road, Rajinder Nagar, New Delhi, Delhi 110 005, India

Aim To assess the prevalence of NAFLD in a cohort of morbidly obese patient undergoing bariatric surgery.
Methods Study was performed in consecutive patients came to department of gastrointestinal surgery at B L K Super Speciality Hospital for Bariatric surgery. We performed liver biopsy in all patients after a standard work up to exclude any other cause of liver disease.
Results Forty-seven patients were included. The mean age was 44.5 (range 18–66) years, 22 (42.5 %) patients were male, average BMI was 46.86 (35–68.2 kg/m2). Comorbid illnesses were seen in and included NAFLD was detected in 40 (85 %) : Grade I steatosis was in 19 (40.4 %), grade II steatosis was in 13 (27.6 %) and grade III steatosis was seen in 8 (17 %) patients. NAFLD activity score (NAS score) was less than 2 in 20 (42.5 %) patients, 3–4 was in 20 (42.5 %) patients and more than 5 (NASH) in 7 (14.89 %) patients. Eleven (23 %) of patients had fibrosis, F1 and F2 fibrosis was seen in 4 (8.5 %) patients each, F3 fibrosis seen in 2 (4.2 %) patients and F 4 fibrosis was found in 1 (2.1 %) patient. There was no correlation seen between BMI and severity of NAFLD with patients with NASH having average BMI of 45.1 and those without NASH having a BMI of 47.15. Fibrosis appeared to be more common in males 81 %.
Conclusions The prevalence of NAFLD (85 %) is high in the morbidly obese. Fifteen percent of those with NAFLD were found to have NASH and 2 % had severe (F4) fibrosis. There was no correlation with the degree of liver disease and BMI.

LO-68

Retrospective analysis of clinical and radiological data in hepatocellular carcinoma

Srimanta Kumar Sahu, *Y K Chawla, R K Dhiman, A Duseja, S Radhika, N Kalra, S Taneja*
Departments of Hepatology, Cytology, Gynecology, Pathology, and Radiodiagnosis, Post Graduate Institute of Medical Education and Research, Sector 12, Chandigarh 160 012, India

Introduction The most important risk factor for hepatocellular carcinoma (HCC) is liver cirrhosis, majority are due to chronic hepatitis C (HCV) or hepatitis B (HBV) infections.
Methodology A retrospective cohort study analyzing the clinical and radiological data of HCC patients, diagnosed between January 2013 to June 2016, in the Liver clinic of this institute.
Results A total of 368 patients were studied. HCC presented with BCLC stage C in 44.6 %. Macrovascular invasion (MVI) was seen in 35.9 %. Logistic regression analysis showed that younger age (OR 2.170, p=0.002) symptoms at presentation (OR 3.194, p=0.042) decompensation (OR 3.228, p 5 cm (OR 3.055, p 200 ng/mL (OR 2.021, p=0.005) were independent predictors of presence of MVI at diagnosis. Distant metastasis was found in 2513 %, the most common site being lymph nodes (45.6 %) followed by lungs (44.5 %). AFP level was 10 cm) tumors (36.4 % vs. 14.8 %, p=0.001), but less frequent decompensation at diagnosis (37.9 vs. 53.3 %, p=0.039). Milan's criteria were fulfilled by 25. 3 % of patients. HCC was amenable for loco regional therapy at diagnosis in 50.5 %, however 9.5 % of patients were eligible only for best supportive care.
Conclusion The risk of HCC is higher with cirrhosis of viral etiology than non viral cause. HCC in NASH and CC presents more often with larger tumors but with lesser decompensation at diagnosis compared to viral HCC.

LO-69

Outcomes of LOCO-Regional therapies in hepatocellular carcinoma

Srimanta Kumar Sahu, *Y K Chawla, R K Dhiman, A Duseja, S Radhika, N Kalra, S Taneja*
Departments of Hepatology, Cytology, Gynecology, Pathology, and Radiodiagnosis, Post Graduate Institute of Medical Education and Research, Sector 12, Chandigarh 160 012, India

Introduction Loco-regional therapy (LRT) is the standard of care for early and intermediate stage hepatocellular carcinoma (HCC).
Methodology Aim of the study was to look for the outcome of LRT in HCC. Thirty-two (n=32) patients undergoing first LRT for HCC between January to December 2015 were included. Response to therapy was assessed using the m-RECIST criteria. An overall outcome after LRT was assessed comparing variables at baseline and at 6 months.
Results Complete remission (CR) was achieved in 74.0 %, partial remission (PR) in 11.0 % at 3 months. At 6 months 56 % patients remained in CR, whereas HCC was progressive (PD) in 44 %. No significant change observed in the mean CTP score (p=0.055) and MELD score (p=0.384). More patients developed decompensation at 6 months (p=0.031). Reduction of AFP level at 6 month was not statistically significant (p=0.054), however plasma Osteopontin levels reduced significantly (p

LO-70

Hepatic involvement and predictors of mortality in leptospirosis- A remerging tropical disease in northern India

Omesh Goyal, *Deepinder Kaur, Prerna Goyal, Rajoo Singh Chhina*
Department of Gastroenterology, Dayanand Medical College and Hospital, Tagore Nagar, Ludhiana 141 001, India

Background Leptospirosis can present with varied clinical manifestations ranging from mild self-limiting illness to severe disease with multi-organ involvement. Data on hepatic dysfunction in leptospirosis, especially in patients with underlying cirrhosis, is scarce. We aimed to analyze the hepatic dysfunction due to leptospirosis in both cirrhotic and non-cirrhotic patients, and to find predictors of mortality.
Methods Serologically confirmed cases of leptospirosis admitted to a tertiary-care institute were included. Hepatic dysfunction and other clinical features in patients with and without underlying cirrhosis were compared. Multivariate regression analysis was performed to find predictors of mortality.
Results Total 257 patients of leptospirosis were screened. After exclusion, 204 patients (mean age- 45.2±11.4 years; male:female=4.1:1) were divided into 2 groups- cirrhotics (n=95) and noncirrhotics (n=109). Proportion of patients with hepatic involvement (91.6 % vs. 61.5 %; p=0.0001), hepatorenal involvement (58.9 % vs. 43.8 %; p=0.024) and neurological involvement (54.7 % vs. 24.8 %; p=0.0001) were significantly higher in cirrhotic group, while those with pulmonary or renal involvement were similar in two groups. Mean bilirubin was significantly higher, while transaminases, albumin, platelets and fever at presentation were significantly lower in cirrhotic group. Cirrhotics had significantly higher mortality compared to non-cirrhotics (29.5 % vs. 20.2 %; p=0.047). On multivariate analysis, hepatorenal involvement, presence of cirrhosis and need for artificial ventilation correlated with mortality.
Conclusion Hepatic dysfunction in leptospirosis is common. Cirrhotics with leptospirosis are less likely to present with fever, have higher chances of hepatorenal and neurological involvement, and have higher mortality compared to non-cirrhotics. Hepatorenal involvement, presence of cirrhosis and need for artificial ventilation are predictors of mortality.

LO-71

Gram positive bacterial infections in cirrhosis patients

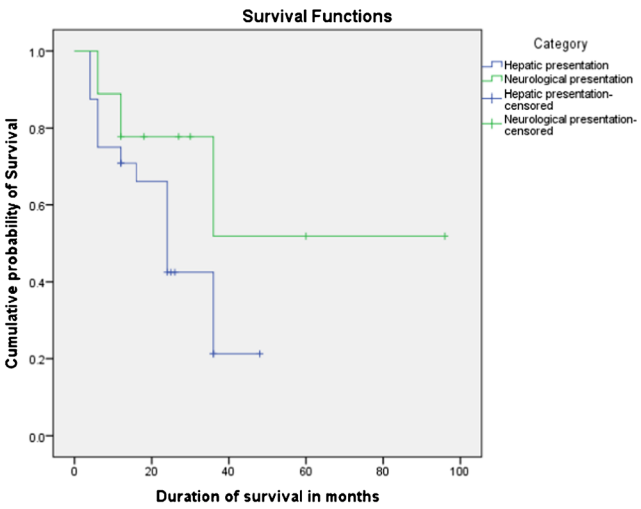
Dadasaheb Maindad, *Suresh Shenoy, Sandeep Gopal, B V Tantry*
Department of Gastroenterology, Kasturba Medical College, Mangalore 575 001, India

LO-72

Analysing the clinical profile and comparison of survival pattern of Wilson's disease patients with neurological versus hepatic manifestation

B K Bincy, *Ponni Krishnan, Gopu Babu, ShahanaFathima, D Krishna Das, Sreejaya, K S Prasanth*
Medical Gastroenterology, Medical College Hospital, Ulloor Road, Thiruvananthapuram 695 011, India

Background Wilson's disease is an inborn error of copper metabolism leading to excessive accumulation of copper in the body which damages primarily the liver and brain. The clinical presentation of Wilson disease is variable. We analyzed the clinical profile, sensitivity of various diagnostic parameters, and survival pattern of patients from a period of 2011 to 2016.
Methods The medical records of all patients with definite diagnosis of WD, who were admitted in M C H, Trivandrum from a period of 2011 to 2016 were analyzed to obtain clinical manifestations. The survival status of patient was determined by a prospective follow up. The Kaplan-Meier survival curve and univariate Cox proportional hazards model were used to determine the survival pattern and risk for death.
Results A total of 33 patients were studied of which 17 (51.5 %) were males and 16 (48.5 %) were females. Twenty-six (79 %) patients presented with initial hepatic manifestations and 7 (21 %) patients presented with initial neurological manifestation and all 7 patients with initial neurological presentation progressed to cirrhosis. Out of the total 33 patients with hepatic involvement 31 had cirrhosis, 2 presented with chronic hepatitis. Out of the cirrhotic patients 16 belonged to Child C, 10 belonged to Child B and 5 belonged to Child A. Most common symptom at disease onset for those with initial hepatic manifestation was jaundice 9 (34 %) followed by ascites 7 (26 %) upper gastrointestinal bleed in 3 (11 %), hemolytic anemia in 2 (7 %), pedal edema in 2 (7 %), transaminitis, fatigue and hepatic encephalopathy in one each. For those with initial neurological manifestation tremor 6 (85 %) was the commonest symptom at disease onset, and dysarthria was present in 2 patients along with tremor and one patient presented with psychiatric symptoms. Mean age at diagnosis for hepatic 24.2 years and neurologic 25.6 years (p value 0.77). Mean delay of diagnosis was 10.9 months, for neurologic 18.1 months, for hepatic 3.7 months with (p value 0.01). Twenty-three (88 %) patients with hepatic manifestation had KF ring and all 7 (100 %) patients with neurological presentation had KF ring. Mean ceruloplasmin value was 8.3 mg/L. 24 h urine copper was high (>100 mcg/day) in 24 (73 %) patients and mean value was 246 mcg/day. Out of 26 patients with hepatic presentation, 9 patients are alive and 17 died over a period of 5 years follow up. Four patients underwent liver transplantation of which one died and 3 are doing well. The Kaplan-Meier survival analysis provided an overall survival for the patients. The mean overall survival was 5.1 year, for hepatic 3.2 years and neurologic 14.3 years. Log rank test was done was done to assess any significant difference in survival between two groups and p value was significant (0.01). Cox proportional hazard analysis provided hazard ration of 7.71 times with confidence interval 0.989- 60.19 for patient with hepatic presentation as compared to neurological presentation.
Conclusion There is significant delay in the diagnosis of Wilson's disease in patients with initial neurologic presentation compared to hepatic presentation. Patient with hepatic presentation had a significant mortality risk compared to those with neurological presentation.



Means and medians for survival time in months

Category	Mean[a]			Median				
Estimate	se	95 % Confidence Interval		Estimate	Std. Error	95 % Confidence Interval		
Lower Bound	Upper Bound	Lower Bound	Upper Bound					
Hepatic presentation	26.022	3.341	19.473	32.571	24.000	3.574	16.995	31.005
Neurological presentation	61.111	15.740	30.261	91.962	.	.	.	.
Overall	42.132	7.219	27.983	56.281	36.000	4.830	26.533	45.467

Overall Comparisons

	Chi-square	df	p
Log Rank (Mantel-Cox)	2.040	1	.153

Test of equality of survival distributions for the different levels of category.

		Hepatic presentation		Neurological presentation		Total		χ^2	df	p
		N	%	N	%	N	%			
sex	Male	12	50	5	55.6	17	51.5	0.081	1	0.776
	Female	12	50	4	44.4	16	48.5			
	Total	24	100	9	100	33	100			
child	A	2	9.1	3	33.3	5	16.1	5.034	2	0.081
	B	6	27.3	4	44.4	10	32.3			
	C	14	63.6	2	22.2	16	51.6			
	Total	22	100	9	100	31	100			

		Hepatic presentation		Neurological presentation		Total		χ^2	df	p
		N	%	N	%	N	%			
Status	Dead	16	66.7	3	33.3	19	57.6	2.977	1	0.084
	Alive	8	33.3	6	66.7	14	42.4			
	Total	24	100	9	100	33	100			

	Hepatic presentation		Neurological presentation		Total		χ^2	df	p
	N	%	N	%	N	%			
dysarthria	0	0	5	55.6	5	15.2	15.714	1	0.000
tremor	0	0	8	88.9	8	24.2	28.16	1	0.000
ataxia	0	0	1	11.1	1	3	2.75	1	0.097
incordina	0	0	4	44.4	4	12.1	12.138	1	0.000
spasticity	0	0	6	66.7	6	18.2	19.556	1	0.000
juandice	13	54.2	2	22.2	15	45.5	2.694	1	0.101
hep ence	5	20.8	0	0	5	15.2	2.21	1	0.137
splenome	20	87	7	77.8	27	84.4	0.413	1	0.520
hepato	9	37.5	5	55.6	14	42.4	0.874	1	0.350
GI bleed	2	8.3	1	11.1	3	9.1	0.061	1	0.805
Ascites	15	62.5	3	33.3	18	54.5	2.246	1	0.134
KF ring	21	87.5	9	100	30	90.9	1.238	1	0.266
Alf	2	8.3	0	0	2	6.1	0.798	1	0.372
d pencill	20	87	8	88.9	28	87.5	0.022	1	0.882

	Hepatic presentation		Neurological presentation		t	p
	mean	sd	mean	sd		
Age in years	27.5	10.8	27.0	11.6	.107	.916
Age at diagnosis in years	25.2	11.7	22.4	10.7	.616	.542
cerupl	8.8	3.7	6.7	3.2	1.547	.132
24 h u cu	233.8	307.8	280.0	132.0	.432	.669
Delay in diagnosis in months	3.54	2.50	12.89	26.71	1.740	.092

LO-73

Validation study predicting 30 and 90 day mortality in alcoholic hepatitis using MAGIC score versus Maddrey's discriminant function

A Iyer, *K Devadas, P Sudheendran, S Yadav, S Fathima, S Sreesh, S Sathar*
Department of Medical Gastroenterology, Government Medical College and Hospital, Thiruvananthapuram 695 011, India

Background and Aim Alcoholic hepatitis can present as an acute-on-chronic liver failure with consequent mortality. This study aimed at assessing the 30 and 90 day mortality of severe alcoholic hepatitis and to compare model for ah to grade the severity. In an asian patient cohort (MAGIC) vs. Maddrey's discriminant function (mDF) on a cohort of patients in our hospital.
Methods This study was a retrospective observational analysis of patients admitted between January 2012 and December 2015 in the Gastroenterology Department of a tertiary care hospital. Clinical and laboratory data of patients, on admission and at day 7 of admission, were collected and analyzed. Patients treated with glucocorticoids or pentoxifylline during the first 7 days of hospitalization were excluded. The mortality data were collected via telephonic contact. The ability of each score to predict mortality was evaluated using receiver operating characteristic curves (ROC). The area under ROC was used to compare the scores.
Results The total number of patients with AH was 150 but 62 patients were excluded. Eighty-eight (n=88) patients were included aged 45.6±7.6 years with mean follow up of 80.7 days. The 30 and 90 day mortality was 23.9 % and 47.7 % respectively. Based on the derived MAGIC score, risk stratification was performed and four risk groups were taken with cut-off scores of 0–28.9 (group A), 29–36.9 (group B), 37–45.9 (group C) and equal to or more than 46 (group D) based on the different survival probabilities (p<0.001). Kaplan-Meier survival analysis was performed to compare cumulative survival probabilities according to the cut-off scores. Survival probabilities for mDF<32 and mDF>32 were 100 % and 42.25±4.46 % respectively (p value=.0001).

Conclusion In our study mDF had a better predictive performance than MAGIC score.

MAGIC Score=10×{2.8007× ln (PT INR)+0.9321 × ln (creatinine)+0.3325×potassium+ 0.0651×SCBL+0.0826×total bilirubin at day 0−0.0856×total bilirubin at day 0×ln (PT INR)}

Gallbladder and Biliary Diaseases

GB-01

Caroli's syndrome with medullary sponge kidney

***Nikita Madgam**, Ira Shah*

Pediatric Hepatology Clinic, Department of Pediatrics, B J Wadia Hospital for Children, Acharya Donde Marg, Parel, Mumbai 400 012, India

Introduction Caroli's syndrome is rare congenital anomaly associated with spleen, pancreas or kidney abnormalities. Mostly Caroli's syndrome is associated with autosomal recessive polycystic kidney disease (ARPKD) and rarely with medullary sponge kidney.
Case We present a 2½ month old male child whose antenatal ultrasound (USG) showed left renal pelvis prominence with hepatomegaly with prominence of biliary channels. USG abdomen on day 3 of life showed dilated biliary radicals and medullary cysts in kidney. USG at the age of 2 months showed mild to moderate dilatation of the intrahepatic biliary radicles in the right and the left lobes. Common bile duct (CBD) was dilated. Right kidney measured 7.6 × 4.2 cm and left kidney 7.6 × 4.3 cm and there were multiple tubular dilatations seen indicating ductal ectasia. Some of these ducts show cystic dilatations, the largest being 9 × 4 mms in the right kidney and 12 × 11 mm in the left kidney. Liver and renal function tests were normal. Urine examination was normal. There was no acidosis and blood pressure was normal. On follow up, he continued to have normal liver and renal functions, Doppler of portal system has remained normal and blood pressure continues to be in the normal range. Currently the child is 2 years of age and has no portal hypertension or liver or renal dysfunction.
Conclusion Medullary sponge kidney is a rare association with Caroli's disease. They require long term follow up in view of progressive portal hypertension, stones and chronic kidney disease.

GB-02

HIV cholangiopathy: Case series from a tertiary referral centre

Sukrit Sud, Ajay Kumar, S Srivastava, S Sachdeva, A S Puri
Department of Gastroenterology, G B Pant Institute of Postgraduate Medical Education and Research, 1, Jawaharlal Nehru Marg, New Delhi 110 002, India

Background HIV cholangiopathy is characterized by abnormalities of the bile ducts. It is seen in patients with advanced AIDS and low CD4 count. With the advent of HAART it is now considered a rare entity.
Objective To describe the clinical profile, diagnostic investigations and ERCP findings of 3 cases with AIDS cholangiopathy.
Methods Three cases of HIV cholangiopathy from March 2015 to June 2016 were assessed with a battery of laboratory tests including HIV by ELISA,CD4 counts, Chest X-ray, USG abdomen, CECT abdomen, MRCP, ERCP and ampullary biopsy. Three patients with HIV cholangiopathy.
Results All three cases showed MRCP changes of HIV cholangiopathy and CD4 counts were in the range of 54–76/cumm and no opportunistic infection found in stool or ampullary biopsy. HAART was started in all patients and follow up showed improvement in CD4 counts and symptoms. One patient had disseminated tuberculosis and was started on ATT prior to HAART and showed clinical improvement.
Conclusion HIV cholangiopathy cases showed response to HAART.

GB-03

Role of endoscopic ultrasound in gallbladder cancer resectability and IAC lymph nodal assessment

***K Arivarasan**, S Srivastava, P Sakhuja, A S Puri*
Departments of Gastroenterology and Pathology, G B Pant Institute of Postgraduate Medical Education and Research, 1, Jawaharlal Nehru Marg, New Delhi 110 002, India

Aim IAC lymph node involvement in carcinoma gallbladder (GBC) is equivalent to distant metastasis and associated with dismal prognosis. Ability of endoscopic ultrasound (EUS) to predict nodal status in GB cancer has not been well studied. The aim of this study was to assess the role of EUS in GBC resectability and IAC lymph node assessment.
Methods This was a retrospective data analysis, All cases of CA gallbladder subjected to EUS for IAC LN assessment between July 2014 to July 2015 were included. Resectability status as per EUS and other imaging techniques were noted. The study was done in the Department of Gastroenterology, GIPMER, New Delhi.
Results A total of 90 patients were included in the study. Majority of the study population were >45 years of age (72 %) and were females (72 %). The mean duration of symptoms was 2.5±2 months. Pain was the most common presenting complaint (97.8 %). Vascular involvement by CT was detected in 11 (12 %) patients compared to 41 (54 %) patients on EUS. IAC lymph nodes were detected in 34 (38 %) on CT compared to 45 (50 %) on EUS (p-0.02). 20/45 patients with IAC LN on EUS were positive for malignancy on EUS guided FNAC. Sixteen (18 %) patients were identified to be unresectable by CT compared to 48 (53 %) patients on EUS.
Conclusion EUS is an useful adjunct modality for assessing resectability in GBC. IAC lymph nodes were better detected by EUS. Vascular involvement was identified better by EUS compared to CT imaging.

Endoscopy

ES-01

Endoscopic ultrasound in unexplained common bile duct dilatation

Alok Kumar Mantri, Siddharth Srivastava, Ajay Kumar, Sanjeev Sachdeva, Amarender Singh Puri
Department of Gastroenterology, G B Pant Institute of Postgraduate Medical Education and Research, 1, Jawaharlal Nehru Marg, New Delhi 110 002, India

Background Dilated common bile duct (CBD) without obvious cause is a not uncommon finding on magnetic resonance cholangiopancreatography (MRCP). The aim of this study was to evaluate the diagnostic performance of endoscopic ultrasound (EUS) in patients with unexplained dilated CBD on MRCP.
Methods Patients with dilated CBD without any cause found on MRCP, whom underwent EUS between March 2013 to January 2016, were included in study. The data was analyzed with respect to liver function tests, clinical findings and EUS findings.
Results One hundred and four patients (84 (83 %) females; mean age 50.2 ±13 years) with dilated CBD were included in the study. Eighteen (17.4 %) patients had abnormal liver function tests. In 50 patients (48 %), etiologic diagnosis reached after EUS examination. CBD stones in 14 (13.5 %) with largest size of CBD stone being 8 mm, mass in CBD in 4 (4 %), periampullary diverticula in 10 (9.6 %), pericholedochal lymphnode in 5 (4.8 %), benign biliary stricture in 3 (3 %), biliary stricture with underlying chronic pancreatitis in 1 (1 %) patient respectively. Presence of symptom (p=0.001), abnormal LFT (p=0.01), and CBD diameter cut-off >10 mm (0.001) were found to be significantly associated with new findings on EUS.

Conclusions EUS is a useful investigational modality for patients with unexplained dilated CBD on MRCP. CBD stone is the most common etiology behind unexplained CBD dilatation.

ES-02

Novel method of placing mouth guard for band ligation of esophageal varices in liver cirrhosis patients with severe oral submucous fibrosis

***Vijay Sharma**, Gaurav Gandhi, Richa Sharma*
Department of Gastroenterology, Manipal Hospital, Sector 5, Main Sikar Road, Vidhyadhar Nagar, Jaipur 302 013, India, Medipulse Hospital, E4, MIA, Basni II Phase, Opposite AIIMS Campus, Jodhpur 342 005 India and Regional Institute of Health, Medicine and Research, Jaipur, India

Introduction Oral submucous fibrosis (OSMF) is a chronic disease characterized by stiffening of oral mucosa leading to limitation of opening the mouth. This is largely due to fibroblastic changes resulting in transformation of the juxtaepithelial layer and accumulation of collagen in lamina propria. Other characteristic features of this disease include palpable fibrous bands in lips, buccal mucosa, soft palate and contraction of uvula. In advanced stages widespread involvement of oral cavity is reported with varying degrees of fibrosis at different sites. Hypomobility of the tongue due to fibrosis of the floor of the mouth is often noted with the progression of disease. Histologically epithelial atrophy alongwith hyalinisation of juxtaepithelial layers and increased collagen accumulation in submucosa are pathognomonic diagnostic features. The disease is reported mostly in the Indian subcontinent, arecoline, an alkaloid present in Arecanut (Arecca catechu) has recently been implicated as the major risk factor. Since patients with submucosal fibrosis are mostly unable to open their mouth, pediatric or indigenous mouth guard is used, but band ligator when placed over the gastroscope can not pass through the mouth guard. We have innovated a new method of doing the same.
Methods All patients suffering from severe OSMF (*Khanna and Andrade grade 4, incisor distance 15* mm or less) attending the endoscopy room with history of portal hypertension, upper gastrointestinal bleed; large esophageal varices that need band ligation were included in study. No sedation was used. Olympus 180 series and Pentax endoscope were used following 4 % Xylocaine topical anesthesia. These patients were able to hold pediatric mouth guard or indigenous mouth guard. As scope with band ligator attached to its tip cannot pass through small mouth guard, we first placed the month guard over the scope, and then we placed the band ligator. Mouth guard was slipped to tip of endoscope abutting cylinder to save scope from dental trauma. First the tip of the gastroscope with band ligator placed in mouth, carefully avoiding bite, as scope end was hold tight to fix mouth guard with cylinder, avoiding over pressure causing release of bands and slipping out of cylinder. Then small mouth guard fixed between the teeth. After securing mouth guard position, we pushed endoscope in throat than in esophagus. We could do band ligation very well in all the patients. While withdrawing, we again fixed the ligator cylinder at inner end of mouth guard, asked the patient to try wide opening the mouth, and securely pulled out the whole assembly. Finally scope tip cleared of cylinder, then mouth guard also removed.
Results and Discussion Total five Indian male patients, aged 28 years to 51 years underwent this procedure over 6 months. Procedures were safe and successful in all the patients. We did not find any published literature describing this technique. It seems to be very simple technique to do in day to day endoscopy practice. One study from Allahabad, India described use of indigenously made mouth guard for OSMF patients.
Conclusion We first time report our experience of using over the scope pediatric or indigenously made mouth guard and band ligator assembly in cirrhosis patients with grade 4 oral sub mucosal fibrosis requiring endoscopic band ligation.

ES-03

Our experience of managing iatrogenic esophageal carcinoma perforation with covered esophageal self-expandable metal stents

***Vijay Sharma**, Suresh Saini, Sri Chand Saini, Richa Sharma*
Department of Gastroenterology, and Endoscopy Unit, Manipal Hospital, Sector 5, Main Sikar Road, Vidhyadhar Nagar, Jaipur 302 013, India, and Department of Public Health, Regional Institute of Health, Medicine and Research, Jaipur, India

Background Iatrogenic esophageal perforation can be a devastating event with esophageal carcinoma. The report summarizes our experience of managing these patients with covered
Method Over a last 12 months period, three male patients of 63, 68 and 78 years of age, with dysphagia, two were diagnosed mid esophageal squamous cell carcinoma, one gastroesophageal junction adenocarcinoma. While trying to cross stricture with gastroscope after dilatation, two patients complained of severe chest pain just after endoscopy, we suspected esophageal perforation. One patient presented later with respiratory distress, chest pain radiating to inter-scapular region, increased pulse rate, total leukocyte count. Esophageal leak was confirmed by gastrograffin swallow followed by contrast enhanced compound tomography (CECT) of chest, left sided pleural effusion in one patient, while free abdominal air CECT of patient with gastroesophageal junction carcinoma. Patients kept on continuous Ryle's tube suction, Injection Piperacillin tazobactam and Linizolid, intravenous fluid, proton pump inhibitor, prokinetics, oxygen inhalation, analgesic and supportive treatment. After informed consent, we placed covered esophageal metal stent endoscopically utilizing moderate sedation and fluoroscopy. No drainage of chest collection was required as patients presented in time, were well managed conservatively and recovered well. Leak closure was confirmed by gastrograffin swallow. All patients were able to initiate oral nutrition within 72 h of stent placement. Blood reports and vitals normalized, repeat chest X-ray after 3 days revealed well placed covered stent. One patient developed basal pneumonia with left sided pleural effusion and basal atelectasis which did not require drainage. Hospital stay was 5 days in mid esophageal leak without effusion, 3 days in GE junction leak, 9 days in mid esophageal leak with minor respiratory complications. Later patients complained of chest pain radiating to inter-scapular region and occasional hiccough on follow up. Were able to tolerate feed, getting chemotherapy under oncologist care.
Conclusion Covered esophageal stent placement is an effective method for esophageal carcinoma leak closure, Benefits by early oral nutrition, reduced morbidity and mortality and hospital length of stay, these stents are removable, and avoid surgery.

ES-04

Practice of sedation during diagnostic gastrointestinal endoscopy-Will it improve patient's acceptance?

***Nimesh Kumar Tarway**, R Ravi, M Srinivas, B Mahadevan, V Srinivasan, V P Rajavel, C G Sridhar*
Department of Medical Gastroenterology, Global Health City, Chennai 600 100, India

Introduction Endoscopic procedures are backbone of diagnosis and therapy in clinical gastroenterology. There is limited data available on practice of sedation in diagnostic gastrointestinal endoscopy (GIE) and its effect on patient comfort and safety from the Indian subcontinent.
Aim We conducted a study on practice of sedation and its effect on patient safety and comfort during diagnostic esophagogastroduodenoscopy (EGD), sigmoidoscopy and colonoscopy.

Methodology Patient comfort during GIE was monitored using gloucester comfort scale (GCS) as prescribed in global rating scale (GRS) and safety indicators were monitored as recommended by GRS: Canada. Propofol with fentanyl was used for sedation in all patients opting for endoscopy under sedation.
Results Five hundred and four patients undergoing OGD (348; 69.0 %), sigmoidoscopy (65; 12.9 %) and colonoscopy (91; 18.1 %) were studied. Amongst them 121 (24 %) patients opted for sedation {OGD; 39 (11.2 %), sigmoidoscopy; 9 (13.8 %), colonoscopy; 73 (80 %)}. Comfort level was significantly higher in sedation group ($p<0.0001$). Sixty-two percent (75/121) patient in sedation group rated there experience better than expected compared to 16.4 % (63/383) patients in without sedation group ($p<0.0001$). 25.8 % (99/383) patients who underwent endoscopy without sedation said that they will prefer sedation if GIE is required in future. There was no effect of age, gender and previous endoscopy on choice of sedation. Sedation had no significant effect on duration of procedure. There were no clinically significant adverse effect noted except transient hypoxia (10.7 %) and hypotension (11.6 %).
Conclusion Study shows that sedation significantly improves patient comfort and will increase acceptance for diagnostic GIE. Complications with propofol are transient and easily manageable.

ES-05

Our experience in endoscopic ultrasound in a tertiary center from North East India

***Mukesh Agarwala**, Arvind Kelkar, Kamal Chetri, K S Prasanna, Dul Deka*
Departments of Gastroenterology and Hepatology, and Anesthesia, International Hospital, Lotus Tower, G S Road, Guwahati 781 005, India

Introduction Endoscopic ultrasound (EUS) is an important modality for evaluation of pancreatico biliary disorders, sub mucosal lesions, cancer staging and mediastinal lesions with added advantage for diagnosis and therapy.
Methods We analyzed data of 101 consecutive patients who underwent EUS for various indications in our center. Nine patients among this group underwent FNAC. All the cases were done under general anesthesia.
Results The most common indications were pancreatic lesions (43 %) followed by extrahepatic biliary obstruction (43 %). Other indications were upper GI (7.9 %) and mediastinal (4.9 %) lesions. The findings in EUS were choledocholithiasis (20.8 %), acute and chronic pancreatitis (23 %), pancreatic pseudocyst (15.8 %), nodal mass (4 %), pancreatico mass lesions (8.9 %), sub mucosal lesions (6.9 %) and others (esophageal wall thickening −2 patients and dilated CBD in 1 patient). EUS was normal in 17.8 % of patients. FNAC was done in 9 patients. Exophytic esophageal mass in 1 patient came out to be adenocarcinoma, periampullary including pancreatic mass in 5 patients out of which in 4 patients' diagnosis was confirmed to be malignancy. In three patients it was done for enlarged sub carinal nodes and in 2 out of 3 the diagnosis was confirmed. We did not do any therapeutic intervention till now.
Conclusion EUS is an important diagnostic and therapeutic modality in the armamentarium of Gastroenterologists. Has great value in confirming diagnosis using FNAC.

ES-6

Profile of upper gastrointestinal bleed from North East India

***Mukesh Agarwala**, Arvind Kelkar, Kamal Chetri, K S Prasanna, P P Roy*
Departments of Gastroenterology and Hepatology, International Hospital, Lotus Tower, G S Road, Guwahati 781 005, India

Introduction Upper gastrointestinal (GI) bleed is an important GI emergency. It has high morbidity and mortality especially in the setting of chronic liver disease. Early intervention is the key for management.
Methods Patients with history of upper GI bleed who underwent gastroduodenoscopy were recruited in the study over a period of 3 months.
Results Total of 55 patients were included in the study. 85.5 % were male. Most patients were in 40–60 year age group (38.2 %). Esophageal varices and duodenal ulcer were major causes of bleed (32 % an 29 %). Other causes were Mallory-Weiss tear (9 %), malignancy (9 %), gastric ulcers (5.5 %) and other causes including GAVE And PHG constituted 14.5 %. Most of the cases presented to us after 72 h (38 %) as malena (63.6 %). Sign of recent hemorrhage was documented in only 32.7 % of patients. Major endoscopic interventions performed were endoscopic band ligation for varices, adrenaline injection and hemoclip application for peptic ulcers. Two patients had rebleed and were successfully treated. One patient in the study group died and was not directly related to GI bleed.
Conclusion Esophageal varices followed by duodenal ulcer were common cause of upper gastrointestinal bleed. Most of them presented with malena after 72 h.

ES-07

Use of hemospray for gastrointestinal bleeding: A single tertiary care centre experience from Western India

***Nikhil Sonthalia,** Samit S Jain, Ravindra G Surude, Ashok R Mohite, Vinay Pawar, Sanjay Chadnani, Pravin M Rathi, Qais Contractor*
Department of Gastroenterology, Topiwala National Medical College and B Y L Nair Hospital, Dr. A L Nair Road, Mumbai 400 008, India

Backgrounds and Aims The aim was to reflect the uses and effectiveness of hemospray for hemostasis in patients of gastrointestinal bleed (GIB) at a tertiary care centre.
Methodology We did a retrospective analysis of a prospectively maintained data base of patients who presented with upper or lower GIB from July 2014 to June 2016. Patients where hemospray was used either as a salvage therapy after a failed hemostasis or as an add on to the standard methods or as monotherapy were identified and analyzed.
Results Out of 284 patients of GIB, hemospray was used in 15 (5.28 %) patients. Out of 15, 9 (60 %) had significant co-morbidity and 3 (20 %) had shock at presentation. All of these patients received maximum 20 gms of hemospray. Cause for bleeding included duodenal ulcer in 5 (33.33 %), gastric ulcer 3 (20 %), esophageal ulcer 2 (13.33 %), postpolypectomy bleed 2 (13.3 %), gastric carcinoma 1 (6.66 %), Mallory-Weiss tear 1 (6.66 %), post sphincterotomy bleed 1 (6.66 %). The nature of bleed was oozing in 12 (80 %) and spurting in 3 (20 %). Hemospray application was salvage therapy or as an add on in the same endoscopic session in 12 (80 %) patients. Hemostasis in this group was seen in 11 (91.66 %). When used as monotherapy initial hemostasis was seen in 2 out of 3 patients. Rebleeding within 7 days was seen in 2 (13.33 %) patients.
Conclusion Hemospray is an effective hemostatic agent in various clinical situations with GIB, especially when used as a salvage therapy or as add-on therapy.

ES-08

Comparison of risk scores in upper gastrointestinal bleed- A single tertiary care centre study in western India

***Sanjay Chandnani**, Suhas Udgirkar, Nikhil Sonthalia, Vinay Pawar, Ashok Mohite, Ravindra Surude, Pravin Rathi, Qais Contractor*

Department of Gastroenterology, Topiwala National Medical College and B Y L Nair Hospital, Dr. A L Nair Road, Mumbai 400 008, India

Background and Aims Upper gastrointestinal bleed (UGIB) causes significant morbidity and mortality all over the world.
Aim of our study was to identify risk scores predicting admission, need of intervention, etiology and mortality of upper GI bleed.
Methods Fifty consecutive patients having upper GI bleed were enrolled prospectively from January 2016 till March 2016. Follow up up to 28 days was done. Risk scores were compared for predicting in terms of mortality, admission, need for blood transfusion and intervention.
Results Out of 50 consecutive patients 36 were males. Forty-three percent presented with hematemesis, 36 % with both hematemesis and malena while 14 % with isolated malena. Six had normal upper GI endoscopy of which 4 patients had Rockall score of 0. GBS scores with less than 6 had less likely requirement of blood transfusion. Variceal bleed accounted to 56 % of all bleeds followed by nonvariceal 32 % with PUD 22 %. Mallory-Weiss tears accounted 8 %. Rockall score more than 6 had greater duration of stay and rebleeding, while score less than 2 could be managed on outpatient basis. GBS score more than 8 better predicted need for transfusion and intervention.
Conclusion GBS is a better predictor for need of intervention, blood transfusion and intensive care, while Rockall and GBS both are equally good for predicting mortality. Rockall score of less than 2 and GBS score less than 2 termed as low risk can be managed on outpatient basis.

ES-09

New criteria for identification of accessory spleen on endoscopic ultrasound

Pradeep Kumar Siddappa*, Neha Naithani, Monika Jain, Gurwant S Lamba*
Department of Gastroenterology and Hepatology, Sri Balaji Action Medical Institute, A-4, Paschim Vihar, Delhi 110 063, India

Introduction Accessory spleen (AS) is a common congenital anomaly. It could be mistaken to be mass lesion on EUS.
Methods In this prospective observational study consecutive patients who underwent EUS for various indications were evaluated for the presence of AS. Lesions seen in the splenic hilum, tail of pancreas and groove between spleen and left kidney were noted. Patients with classical EUS features of lymph nodes, lesions smaller than 4 mm and obvious mass lesions in the tail of pancreas (AS predominent region) were excluded. Round lesions, isoechoic to spleen in the above location without similar lesions in the obvious lymph node regions were considered to be AS and included.
Results EUS was performed in 350 for various indications. Thirty-six (10.3 %) patients presented with lesions in the AS predominant region, 8 (22.2 %) were lymph nodes, 2 (5.5 %) were mass lesions, 20 (57.1 %) had lesions suggestive of AS and 6 (16.7 %) lesions could not be classified accurately. Prevalence of AS like lesions was 5.7 %. Mean these patients was 44.3±19.1 and 15 (75 %) were female. Among those with AS features 4 (20 %) were seen in the splenic hilum, 8 (40 %) in the splenorenal groove and 8 (40 %) in the tail of pancreas. They were single in 18 (90 %) patients and 2 in 2 (10 %) patients. The mean diameter of the lesion was 9.7±6.4 mm.
Conclusion We propose that any lesion more than 4 mm in the AS predominant region on EUS which is round and isoechoic to spleen should be considered an AS and FNA of such lesions should be avoided.

ES-10

Endoscopic ultrasound guided omental fine needle aspiration: A novel technique for diagnosing malignant ascites

Pradeep Kumar Siddappa*, Monika Jain, Gurwant Lamba*
Department of Gastroenterology and Hepatology, Sri Balaji Action Medical Institute, A-4, Paschim Vihar, Delhi 110 063, India

Introduction Diagnostic abdominal paracentesis has been described in literature to have a variable sensitivity of 50 % to 97 % to detect malignancy. We believe that omental FNA even in the absense of obvious deposits under EUS vision could detect malignant cells due to microscopic
Methods In this pilot study, consecutive patients with suspected malignant ascites who underwent EUS for staging or FNA were included after informed consent. Patients who had obvious deposits in the omentum and those with medical conditions preventing use of sedatives were excluded. EUS guided FNA from omentum was performed in these patients through the transgastric route using a linear echoendoscope.
Results Fifty-four patients underwent EUS for detection, staging or for FNA of a malignant lesion, ascites was seen in 12 patients. Mean age was 61.6 years, 8 (66.7 %) were females. All of them underwent transgastric FNA. Malignant cells were seen in 10 (83.3 %) and absent in 2 (16.7 %). Immunohistochemistry identified adenocarcinoma in 5 and poorly differentiated malignany in 1. Ovarian malignancy was seen in 3, gallbladder in 2, colon, endometrium, pancreas and breast were seen in 1 each. Both patients who negative for malignant cells had malignant biliary strictures with deep jaundice. Ascitic fluid analysis also did not reveal malignant cells in them. None of the patients developed any procedure related complication.
Discussion EUS FNA of omental FNA is a safe and sensitive method for detection of malignant ascites. Ascites in patients with jaundice and biliary stricture could be due to liver dysfunction.

ES-11

Hands-on training on porcine models for endoscopic submucosal dissection and per-oral endoscopic myotomy - Does it help training of physicians for these advanced procedures?

Amol Bapaye*, Nachiket Dubale, Mahesh Mahadik, S S R Gangireddy, Rahul Lokhande, Rajendra Pujari, Viral Vyas, Shivangi Dorwat, Pankaj N Desai*
Shivanand Desai Center for Digestive Disorders, Deenanath Mangeshkar Hospital, Erandwane, Pune 411 004, India and Surat Institute of Digestive Sciences, Vijay Nagar Gate No-3, Besides Nirman Bhavan, Majura Gate, Surat 395 002, India

Background Expertise in procedures like endoscopic submucosal dissection (ESD) and per-oral endoscopic myotomy (POEM) is limited to few select centers and training has been difficult. We developed a special fresh cadaver porcine model for ESD and POEM training at our center. During a 12-month period, four hands-on training workshops were conducted. This study aims to evaluate the impact of this training program.
Methods One hundred and sixteen participants enrolled for 2-day ESD/POEM workshops completed a feedback form. Each physician was contacted after 8-months for a survey whether any procedures had been initiated, reasons for non-initiation, type and number of procedures performed, difficulties faced, need for additional training.
Results One hundred and two responded via feedback form and were inclined to perform these procedures within 6- months. Of these, 88 participants (75.8 %) could be contacted for the post workshop telephonic survey. 23/88 (26.1 %) confirmed having attempted and 22/88 (25 %) successfully performed either ESD or POEM within 6-months. ESD was performed by 15 (17 %), POEM by 4 (4.5 %) and both ESD and POEM by 3 (3.4 %) physicians. No significant adverse events were reported. Amongst 65 who did not initiate any procedure, 40 (61.5 %) cited lack of instrumentation and infrastructure as the reason, 9 (13.8 %) mentioned lack of suitable patients and 12 (18.4 %) requested additional training.
Conclusions Current study shows significant impact of hands on training models with 25 % participants initiating ESD and POEM. Such workshops may serve as an important platform for aspiring endoscopists to train in these advanced procedures.

ES-12

Study of upper gastrointestinal bleeding in cardiac patients

Neeraj Nagaich, *Saumya Mathur, Radha Sharma, Chandraprakash Tanwar, V Kavitha, Alok Chaudhry, Ila Gupta, Ritesh Sharma, Subhash Nepalia*
Department of Gastroenterology, Fortis Escorts Hospital, J L N Marg, Malviyanagar, Jaipur 302 017, India, Department of Gastroenterology, M G Medical College, Riico Institutional Area, Sitapura, Tonk Road, Jaipur 302 022, India, and Department of Gastroenterology Metro MAS Hospital, Shipra Path, Near Technology Park, Mansarovar, Jaipur 302 020, India

Background Upper gastrointestinal bleeding (UGIB) can occur in cardiac patients affecting the prognosis, limited data is available on patient characteristics and predictors of outcome in this cohort.
Aim To describe the clinical and endoscopic characteristics of patients with UGIB in cardiac patients and characterize predictors of outcome.
Methods Prospective and retrospective study of 655 consecutive patients with UGIB in cardiac patients from 2013 to 2016. Demographic characteristics, therapeutic management, and predictors of outcomes were determined.
Results 71.1 % were male, mean age: 58.8±9.2 years, mean commonest symptoms included melena (49.4 %) or coffee ground emesis (35.8 %). Endoscopic evaluation (650 patients) yielded ulcers (73.5 %) with high-risk lesions in 39.5 %. Ulcers were located principally in the stomach (22.5 %) or duodenum (45.9 %). Many patients had more than one lesion, including esophagitis (30.7 %) or erosions (22.8 %). 37.8 % received endoscopic therapy. Mean lengths of intensive care unit and overall stays were 9.4±18.4 and 30.4±46.9 days, respectively. Overall mortality was 5.1 %. Only mechanical ventilation under 48 h predicted mortality (O.R=0.11; 95 % CI=0.04, 0.34).
Conclusion Most common cause of UGIB in cardiac patients was from ulcers or esophagitis; many had multiple lesions. ICU and total hospital stays as well as mortality were significant. Mechanical ventilation for under 48 h was associated with improved survival. Early diagnosis and prompt treatment can improve prognosis.

ES-13

Study of endoscopic ultrasound elastography for differentiating benign and malignant lymph nodes

Pallav Parikh*, S Parameswaran, P Piramanayagam, K R Palaniswamy, A T Mohan, U Srinivas, U Dhus, M Hariharan, M S Revathy, V P Seshadri, M Preethi, S Nayak, S Jhanwar*
Endoscopy, 2nd Floor, Department of Medical Gastroenterology, Apollo Main Hospitals, Off Greams Lane, Greams Road, Chennai 600 006, India

Background Endoscopic ultrasound (EUS) elastography is a technique for differentiating benign and malignant lymph nodes by describing mechanical property of target tissue. The difference in tissue stiffness between pathological and normal tissue can be detected during EUS as an elastography strain ratio.
Aim To evaluate diagnostic ability of EUS elastography to distinguish benign from malignant lymph nodes.
Objectives 1. To classify lymph node based on elastography score and calculate elastography strain ratio 2. To compare diagnosis based on elastography strain ratio/elastography score of lymph node with final pathological diagnosis 3. To determine sensitivity and specificity of EUS elastography and strain ratio.
Methods A single center study was conducted and included 27 patients who underwent EUS examination with assessment of lymph node. The classification as benign or malignant, based on elastography score and elastography strain ratio was compared with the final diagnosis obtained by EUS-guided fine needle aspiration (EUS-FNA).
Results According to ROC curve strain ratio cut off was 5.9. The sensitivity, specificity, positive predictive value and negative predictive value to differentiate benign from malignant lymph nodes were 85.7 %, 87.5 %, 78 % and 93.3 %, respectively for strain ratio and 100 %, 93.8 %, 87.5 % and 100 %, respectively for elastography score. The kappa coefficient was 0.70 for strain ratio and 0.90 for elastography score.
Conclusion EUS elastography is a promising modality with high sensitivity, specificity and accuracy that may complement standard EUS in the differentiation of benign and malignant lymph nodes and increase yield of EUS-FNA in case of multiple lymph nodes.

ES-14

Validation of Rockall score for risk stratifying patients with upper gastrointestinal bleed

Kayalvizhi Natarajan*, K R Pradeep, G Y Amit, N K Anupama, Naresh Bhat*
Department of Gastroenterology, Aster CMI Hospital, Bangalore 560 092, India

Introduction Several risk stratification scores have been used in assessment of patients with upper GI bleeding (UGIB). The aim of this study was to validate the Rockall score.
Methods All patients who presented to the hospital with an UGIB - within the study period from June 2014 to July 2016 were included in the study. After initial resuscitation patients underwent an upper GI endoscopy within 18 h of hospital admission. The pre-endoscopic Rockall score and the final Rockall score was calculated for all patients and mortality and rebleeding rates were assessed.
Results Of the 147 patients, 82 % were men. Variceal bleeding (35 %) and ulcer bleeding (25 %) were the most common causes of UGIB (Table 1). Eleven of the 147 patients (7.4 %), had a rebleed, 8 patients with variceal and 3 patients with ulcer bleeding. Six out of the 11 patients with a rebleed died. The overall mortality rate was 10.2 % (15/147 patients). Mortality was significantly higher in the variceal group (17.3 %) when compared to the non-variceal group (2.1 %). Patients with a Rockall score of ≤2 did not have rebleed or mortality. Rebleeding and mortality rates were 2.9 % and 5.8 % in patients with a score of 3 to 4, and 11.4 % and 10.3 % in patients with Rockall score of ≥5 (Fig. 1).
Conclusion The Rockall score is a useful score for predicting mortality and rebleeding in a patient with UGIB. It can be used to stratify patients into high and low risk groups.

Table 1

	***N*=147**
Mean age in years	53
M:F	120:27
Etiology	
Variceal	53 (35 %)
Ulcer	39 (25 %)
Esophagitis	18 (12 %)
MW Tear	16 (11 %)
Others	21 (17 %)
Rebleed	11 (7.4 %)
Variceal	8
Nonvariceal	3
Mortality	15 (10.2 %)
Variceal	13
Non-variceal	2

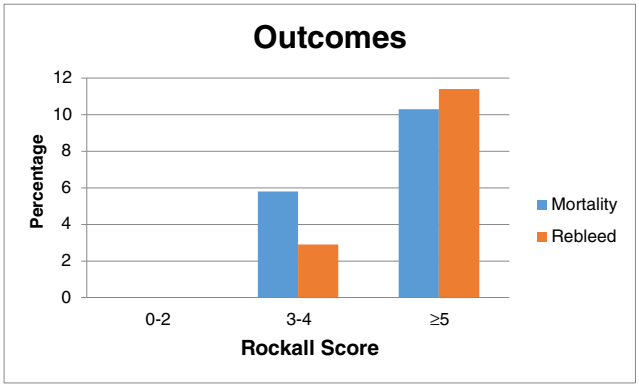


Fig. 1 Rockall score and outcomes

ES-15

Performance of various scores in predicting clinical outcome and intervention in acute upper gastrointestinal hemorrhage

Vamsidhar Reddy Vempalli
Narayana Medical College, Opposite Narayana Engineering College, Muthukur Road, Chinthareddypalem, Nellore 524 003, India

Background Upper gastrointestinal hemorrhage is a major cause of hospitalization and the most prevalent emergency worldwide, with a mortality rate of up to 14 %.
Aim To compare these scoring systems and to identify the most accurate score used in predicting unfavorable outcomes, the need for intervention, and the risk stratification in patients with confirmed UGIH.
Methods This was a hospital based, prospective, observational, validation study, with data from patients with a clinical and endoscopic diagnosis of UGIH treated between January 2014 and December 2015. We calculated the AUC for the ROC of the GBS and RS to predict mortality with a 95 % confidence interval.
Results A total of 176 patients were analyzed. Eighty-two percent were male and the mean was 51.16±14.13 years. Compared with post-E RS, the GBS was superior in predicting the need for blood transfusion rebleeding, and death in hospitalized patients with UGIH and was inferior in predicting the need for endoscopic therapy. Post-E RS was superior to GBS and pre-E RS in predicting the need for endoscopic therapy (AUC 0.67 vs. 0.60 vs. 0.58), respectively. The GBS was superior to Rockall scores in predicting the rebleeding (0.76 vs. 0.55 vs. 0.61, respectively), the need for blood transfusion (0.72 vs. 0.59 vs. 0.57, respectively) and mortality (AUC 0.97 vs. 0.75 vs. 0.79, respectively).
Conclusion Compared with post-E RS, the GBS was superior in predicting the need for blood transfusion rebleeding, and death in hospitalized patients with UGIH and was inferior in predicting the need for endoscopic therapy

ES-16

Risk factors for rebleeding and mortality in acute upper gastrointestinal bleeding in a tertiary care hospital in Kerala

Satheesh Balakrishnan, *Varghese Thomas*
Department of Gastroenterology, Government Medical College, Calicut 673 008, India

ES-17

Effectiveness of flexible endoscopy in the management of upper gastrointestinal tract foreign bodies: A prospective study

Shatdal Chaudhary, *Niraj Kumar Jaiswal, Pushpa Raj Dhakal, Akash Shahi, Krishna K Agrawal, Bickram Pradhan*
Gastroenterology Division, Department of Internal Medicine, Universal College of Medical Sciences, Bhairahawa, Nepal.

Introduction Foreign body ingestions are some of the most challenging clinical scenarios faced by gastrointestinal endoscopists. The commonly ingested foreign bodies are coins, toys, and batteries in children whereas impaction of either bone or meat bolus while eating are common in adults.
Objective The objective of this study was to study clinical profile of patients presenting with foreign body in the upper gastrointestinal tract and effectiveness of endoscopy as a therapeutic tool to manage it.
Methods It was a prospective study carried out in the endoscopy unit of Universal College of Medical Sciences, Bhairahawa, Nepal from 1 January 2013 to 31 December 2015. All the patients who underwent endoscopy with suspicion of ingestion of foreign body or features suggestive of an impacted foreign body in the upper gastrointestinal tract were enrolled in this study. Written informed consent was taken from patients and ethical clearance from institutional review board was taken. Foreign body was removed with appropriate endoscopic tools.
Results All together 54 patient were present to us in the study period with mean age of 35.07 years. There were 31 males and 23 females. Patients were from 5 surrounding district. Coins, meat balls and meat bone were the most common foreign bodies. Lesser common were battery, mango seed, safety pin, denture and fish bones. Endoscopy was successful in 49 (87.5 %) patients. There were no complication related to procedure.
Conclusion: Upper GI endoscopy is a safe and effective method in removing foreign body from upper GI tract.

ES-18

Cardiac incidentaloma picked on endoscopic ultrasound

Manish Jain, *Abid Soakat, Ashutosh Singh, Niti Jain*
Asian Globus Hospital, E-5/24, Arera Colony, Near Bittan Market, Arera Colony, Char Imli, Bhopal 462 016, India

We report a case of an asymptomatic cardiac myxoma picked up incidentally on EUS. A 57 year old female underwent an endoscopic ultrasound (EUS) examination to rule out common bile duct (CBD) stones in view of dilated CBD on abdominal ultrasound. EUS was done with a linear echoendoscope. Although CBD stones were not seen on EUS but systemic evaluation revealed a hyperechoic (approx 2.5 × 2.5 cm) mass in the left atrium (Fig. 1 and 2) (Video). An echocardiogram was performed which confirmed the presence of a mass hanging with thin pedicle arising just lateral to cusp of mitral valve in left atrium, with a heterogeneous appearance and a slight multilobulated contour (dimensions 2.5 —2.4-cm). The patient underwent complete surgical resection of the tumor and the histopathological analysis revealed a cardiac myxoma.

ES-19

Unusual presentaion of gastrointestinal amyloidosis

Varun Mehta, Charanpreet S Grewal, Ajit Sood, ***Sahil Nohria***
Dayanand Medical College and Hospital, Udham Singh Nagar, Civil Lines, Ludhiana 141 001, India

Amyloidosis refers to the extracellular tissue deposition of fibrils composed of low molecular weight subunits (5 to 25 kD) of a variety of serum proteins which circulate as constituents of plasma and deposit in tissues. The presentation is varied in form of macroglossia, a dilated and atonic esophagus, gastric polyps or enlarged folds, and luminal narrowing or ulceration of the colon. Amyloid deposition in the gastrointestinal (GI) tract is greatest in the small intestine. The symptoms include diarrhea, steatorrhea, or constipation. Hepatic involvement is common, but the clinical manifestations are usually mild with hepatomegaly and an elevated alkaline phosphatase level. We report 2 cases of GI manifestation of amyloidosis, first case was a 65-year-old male with diabetes, CAD and multiple myeloma who presented with lower GI bleeding and on colonoscopy revealed multiple ulcers in entire colon with adherent clot. Biopsy showed features of amyloidosis. Second case was of 60-year-old male who presented with weakness, fever, abdominal pain. General physical examination showed massive hepatomegaly with raised Alk phos and GGT. Subsequently liver biopsy was done and showed deposition of hyaline like eosinophilic extracellular material present in sinusoids and around the hepatocytes. Congo red stain showed green birefringence on polarizing microscope suggestive of primary amyloidosis. Both cases had unique and rare presentation, hence are rare GI manifestations of amyloidosis.

ES-20

The comparison of propofol alone and in combination with either ketamine or fentanyl for sedation in endoscopic ultrasonography procedures

Shweta A Singh, *S Sharma, G Dhakate, V Bhatia*
Department of Anaesthesiology, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Background Endoscopic ultrasonography (EUS) is an advanced day care endoscopic procedure which involves passing a scope down the esophagus to perform ultrasound and could take between fifteen minutes to more than an hour. The patient is sedated to prevent patient discomfort and to ensure better image quality. Propofol is the usual drug of choice due its favorable kinetics, anti emetic action and clear headed recovery. However there is a risk of hemodynamic instability and loss of protective airway reflexes in the presence of shared airway.

ES-21

Endoscopic evaluation of dyspepsia in people living with HIV/AIDS (PLHIV) on antiretroviral treatment

R Dewan, S Anuradha, Peeyush Kumar, L Khandelwal, V L Malsawmdawngliana, S Uppal
Department of Medicine, Maulana Azad Medical College and Lok Nayak Hospital, Bahadur Shah Zafar Marg, New Delhi 110 002, India

Background Dyspeptic symptoms mainly epigastric pain, epigastric fullness, nausea and vomiting are reported PLHIV on antiretroviral treatment, commonly due to antiretroviral therapy (ART), opportunistic infections and associated malignancies of gastrointestinal tracts. Most are treated empirically without endoscopic evaluation.
Objective To endoscopically evaluate PLHIV receiving ART, presenting with dyspepsia for upper GI lesions and to correlate mucosal histopathology with endoscopic findings, clinical symptoms and immune status.
Methods Fifty PLHIV on ART presenting with dyspepsia, underwent clinical evaluation, blood investigations, CD4 counts, UGI endoscopy and multiple mucosal biopsies were taken from stomach and duodenum.
Results Epigastric pain (56 %) and epigastric fullness (26 %) were predominant symptoms. UGI endoscopy was normal in 16 subjects. Among 34 with endoscopic findings, antral gastritis was seen in 33 (97 %), esophagitis in 8, erosive gastritis in 9, prepyloric ulcer in 4 and tracheoesophageal (TEF) fistula in 1. More than one lesions seen in 11. On histopathology, 100 % patients had evidence of gastritis, of them (54 %) had superficial chronic gastritis and (46 %) deep chronic gastritis. *H pylori* was found in 46 %. Nonspecific duodenitis was seen in (100 %) and giardia in 6 % of patients. TEF was due to caseating para-tracheal lymph node. A significant correlation between CD4 count of more than 200 with presence of *H pylori* was found (p=0.003). No correlation between symptoms and endoscopic findings, histology or CD4 count was found.

ES-22

Recurrent gastrointestinal bleed due to blue rubber bleb nevus syndrome: Responsive to sirolimus

Pavan Dhoble, *Devendra Desai, Philip Abraham, Anand Joshi, Tarun Gupta*
Division of Gastroenterology, P D Hinduja Hospital and Medical Research Centre, Mahim, Mumbai 400 016, India

We report a 15-year-old girl who presented with history of recurrent gastrointestinal (GI) bleed requiring repeated blood transfusions since age 6 years. She had multiple telangiectatic skin lesions all over the abdomen and extremities since birth. She was diagnosed with blue rubber bleb nevus syndrome (BRBN) and had received endotherapy with argon plasma coagulation (APC) on multiple occasions. She was also earlier treated with levonorgestrol+ethinyl estradiol, multiple blood transfusions and iron supplements. Despite recent increase in frequency of blood transfusions to 1–2 units per week (from 1 unit per month initially) she had persistently low hemoglobin (3–4 g/dL). Upper GI and colonoscopy and capsule enteroscopy revealed multiple venous blebs. APC was done for the gastroduodenal and colonic lesions. She was then started on sirolimus (rapamycin) 1 mg once daily, which is continuing to date. Over the follow up period of 8 months, she had no overt GI bleed or drop in hemoglobin. Sirolimus is an m-TOR inhibitor with antiangiogenic properties, and has been used as post-transplant immunosuppressant and for treatment of angiofibroma and lymphangioleiomyomatosis. Yuksekkaya et al. first reported use of low-dose sirolimus in an 8-year-old girl with BRBN with significant benefit on 20 months' follow up. Ferr's-Ramis reported one case, and Salloum et al. showed efficacy in four cases on 21-month follow up. Ours is probably the first such case reported from India; we believe the anti-angiogenic property of sirolimus helped in controlling bleeding from the GI blebs.

ES-23

Management outcomes in patients with post ERCP retroperitoneal perforations

Pritul D Saxena, *A S Puri, Sanjeev Sachdeva, Amol Dahale, Shivakumar Varakanahalli, Ajay Kumar*
Department of Gastroenterology, G B Pant Hospital, New Delhi 110 002, India

ES-24

Management outcomes in patients with post ERCP perforations

Pritul D Saxena, *V Shiva Kumar, Amol S Dahale, Ajay Kumar, A S Puri, Sanjeev Sachdeva*
Department of Gastroenterology, G B Pant Institute of Post Graduate Medical Education and Research, 1, J L N Marg, New Delhi 110 002, India

Background and Aims Endoscopic retrograde cholangiopancreatography (ERCP) has evolved from a diagnostic tool to a primarily therapeutic procedure. Duodenal perforation occurs in 0.1 % to 1.8 % of patients after therapeutic ERCP, and is a serious complication with a high mortality rate. Management of ERCP-associated perforation remains controversial.
Aim was to study the management outcomes of patients with post-ERCP perforations and to identify which subgroup of patients respond best to conservative management.
Methods This prospective study was conducted at GIPMER, New Delhi between 01/09/2013 to 30/06/2015. Consecutive patients admitted with a diagnosis of post ERCP perforation after undergoing ERCP at our centre were prospectively enrolled. Data relating to demography, laboratory parameters, imaging, presentation, management and outcome was analyzed.
Results Eighty-eight patients (Age 47.14±14.86 years, 69 females, BMI-20.71±3.19 Kg/m2) developed a perforation and were studied. Total ERCPs performed were 4531. Most frequent underlying illness was cholelithiasis with choledocholithiasis. 20.4 % had associated cholangitis. Seventy-one (80.7 %) perforations were detected on table, and 11 (12.5 %) were detected within 24 h of the procedure. Eighty-five (96.5 %) had an air nephrogram on skiagram. Seven (7.9 %) were managed with PCD (mean duration 8.6±2.3 days), 18 (20.4 %) underwent surgery whereas 63 (71.6 %) were managed conservatively. Mean hospital stay was 12.05±9.29 days. Six (6.8 %) died, 5 in surgical whereas 1 in conservative management group, of which 3 had underlying malignancy, rest 82 (93.1 %) recovered and were discharged safely.
Conclusion Most patients recover uneventfully on conservative management. Most important factor for better outcome is early detection and prompt treatment.

ES-25

Palliation of malignant gastroduodenal obstruction with self-expandable metal stent: Feasibility, outcome, predictors and quality of life

Vinay Kumar, *Uday C Ghoshal, Samir Mohindra, Abhai Verma, V A Saraswat*
Department of Gastroenterology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow 226 014, India

Background and Aim Endoscopic SEMS placement is useful method for palliation of malignant gastroduodenal obstruction. SVE or forward viewing endoscope with wide therapeutic channel is used for antroduodenal stenting. *Aim* of study was to assess feasibility, outcome, predictors and quality of life after SEMS placement with SVE and forward-viewing endoscopes.
Methods All patients with malignant gastroduodenal obstruction who underwent SEMS placement between April 2012 to January 2015 (retrospective study) and from February 2015 to August 2016 (prospective study) in Gastroenterology Department, SGPGI were included. Outcomes were technical and clinical success, procedural time, complication rates, stent patency and overall survival.
Results A total of 106 patients were recruited. Causes of antroduodenal obstruction included carcinoma of gallbladder (45/106), stomach (27/106), pancreatic head (19/106), periampullary (9/106) and cholangiocarcinoma (6/106). SVE was used in 87 patients and forward viewing endoscope in 19 patients. In 3 technically difficult cases forward viewing endoscope was used. Average procedure time in SVE group was 36 min (range 15–90 min) and in forward viewing endoscope group it was 25 min (range 9–60 min). Overall clinical success was achieved in 93 (87.7 %) cases. Procedure related GI bleed and death occurred in one patient. Mean duration of stent patency was 48 days and mean overall survival was 54 days (range 2–271 days).
Conclusion Antroduodenal SEMS insertion could be performed effectively by either SVE or forward viewing endoscope. Forward viewing endoscope is useful in technically difficult cases, also procedural time is less with forward viewing endoscope.

ES-26

Clinical profile of patients with obstructive jaundice at tertiary care center in central India

Sudhir Gupta, *Amol Samarth, Nitin Gaikwad, Tushar Sankalecha, Nikhil Shirole, Harit Kothari*
Department of Gastroenterology, Government Medical College and Super Specialty Hospital (SSH), Nagpur 440 009, India

Introduction Obstructive jaundice is common diagnosis in gastroenterology clinic. ERCP is an integral procedure for management of obstructive jaundice of various causes.
Aim To assess the causes of obstructive jaundice in tertiary care center in central India and assess feasibility and complication of ERCP in these patients.
Methods It was a retrospective analytical study for duration of one year from July 2015 to June 2016. Sixty-three consecutive patients who admitted for obstructive jaundice were involved and analyzed.
Results Male: Female ratio was 1:1.2. 32 (50.8 %) patients presented with benign etiology and 31 (49.2 %) with malignant etiology. Etiology in patients with benign causes are choledocholithiasis [20 (62.5 %)], benign biliary strictures [10 (31.3 %)], choledocal cyst [1 (3.1 %)] and portal biliopathy [1 (3.1 %)] respectively. Etiology in patients with malignant causes are carcinoma head of pancreas [12 (38.7 %)], cholangiocarcinoma [9 (29 %)], carcinoma gallbladder [6 (19.4 %)] and ampullary malignancy [4 (12.9 %)] respectively. Out of the malignant etiology 20 (64.5 %) patients were nonoperable and 11 (35.5 %) were operable at the time of presentation. ERCP was tried in all of them but failed in 7 (11.11 %) patients. Complications occurred in 6 (9.5 %) [(post-ERCP pancreatitis 3, bleeding 1, perforation 1 and anesthesia related complication 1)] patients.
Conclusion Carcinona head of pancreas is the most common malignant etiology and cholidocholithiasis is the most common benign etiology for obstructive jaundice in our center. Endotherapy is successful in most of these patients with relatively low complication rate.

ES-27

Utility of endoscopic ultrasound for common bile duct stones in a tertiary care hospital

N Divyasri, K R Pradeep, N K Anupama, Amit Yelsangikar, Naresh Bhat
Department of Gastroenterology, St Philomena's Hospital, 4, Mother Theresa Road, Vivek Nagar Post, Near Life Style, Bengaluru 560 047, India

Introduction Choledocholithiasis is a common complication of gallstones. Clinical features, biochemistry and transabdominal ultrasound have poor sensitivity in diagnosing common bile duct (CBD) stones. Endoscopic ultrasound (EUS) has emerged as an accurate modality to rapidly detect CBD stones in clinical practice thereby changing the treatment plan.
Objectives To compare the performance of EUS with abdominal ultrasound plus clinical and biochemical parameters in diagnosing CBD stones.
Methods Observational study done in a tertiary care hospital from 1.07.2014 to 31.5.2016 with prior hospital ethics committee clearance. Consecutive patients with choledocholithiasis detected at endoscopic retrograde cholangiopancreatography (ERCP) were included. Sample size

was calculated at power of 80 % with 95 % confidence limits. Clinical, biochemical parameters and imaging by transabdominal ultrasound, EUS were collected and analyzed with SPSS software for Windows.
Results A total of 75 patients with CBD stones were included in the study of which 44 were female (58.6 %) and 31 males (41.4 %). Mean age of presentation was 55 yrs. The combination of fever, pain abdomen and jaundice was seen in only 5 patients (6.6 %). LFT was abnormal in 31 patients (41.4 %). EUS was significantly better than transabdominal ultrasound in detecting CBD stones (sensitivity 66.7 % vs. 96.% p<0.05). In presence of abnormal LFT, EUS and transabdominal ultrasound were equally sensitive whereas with normal LFT EUS was more sensitive than transabdominal ultrasound (94.1 % vs. 55.9 %).
Conclusion EUS is an accurate test compared with transabdominal ultrasound to detect CBD stones when liver function tests are normal.

ES-28

EUS-guided choledochoduodenostomy for malignant distal biliary obstruction after failed ERCP

Praveer Rai, C R ***Lokesh***
Department of Gastroenterology, Sanjay Gandhi Postgraduate Institute of Medical Science, Raebareli Road, Lucknow 226 014, India

Background and Study Aims Endoscopic ultrasound guided choledochoduodenostomy (EUS-CDS) is an alternative procedure to percutaneous transhepatic biliary drainage (PTBD) for patients in whom ERCP has failed. The aim of this study was to assess the feasibility, clinical efficacy and safety of EUS-CDS as a palliative treatment in patients with distal malignant biliary obstruction after failed ERCP.
Methods Prospective analysis of all patients with distal malignant biliary obstruction requiring biliary drainage who, between August 2015 and July 2016, underwent EUS-CDS using partially covered metal stent (WallFlex, Boston Scientific) after failed ERCP, at Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, India. Technical success, clinical success (more than 50 % reduction in bilirubin from baseline after 2 weeks) and adverse events were assessed.
Results Sixteen patients (M/F 9/7; median age 60 years) underwent EUS-CDS. ERCP failure was due to failed cannulation of papilla in 10 patients and remaining 6 had gastric outlet obstruction. The procedure was technically successful in 15/16 patients with procedural time range of 20-45 minutes. Clinical success was achieved in all the patients. Baseline mean bilirubin was 19.78mg/dL (range 6-35mg/dL), 2 weeks after procedure was 6.5mg/dL (range 2-12mg/dL). One patient had hemobilia following the procedure requiring 2 units of blood transfusion, 2 patients had bile leak requiring therapeutic paracentesis, during follow up of up to 2 months, one patient developed stent block cholangitis and died.
Conclusion EUS-CDS using partially covered metal stent is feasible, safe with high technical and clinical success rates.

Patient groups	Pain severity on VAS, in mean (range)			*p* value
	baseline	2 weeks	4 weeks	<0.05
All (*n* = 39)	7.4 (5–10)	2.4 (0–8)	4 (0–10)	
Carcinoma gallbladder (*n* = 20)	7.4 (6–9)	2.4 (0–8)	4 (2–6)	
Carcinoma pancreas (*n* = 19)	7.5 (5–10)	2.5 (5–10)	3.9 (0–10)	

Patient groups	Response at 2 weeks		
	Complete	Partial	No response
All (*n* = 39)	6	31	2
Carcinoma gallbladder (*n* = 20)	4	15	1
Carcinoma pancreas (*n* = 19)	2	16	1

Patient groups	Response at 4 weeks		
	Complete	Partial	No response
All (*n* = 39)	1	27	11
Carcinoma gallbladder (*n* = 20)	0	13	7
Carcinoma pancreas (*n* = 19)	1	14	4

ES-29

EUS-guided celiac plexus neurolysis improves short term pain relief in pancreaticobiliary malignancies

Praveer Rai, ***C R Lokesh****, V A Saraswat*
Department of Gastroenterology, Sanjay Gandhi Postgraduate Institute of Medical Science, Raebareli Road, Lucknow 226 014, India

Background EUS-guided celiac plexus neurolysis (EUS-CPN) is being used as a palliative treatment in carcinoma pancreas. About 80 % patients with carcinoma gallbladder and carcinoma pancreas present with pain. The aim of this study is to assess whether EUS guided celiac plexus neurolysis alleviates pain in patients with unresectable carcinoma gallbladder and carcinoma pancreas.
Methods It's a prospective study; patients with unresectable carcinoma gallbladder and carcinoma pancreas having pain severity ≥3 on visual analog scale (VAS) were included. EUS-CPN done with 22G CPN needle using 0.5 % of bupivacaine and absolute alcohol. Pain severity on VAS was assessed before the procedure, 2 and 4 weeks after the procedure. Response was defined as complete; if pain severity on VAS was 0, partial; if pain severity was decreased by ≥3 on VAS and no response; if pain severity was decreased by < 3 on VAS.
Results Forty patients were included in this study (M/F=15/25, median age 50 years), 21 had carcinoma gallbladder and 19 had carcinoma pancreas. EUS CPN successfully done in 39 patients. Pain severity on VAS, at baseline were 7.4 (range 5-10), 7.4 (range 6-9) and 7.5 (range 5-10); at 2 weeks were 2.4 (range 0-8), 2.4 (range 0-8), 2.5 (range 0-5); at 4 weeks were 4 (range 0-10), 4.1 (range 2-6) and 3.9 (range 0-10), among all, carcinoma gallbladder and carcinoma pancreas patients, respectively (p<0.05). At 2 weeks, 6 had complete response, 31 had partial response and 2 had no response. At 4 weeks, 1 had complete response, 27 had partial response and 11 had no response. Among patients with carcinoma gallbladder, at 2 weeks, 4 had complete response, 15 had partial response and 1 had no response and at 4 weeks, none had complete response, 13 had partial response and 7 had no response. Among patients with carcinoma pancreas, at 2 weeks, 2 had complete response, 16 had partial response and 1 had no response. At 4 weeks, 1 had complete response, 14 had partial response and 4 had no response.
Conclusion EUS-CPN improved short-term pain relief in carcinoma gallbladder and carcinoma pancreas.

ES-30

Role of endoscopic ultrasound in patients with high probability of choledocholithiasis and inconclusive imaging

Ruchir Patel, *Meghraj Ingle, Dhaval Choksi, Prateik Poddar, Vikas Pandey, Prabha Sawant*
Department of Gastroenterology, Lokmanya Tilak Municipal Medical College, Dr. Babasaheb Ambedkar Road, Sion (West), Mumbai 400 022, India

Background Endoscopic ultrasound (EUS) is an accurate, safe and cost-effective investigation in diagnosing choledocholithiasis. Endoscopic retrograde cholangiopancreatography (ERCP) is the initial therapy recommended in patients with high clinical likelihood of choledocholithiasis.
Aim To determine the role of EUS in preventing unnecessary diagnostic ERCPs in patients with high probability of choledocholithiasis and inconclusive imaging.
Methods All patients with high likelihood of choledocholithiasis (ASGE criteria) and negative imaging were prospectively underwent EUS between March 2015 and July 2016. ERCP was performed in patients with definite choledocholithiasis or sludge. Patients without choledocholithiasis were followed up for 3 months. Primary outcome of the study was avoidance of unnecessary ERCP. Secondary outcomes were predictive accuracy and safety of EUS.
Results Total 78 patients (51 female, 27 male) were included in the study. Mean age was 45.5±15.1 years. 25 and 7 patients (total 41 %) were diagnosed with CBD stone and sludge respectively. ERCP removed stone or sludge in 31/32 (96.9 %) patients. EUS ruled out choledocholithiasis in 38 patients (48.7 %). Two of them were found to have choledocholithiasis on follow up. Sensitivity, specificity, PPV, NPV of EUS for detecting CBD stone were 93.9 %, 97.3 %, 96.9 % and 94.7 % respectively. Unnecessary diagnostic ERCP were avoided in 57.7 % patients using 'EUS first' approach.
Conclusion EUS-CPN improved short-term pain relief in carcinoma gallbladder and carcinoma pancreas.

Pancreas

P-01

Valproic acid induced pancreatitis with hepatic infarct- A rare vascular complications

G S Gurudath, *G S Sharath Kote, T S Ramesh Kumar, Mohammad Juned Khan, C Palanivelu, Nithyanand Sharma, Santhosh Palve, Piyush, Suganya*
Department of Medical Gastroenterology, GEM Hospital and Research Centre Pvt Ltd, 45A, Pankaja Mill Road, Ramanathapuram, Coimbatore 641 045, India

Valproic acid is one and probably most frequent cause of drug induced pancreatitis. Here we report a case valproate induced pancreatitis with hepatic infarct due to portal vein thrombosis. A 15-years-old boy, who was on Valproic acid 600 mg/day for juvenile myoclonic epilepsy since 4 months admitted for acute severe upper abdominal pain with vomiting since 3 days. There was no past h/o pancreatitis.
Investigations revealed significantly elevated amylase and lipase levels. CT abdomen showed diffuse edematous pancrease with peripancreatic fluid collection, without necrosis (CTSI-3). There was no evidence of hypertriglyceredemia, hypercalcemia and biliary etiology. Estimating the probability of adverse drug reactions by Naranjo et al. (score 8) showed definitive association between valproate and pancreatitis. Sodium valproate was stopped since it is class Ia drug for drug induced pancreatitis and replaced with tablet lamotrigene after neurologist consultation. Serum valproic acid levels were 60 mcg/mL (50–100 mcg/mL). During hospital stay review ultrasound showed wedge shaped hypodense lesion in segment VII of liver (?Infarct) which was confirmed with CECT abdomen with evidence of right branch of portal vein thrombosis (THAD). Procoagulant work up revealed low protein S activity 65 % (77 % to 143 %) for which patient was started on low molecular heparin overlapping with warfarin. Patient improved symptomatically with conservative management and discharged in stable condition. As with other cases reported in literature, our case also did not show association between serum valproic acid levels and development of pancreatitis which suggest possibility of idiosyncratic drug reaction. Portal vein thrombosis may be an epiphenomenon in prexisting prothrombotic state precipitated by acute pancreatitis.

P-02

Acute pancreatitis as first presentation in primary hyperparathyroidism-A case series

G S Gurudath, *S G Sharath Kote, Mohammed Juned Khan, T S Ramesh Kumar, C Palanivelu, Nithyanand Sharma, Santhosh Palve, Suganya*
Department of Gastroenterology, GEM Hospital and Pvt Ltd, 45A , Pankaja Mill Road, Ramanathapuram, Coimbatore 641 045, India

Primary hyperparathyroidism accounts for less than 0.5 % of all cases of acute pancreatitis, and the incidence of acute pancreatitis in patients with hyperparathyroidism varies from 0.4 % to 1.5 %. Here we present 3 nonalcoholic patients who were admitted for acute pancreatitis and there were no evidence of hypertriglyceridiemia, gallstones and other biliary etiology as confirmed from MRCP. Further evaluation found to have hypercalemia, secondary to primary hyperparathyroidism (elevated serum PTH levels). In 2 patients, USG neck showed hypoechoic lesions inferior to right thyroid lobe, and in 1 patient inferior to left thyroid lobe. Sestamibi scan confirmed the presence of parathyroid adenoma in 2 patients, but found to be normal in one patient. Patients were treated conservatively for pancreatitis, later referred for surgery for parathyroidectomy after endocrinologist opinion. Though it's a rare entity, all patients with pancreatitis should be screened for primary hyperparathyroidism.

P-03

High prevalence of Clostridium difficile infection amongst patients with pancreatic diseases

Chetana Vaishnavi, *Rakesh Kochhar*
Department of Gastroenterology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

The surveillance of the prevalence of Clostridium difficile infection (CDI) precipitated by underlying diseases is important due to its increase globally. Patients with pancreatic diseases are often given prophylactic antibiotics, making them prone to develop CDI. We investigated the prevalence of CDI in patients with pancreatic diseases and analyzed their clinical and demographic data. Fecal samples from patients with pancreatic diseases (Test group) and non-pancreatic diseases (Control group) suspected for CDI were processed for detection of C. difficile toxins (CDT) by ELISA. Laboratory records of clinical and demographic data of the patients were reviewed. Of 306 patients (age range 10–80 y) belonging to pancreatic diseases group, 82 % were on antibiotics. Pain abdomen was present in 54 % and fever in 50 %. Watery diarrhea was present in 67 % with mucus in 47 % and blood in 5 %. In majority (85 %) of the patients the duration of diarrhea was 1–7 days with frequency 1–30 times a day. CDT was positive in 27 % of the patients. In the control, hospitalized, age-matched, non-pancreatic disease patients (n=936), 79 % were on antibiotics and CDT was positive in 18 % of them. Pain abdomen was present in 47 % and fever in 40 %. Diarrhea was watery in 78 %, with mucus in 38 % and blood in 22 %. The duration of diarrhea was 1–7 days in only 64 % of the patients with no difference in the frequency. A high prevalence of C. difficile toxin with clinical features of CDI is present in patients with pancreatic diseases compared to those with non-pancreatic diseases.

P-04

Circulating miR-25 as a potential screening marker in patients with pancreatic carcinoma

***Safoora Rashid**, Sumaira Rashid, N R Dash, Nidhi Singh, Surabhi Gupta, Baibaswata Nayak, Anoop Saraya*
Departments of Gastroenterology, and Gastrointestinal Surgery, All India Institute of Medical Sciences, New Delhi 110 029, India

Background Pancreatic ductal adenocarcinoma (PDAC) is one of the deadliest malignancies worldwide. The early diagnosis and the management of pancreatic cancer are difficult. Therefore there is an urgent need to diagnose early stage pancreatic carcinoma. Circulating miRNAs have evolved as important biomarkers for detection of various cancers. The purpose of this study was to check the expression of circulating miR-25 in patients with pancreatic carcinoma, chronic pancreatitis and healthy controls.
Methods The miRNA enriched total RNA was extracted from serum samples of 53 pancreatic carcinoma patients, 30 chronic pancreatitis patients and 36 healthy controls using Exiqonâ ™s miRNA isolation kit. Total RNA (including miRNA) was extracted from fresh surgical pancreatic carcinoma tissue samples (n=11) and their corresponding adjacent controls as well. The expression levels of miR-25 were checked by real time PCR using SYBR green chemistry. Fold change was calculated using 2-method.
Results The mean age (SD) of patients with pancreatic carcinoma, chronic pancreatitis and healthy controls were 56.2 (11.03), 37.2 (12.11) and 38.97 (14.85) respectively. Significantly higher expression of miR-25 was found in serum of pancreatic carcinoma patients as compared to chronic pancreatitis (p-value=0.009). An increased expression of miR-25 was also found in fresh surgical pancreatic cancer tissue as compared to adjacent control tissue (Statistically insignificant).
Conclusion This is the first report which suggests that the miR-25 levels may distinguish patients with pancreatic cancer from chronic pancreatitis. Thus miR-25 may be used as a screening marker in patients with chronic pancreatitis.

P-05

Alcohol metabolizing enzyme gene polymorphism in idiopathic and alcoholic chronic pancreatitis patients in Indian population

***Imteyaz Ahmad Khan**, Surabhi Gupta, Deepak Gunjan, Raghibul Hasan, Sumaira Rashid, Safoora Rashid, Meera Vaswani, Anoop Saraya*
Departments of Gastroenterology and Human Nutrition, and Psychiatry, All India Institute of Medical Sciences, New Delhi 110 029, India

Aim Alcohol is an important risk factor for chronic pancreatitis. A small proportion of alcoholics develop chronic pancreatitis. Genetic factors influencing the susceptibility remain elusive. Analysis of the various genes involved in alcohol metabolism ADH2, ADH3 and ALDH2 was done to assess their predisposition to chronic pancreatitis.
Methods A total of 210 chronic pancreatitis patients were studied among which patients with alcoholic chronic pancreatitis (ACP; n=89), idiopathic chronic pancreatitis (ICP; n=121), and healthy controls (HC; n=46) were included in the study. Blood samples were collected from the subjects in EDTA coated vials. DNA was extracted and genotyping for ADH3, ADH2, and ALDH2 was done by PCR-RFLP. The products were analyzed by gel electrophoresis.
Results The frequency distribution of ADH3*1/*1 was significantly higher in ACP group (62.7 %) compared with ICP (35.2 %) and HC (39.4 %) and was found to be associated with increased risk of alcoholic pancreatitis. ALDH2*2 had a much higher risk for ACP group (52.2 %) compared with ICP (22.1 %) and HC (28.5 %) and was found to be associated with increased risk of alcoholic pancreatitis. The allele frequency of ADH2*1 was significantly higher in ACP group (46.9 %) compared with ICP (37.5 %) and HC (32.7 %) and was found to be associated with increased risk of alcoholic pancreatitis.
Conclusion Our study suggest that the frequency distribution of ADH3*1/*1, ALDH2*2 and ADH2*1 in Indian patients was significantly higher and might confer a higher risk of ACP.

P-06

Efficacy of rectal indomethacin versus papillary epinephrine spray in prevention of post-ERCP pancreatitis

*K Chaitanya, P Murali Krishna, **Kiran Repana**, L R S Girinadh*
Department of Gastroenterology, King George Hospital, Andhra Medical College, Visakhapatnam 530 002, India

Background Currently rectal indomethacin and epinephrine spray are the pharmacological agents used to prevent post ERCP pancreatitis (PEP). The present study examined the efficacy of these agents in a head to head comparison in preventing PEP.
Methods Consenting adult patients (n=217) undergoing ERCP for any indication in our hospital from March 2014 to February 2016 were randomized to receive either rectal indomethacin (two 50 mg suppositories, n=72) or epinephrine spray (20 mL of 0.02 % solution, n=74) sprayed over the papilla at the end of procedure or no intervention (n=71). The primary outcome of the study is the development of PEP.
Results One patient failed to retain the suppository. Out of the 216 patients studied, 13 patients developed PEP (2 in the indomethacin group, 4 in the epinephrine group and 7 in the control). Though PEP was less in the intervention groups, the p value is not significant (indomethacin “0.097, epinephrineâ “ 0.347). There is significant reduction in post-ERCP hyperamylasemia (>3× increase in amylase/lipase at 24 h after ERCP) in the intervention groups compared to the control group (p value of indomethacin “ 0.0439, epinephrine “ 0.0382). The number needed to treat is 6.06 for indomethacin and 7.62 for epinephrine spray in very high risk sub-group.
Conclusion Rectal indomethacin and papillary epinephrine spray decreased the incidence of post-ERCP pancreatitis, but is not statistically significant. The benefit of indomethacin and epinephrine is more pronounced in the high risk sub-group. The benefit with indomethacin is greater than that seen with epinephrine spray.

P-07

Rectal Diclofenac along with intravenous infusion of ringer lactate and dextrose saline is highly effective in preventing post-ERCP pancreatitis

***Pradeep Kumar Siddappa**, Monika Jain, Gurwant Lamba*
Department of Gastroenterology and Hepatology, Sri Balaji Action Medical Institute, A-4, Paschim Vihar, Delhi 110 063, India

Introduction Rectal Diclofenac suppository (RDS) and IV fluids are proven effective strategies for prevention of post-ERCP pancreatitis (PEP). However, there is scant data regarding combination of these two interventions.
Methods In this prospective study consecutive patients undergoing ERCP for various indications were included. Pregnant patients, patients with renal failure, oliguria, congestive heart failure, severe electrolyte disturbances, allergy to diclofenac and those having recent attack of acute pancreatitis (AP) were excluded. All the included patients received 100 mg RDS immediately after ERCP and received alternating 500 mL bag intravenous (IV) infusion of Ringer lactate (RL) and dextrose saline (5 % dextrose in normal

saline) (D5NS) at a rate of 2 mL/Kg/hr during and for 8 h after procedure. Patients requiring prolongation of admission more than 24 h after procedure due to pain abdomen and 3 times elevation of amylase and lipase were deemed to have PEP.
Results Three hundred and nine patients who fulfilled the inclusion criteria and 23 were excluded, 15 of them had AP. All patients in the study group successfully received the planned intervention. Mean age was 55.9±16 years, 137 (44.3 %) were male. Sphincterotomy was performed in 214 (69.2 %) and 31 (10 %) required precut. Only 3 (0.9 %) developed PEP. One male with choledocholithiasis underwent sphincterotomy and sphincteroplasty and other 2 were females with Sphincter of Oddi dysfunction (SOD). Both underwent sphincterotomy with one also requiring precut. All 3 had mild AP and were discharged in 2 days.
Conclusion Combination of rectal Diclofenac with alternating IV infusion of Ringer lactate and dextrose saline is safe and highly effective in preventing PEP.

P-08

Role of early endoscopic ultrasound in idiopathic acute pancreatitis

***Piyush Somani**, Malay Sharma*
Jaswant Rai Speciality Hospital, Saket, Meerut, 250 001, India

Aims The cause of acute pancreatitis (AP) remains elusive even after extensive work up in 10 % to 30 % of cases. It is important to determine the cause of AP for early treatment and to prevent recurrence The aim of our study was to evaluate the diagnostic yield, feasibility, and management changes of early endoscopic ultrasound (EUS), performed within 24–48 h of admission in patients with idiopathic acute pancreatitis (IAP)
Methods During the study period (2010–2016), 850 cases of AP were admitted. Out of these, etiology was determined in 666 (78.35 %). There were 184 cases of IAP. EUS examination was done using a linear/radial echo endoscope.
Results Out of 158 cases (90 males; age range: 15–70 years) of IAP, (26 were excluded) EUS was able to clinch the diagnosis in 110 patients (69.6 %). The most common causes of IAP included biliary stone disease (gallbladder microlithiaisis, common bile duct microlithiasis/stone/sludge) (n=60) followed by chronic pancreatitis (CP) (n=25), pancreatic tumor (n=11) and pancreaticobiliary ascariasis (n=10). No cause was found in 48 patients.
Conclusions: Biliary stone disease was the predominant cause for IAP followed by CP. EUS is a safe investigation with a high diagnostic yield for determining the etiology of IAP and an early EUS can influence important therapeutic decisions and prevent further attacks of AP which may occur if a delayed EUS is performed and thus improve long-term prognosis. An early EUS also has an additional advantage of making an early diagnosis of pancreatic tumors/pancreaticobiliary ascariasis and ampullary/papillary stones. It also prevents making the wrong diagnosis of sludge as etiological factor for AP which may occur in patients undergoing a delayed EUS since sludge may be secondary to AP due to prolonged fasting, total parenteral nutrition or antibiotics like ceftriaxone.

P-09

New fully covered large-bore removable metal stent with anti-migratory flanges for drainage of pancreatic fluid collections: Results of a single center experience

*Amol Bapaye, Nachiket Dubale, **Mahesh Mahadik**, Harshal P Gadhikar, R I Pujari, Jay A Bapaye, Ajinkya Kulkarni, S S R Gangireddy, Rahul Lokhande*
Shivanand Desai Center for Digestive Disorders, Deenanath Mangeshkar Hospital, Erandwane, Pune 411 004, Deenanath Mangeshkar Hospital and Research Center, Erandawne, Pune 411 002, India, and Smt. Kashibai Navale Medical College, 49/1, Off Mumbai-Pune Bypass, Narhe, Pune 411 041, India

Background and Aims Endoscopic ultrasound guided transmural drainage (EUTMD) of peripancreatic fluid collections (PFC) is an effective alternative to surgical drainage. Plastic stents pose problems of incomplete drainage and metal stents may migrate. We present our data assessing efficacy and safety of a newly designed fully covered bi-flanged metal stent (BFMS) with anti-migratory flanges and with internal diameter of 14 mm (Hanaro, MI Tech, South Korea) for EUTMD.
Methods Retrospective analysis of prospectively collected data in a single center with adequate experience in EUTMD. Parameters assessed: technical and clinical success, feasibility of direct endoscopic necrosectomy (DEN), stent removal and adverse events. Suitable imaging was used to confirm PFC resolution. Stents removed within six weeks of placement.
Results Twelve patients underwent EUTMD using this BFMS during five-month period (July -October 2015), males=10. Mean age=37 years (20–65). Nine pseudocysts (PPC's), three walled off necrosis (WON). Technical and clinical success – 100 %. DEN was performed in 3 (25 %). No adverse events were observed. Mean duration of follow up −10 weeks (4–20). All stents could be removed endoscopically.
Conclusions The new specially designed anti-migratory BFMS is safe and effective for drainage of PFC. DEN can be carried out through the stent. Stent can be removed endoscopically. No incidences of spontaneous stent migration or stent related tissue erosion were noted in this small series of patients.

P-10

Micronutrients assessment in patients with chronic pancreatitis

***Namrata Singh**, Deepak Gunjan, Indu Arora, Anoop Saraya*
Department of Gastroenterology and Human Nutrition, All India Institute of Medical Sciences, New Delhi 110 029, India

Malnutrition is common in patients with chronic pancreatitis. Our aim was to study the profile of micronutrients in patients with chronic pancreatitis.
Methods We estimated the serum level of zinc, copper and selenium by mass spectrometry; serum retinol and tocopherol was estimated by high performance liquid chromatography; and plasma vitamin C was estimated colorimetrically.
Results A total of 107 patients with chronic pancreatitis (82 males) with mean age of 31.5±10.9 years and mean body mass index of 19.5±3.6 were included. Serum/plasma level of micronutrients did not differ between different etiological groups, diabetics vs. non-diabetics, calcific vs. non-calcific pancreatitis, and steatorrhea vs. no steatorrhea. However, serum copper level was significantly lower in males (p=0.014) whereas serum retinol level was significantly less in females (p=0.035). Table 1 shows the serum/plasma level of various micronutrients in patients with chronic pancreatitis.
Conclusion Prevalence of different micronutrient deficiencies in patients with chronic pancreatitis is variable. However, it requires further study to know its effect on pathogenesis of malnutrition in patients with chronic pancreatitis.

Table 1 Serum/plasma micronutrients level in patients with chronic pancreatitis

Micronutrients (units)	*n*	Mean±SD (minimum-maximum)	Normal values	Deficiency *n* (%)
Zinc (μg/L)	103	864.1±195.3 (416–1531)	Male : >740 Female: >700	20 (19.4)
Selenium (μg/L)	103	105.6±27.7 (34.7–182.7)	23–190	0 (0)
Copper (μg/L)	103	1058.9±256.4 (411–2013)	900–1900	27 (26.2)
Retinol (μg/dL)	83	38.2±15.8 (5.4–107.5)	≥20	7 (8.4)
Tocopherol (mg/dL)	65	0.67±0.42 (0.27–3.22)	>0.5	26 (40)
Vitamin C (mg/dL)	107	2.21±0.79 (0.55–4.52)	>0.88	3 (2.8)

P-11

A study to identify and validate new predictors of severity in acute pancreatitis

***M Juned Khan**, P Karthikeyan, T Ramesh Kumar, S Suganya, Santosh Palve, G S Gurudath, Sharath Kote, S Nityanand, C Palanivelu, V G Mohan Prasad*
V G M Hospital, 2100, Trichy Road, Coimbatore 641 005, India

Objectives To evaluate and validate the risk factors of scute severe pancreatitis and to correlate with mortality. To identify bed side risk factors. Study area-This prospective study was done at GEM Hospital, Coimbatore. Data collection - Clinical parameters, laboratory investigations, chest X-ray at admission and multidetector CT scan was done after 48 h. The diagnosis of abdominal compartment syndrome (ACS) was established with tense addominal distension, hypotension, progressive oliguria, and CT abdomen. The severity of disease process was assessed by BISAP score and CT-Severity Index. Salient findings - 32 cases of severe acute pancreatitis of varied etiologies as per Atlanta Classification. Twenty-two males (68.8 %) and 10 females (31.2 %), age ranging from 18 to 79 years. CRP levels were elevated in almost all patients. CT Severity index (CTSI) varied within 4 to 8 in our series. In our study high BISAP score was associated with organ failure, pancreatic necrosis and mortality. Creatinine is effective in predicting the mortality ($p<0.008$) but not the CTSI. CRP also shows good correlation with CTSI at value >20 mg. Compartment syndrome (CS) and correlation with mortality is found statistically significant ($p<0.04$). The severe the degree of CS, the higher the mortality.
Conclusion Conventional risk factors like age, hyperglycemia, hyperlipidemia and pleural effusion correlated poorly with CT Severity Index or mortality. New parameters like compartment syndrome (CS), elevated CRP, creatinine and BISAP Score predicted mortality and severity.

P-12

Role of ulinastatin in severe acute pancreatitis: Randomized study of efficacy and safety

***Sandeep Vaishnav**, Dinesh Agrawal, Anurag Govil, Harsh Prasad Udawat, Rakesh Rajaram Pathrabe*
Department of Gastroenterology, Santokba Durlabh Ji Memorial Hospital Cum Reseach Center, Bhawani Singh Marg, Bapu Nagar. Jaipur 302 015. India

Introduction Ulinastatin, a glycoprotein and a serine protease inhibitor, blunts the rise of pro-inflammatory cytokines. It has been shown to reduce morbidity and mortality in severe acute pancreatitis. The aim of the present study is to assess the effectiveness of ulinastatin in patients of severe acute pancreatitis defined as APACHE II score 8 in terms of prevention of new onset organ dysfunction. The secondary outcomes were reduction in hospital stay as well as reduction in 28 days all cause mortality.
Material Single centre, prospective, randomized, parallel group study. Subjects, aged 18–70 years with severe acute pancreatitis were randomized to receive ulinastatin, intravenous infusion of 2 lac IU every 12 h for 5 days, and standard treatment or standard treatment only.
Observations Thirty-six subjects, 18 in each group were assessed for final outcomes. The etiology of acute pancreatitis was gallstone disease (14 patients), alcohol (14 patients), hypercalcemia (2 patients), hypertriglycerdemia, worm infestation, post-ERCP (1 patient each) and idiopathic (3 patients). New onset organ dysfunction was less common in ulinastatin group [3 patients (16.67 %)] than in control group [14 patients (66.67 %)]; $p0.05$) was less in Ulinastatin group but did not reach statistically significant levels. There were no major side effects of Ulinastatin.
Conclusions Ulinastatin is safe and prevents new onset organ dysfunction, new onset sepsis, reduces hospitalization days and mortality in patients with severe acute pancreatitis.

P-13

Etiology of recurrent acute pancreatitis in Kerala

***S P Jayaraj**,Varghese Thomas*
Department of Gastroenterology, Calicut Medical College, Kozhikode 673 008, India

Background Recurrent acute pancreatitis (RAP) is an important clinical problem in our country. Knowledge about the etiology of RAP helps in the management. There is dearth of data regarding the etiology of RAP from south India.
Aim To find out the common causes of RAP in south India (Kerala).
Methodolog This cross sectional study was conducted in the Department of Gastroenterology, Government Medical College, Calicut. Patients satisfying the definition of RAP were included, underwent clinical evaluation and blood investigations like LFT, amylase, calcium and triglycerides. Ultrasound scan and CECT abdomen were done in all. EUS and/or MRCP were done when etiology could not be ascertained otherwise.
*Result*s Thirty-eight patients were studied, M:F=31:7. Mean age: 30.03 ±14.8 years (3–70). Mean number of attacks of pancreatitis were 3.78. Most common etiology of RAP was chronic pancreatitis which was seen in 15 patients (39.47 %). Next common cause was alcohol in 12 patients (31 %). Hypertrygliceridemia was seen in 3, pancreatic divisum in 2 and gallstones in 1 patient respectively. In 5 patients (13 %), the cause could not be found. In our study there were 22 patients diagnosed as idiopathic RAP earlier, of which 68 % were found to be due to chronic pancreatitis.
Conclusion Chronic pancreatitis and alcohol were the most common causes for RAP in Kerala. Majority of the patients with an earlier diagnosis of idiopathic RAP were found to have chronic pancreatitis on subsequent investigation.

P-14

Lymphoepithelial cyst mimicking pancreatic cystic neoplasm with high carcinoembryonic antigen - Report of a case?

***Amol Patil**, Avinash Balekuduru, A R Nitin Rao, Lokesh Locheruvapalli, Ravi Kiran, Satyaprakash Bonthala Subbaraj*

Department of Gastroenterology, M S Ramaiah Memorial Hospital, New BEL Road, MSRIT Post, Banglore 560 054, India

Lymphoepithelial cysts of the pancreas (PLEC) are rare non malignant true cysts that can mimic pseudocysts and cystic neoplasms (CN). They are lined predominantly by mature squamous epithelium and surrounded by non-neoplastic lymphoid elements1. We herewith present a case of PLEC mimicking malignant CN. A 24-year-old gentleman, with no comorbidities presented with pancreatic type of pain and weight loss of 2 kgs in 2 months duration. He had no past history of trauma/biliary colic/earlier episode of pancreatitis. He was evaluated with blood investigations including amylase and lipase which were normal. Upper gastrointestinal endoscopy was normal. Ultrasound abdomen was done which revealed a cystic lesion in the tail of pancreas. Contrast enhanced computed tomogram was done which revealed a 106 × 99 × 92 mm (volume 482 mL) well defined cystic lesion in relation to body and tail of pancreas. Endoscopic ultrasound was done which revealed 2 nodules of 0.5 cm in the unilocular cyst but the cyst fluid could not be aspirated with a 22 Guage needle. The remaining pancreas was normal. Percutaneous ultrasound guided aspiration was done using 18 Guage needle and the fluid was sent for analysis. Fluid amylase was 4100 U/L and fluid CEA of 1262 ng/mL. Malignant cytology was negative. He underwent distal pancreatectomy and splenectomy and made an uneventful recovery. The histopathological evaluation of the resected specimen showed cyst lined with beningn stratified squamous epithelium with overlying lymphoid tissue. We suggest that PLEC must be included in differential diagnosis of CNs of pancreas.

P-15

Endoscopic ultrasound guided transmural drainage of pancreatic pseudocysts at atypical locations

Surinder S Rana, Vishal Sharma, ***Amit Kumar****, Puneet Chhabra, Ravi Sharma, Rajesh Gupta, Deepak K Bhasin*
Departments of Gastroenterology and Surgery, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background There is paucity of data on endoscopic management of pseudocysts at atypical locations.
Objective We evaluated the efficacy of endoscopic transmural drainage in the management of PP at atypical locations.
Methods A retrospective analysis of the data of all the patients with PP at atypical locations who were treated with attempted endoscopic transmural drainage during last 16 months was done.
Results Ten patients (all males; age range: 28–46 years) with PP at atypical locations were studied. Four patients had intra/perisplenic, three patients had mediastinal, two had intrahepatic, and one patient had renal pseudocyst. Alcohol was the etiology of pancreatitis in 9 patients. The size of the pseudocysts ranged from 4 to 10 cm. All patients had abdominal pain and two patients had fever whereas one patient with mediastinal pseudocyst also had dysphagia. EUS guided transmural drainage could be done successfully in all the patients. 7 Fr transmural stent/s were placed in 4 patients whereas single time complete aspiration of PP was done in 5 patients. This was followed by ERP in all patients. Four patients had partial disruption whereas 5 patients had complete disruption. Bridging transpapillary stent (5 Fr) was placed in all patients with partial duct disruption. All the PP healed in 9/10 (90 %) patients within 2–4 weeks and there has been no recurrence during a follow up period ranging from 4 to 16 months.
Conclusion Pancreatic pseudocysts at atypical locations can be effectively and safely treated with EUS guided transmural drainage.

P-16

Endoscopic ultrasound guided transmural drainage of walled off pancreatic necrosis in patients with portal hypertension and intra abdominal collaterals

Surinder S Rana, Vishal Sharma, ***Amit Kumar****, Puneet Chhabra, Ravi Sharma, Rajesh Gupta, Deepak K Bhasin*
Departments of Gastroenterology and Surgery, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Aim To assess the safety and outcome of EUS guided transmural drainage of walled off pancreatic necrosis (WOPN) in patients with portal hypertension and intra abdominal collaterals.
Methods Retrospective analysis of collected database of patients who underwent EUS guided transmural drainage of WOPN was searched to retrieve data about patients who had evidence of portal hypertension.
Results Of the 18 patients who were noted to have portal hypertension the etiology for acute pancreatitis was alcohol in 14, gallstones in 3 and others in 1 patient. The mean size of collection was 10.67±3.45 cm and all patients had splenic vein thrombosis with one patient also having portal vein thrombosis. Of these 18 patients, drainage was not feasible in 1 patient as no window free of collaterals could be found. Endoscopic drainage was done in 17 patients and of these 15 underwent transmural drainage with multiple 7/10 Fr plastic stents, one patients underwent SEMS insertion and 1 patient needed direct endoscopic necrosectomy (DEN). The mean numbers of procedures needed were 3±0.79 and the time to resolution of collection was 4.35±1.32 weeks. One patient developed bleeding 10 h after drainage and was successfully medically managed. We successfully treated patients have been asymptomatic over a follow up period of 15.65±12.2 weeks.
Conclusion: EUS guided drainage of WOPN is safe and effective in patients with portal hypertension and intra abdominal collaterals.

P-17

Management of pancreatic pseudocyst by endoscopic cystogastrostomy-Our experience

N Radhakrishnan*, M Kani Sheikh, S Ratnakar Kini, K Prem Kumar, Thangavelu Pugazhendhi*
Postgraduate Institute of Medical Gastroenterology, Madras Medical College,Chennai 600 003, India

Introduction Pancreatic pseudocysts can result following (i) acute pancreatitis, (ii) chronic pancreatitis, (iii) following blunt or penetrating trauma. Endoscopic drainage—by endoscopic cystogastrostomy done by expert endoscopists has become an accepted alternative to surgery in treating pseudocysts.
Aim To study the series of cases of pancreatic pseudocysts, managed by endoscopic cystogastrostomy and observe their outcomes, which presented to our centre during the period of July 2015 to July 2016.
Methods Totally, 12 cases of pancreatic pseudocysts due to varied etiologies which presented to our centre during July 2015 to July 2016 were managed by endoscopic cystogastostomy and their outcomes were observed.
Results Out of 12 cases,10 were males, 2 were females. Eighty percent of cases resulted due to acute on chronic pancreatitis— which were ethanol related. Pseudocysts were seen in head region in 80 % of cases and tail region in 20 % of cases. Endoscopic cystogastrostomy was done using simple endoscope and needle sphincterotome. Double pigtail stent was placed in 80 % of cases. Mild ooze seen in 2 cases during procedure, which was treated conservatively. No major complication encountered. Out of 12 cases 4 needed two sessions. Stent block were seen in 4 cases during follow up and stent exchange done. All cases responded well for endoscopic cystogastrostomy.
Conclusion Endoscopic cystogastrostomy, done by expert endoscopists, proved to be beneficial, as a minimal invasive procedure for managing

pseudocysts with better outcomes and without any major complications during and after the procedure.

P-18

Endotherapy for traumatic pancreatic ductal leak- Our experience

Tarun J George*, Kani Sheik, Kenny Ratnakar, Prem Kumar, T Pughazhendhi*
Postgraduate Institute of Medical Gastroenterology, Madras Medical College,Chennai 600 003, India

We are presenting a case series of our institutes experience of managing traumatic pancreatic ductal leak.
Case 1 56-year-old female underwent subtotal colectomy, splenectomy, distal pancreatectomy for splenic flexure growth. Post-op developed serous discharge from surgical wound site (fluid amylase - 19846). MRCP - peripancreatic fluid collection (4 × 5 × 2.3 cms) in the region of tail of pancreas with fistulous communication to the exterior. ERP done showed leak of contrast at tail region, PD stenting done. Post-ERCP patient improved with complete resolution of symptoms.
Case 2 - 61-year-old male had acute necrotizing pancreatitis. Laparotomy/ necrosectomy and external drainage of peripancreatic collection was done. Since then, patient has been having about 700 mL of collection daily. ERP done showed filling of contrast in head and leakage into drain, GW placed into proximal PD followed by PD stenting done. Following stenting patients external drain progressively reduced and was later removed. Drainage site healed without formation of any fistulous tract.
Case 3 - 28-year-old male sustained blunt injury abdomen June 2015 after which developed pancreatic type of pain. MRI/MRCP showed laceration and fracture at neck of pancreatic parenchyma with complete transection of MPD at level of neck region with large fluid collection (14 × 13 × 6 cm) seen anterior to body of pancreas. ERP showed leak of contrast from the pancreatic duct at the level of neck region. PD stenting done across the leak. Post procedure daily pigtail drainage progressively reduced and was later removed. Patient became asymptomatic and was discharged.

P-19

An interesting case report of autoimmune pancreatitis

Manoj Munirathinam*, Pugazhendhi*
Postgraduate Institute of Medical Gastroenterology, Madras Medical College,Chennai 600 003, India

Background Autoimmune pancreatitis is a unique form of chronic pancreatitis characterized by irregular narrowing of the pancreatic duct, pancreatic swelling, and a favorable response to corticosteroids, in which the autoimmune mechanism is postulated in the pathogenesis. High serum IgG4 concentrations and various types of extrapancreatic involvement are prominent features of this disease. Herein we present our experience with 3 cases of AIP and we review the relevant literature. These 3 cases demonstrate the difficulties that exist in making the diagnosis of autoimmune pancreatitis and the impact that the diagnosis can have on patient management.
Case Reports Two women and one man with a mean age of 35 years presented with autoimmune pancreatiis. One patient presented with obstructive jaundice secondary to sclerosing cholangitis, another patient presented with pancreatic type of pain and the third patient had presented with abdominal pain and steatorrhea. Clinical, biochemical and CT results confirmed the diagnosis. IGG4 was elevated in two of the three patients. Anti Ro was positive in one patient. Two patients presented with inflammatory pancreatic head mass in imaging. The evolution after steroids and immunosuppressive was marked in all patients with good outcomes.
Conclusion Recognition of autoimmune pancreatitis is clinically important because it is reversible when diagnosed early and if treated correctly. It should be considered in any patient presenting with elevated pancreatic enzymes, abdominal pain, enlargement of the pancreatic head, and/or hypergammaglobulinemia.

P-20

Long-term outcome of endoscopic transpapillary pancreatic stenting for pancreatic ductal disruption

Jatinderpal Singh*, Mayank Aggarwal, Ajay Kumar, Siddharth Srivastava, Sanjeev Sachdeva, Amarender S Puri*
G B Pant Institute of Postgraduate Medical Education and Research, J L Nehru Marg, New Delhi 110 002, India

Introduction Pancreatic duct (PD) disruption can result from acute or chronic pancreatitis, surgery or trauma. The consequent leakage of pancreatic secretions will either resolve spontaneously or lead to complications such as ascites, fistula formation, pseudocyst or pancreatic abscess.
Aim To study the long-term outcome of patients with PD disruption presenting with pancreatic ascites, pancreaticopleural fistula or as a pseudocyst who are managed by endoscopic transpapillary stent insertion or endoscopic sphinterotomy.
Method Forty patients of PD disruption were prospectively evaluated at G B Pant Hospital from 2011 to 2016. The modes of injury, clinical presentation, modes of therapy and outcome were recorded. Disruption is defined by extravasation of contrast from the PD, as demonstrated by ERCP.
Results Mean age of the patients was 28.2±5.8 years and mean time of presentation following trauma was 33.80±20.1 days. Etiology of PD disruption was acute pancreatitis (*n*=19), chronic pancreatitis (*n*=11) and abdominal trauma (*n*-10). ERCP revealed the leak from main pancreatic duct in head (*n*=18), body (*n*=14) and tail (*n*=8). Successful PD stent placement was done in 27 patients (68 %) and across the leakage in 19 patients. In 13 patients (32 %) only sphincterotomy was done. Two patients underwent surgery. Almost 70 % patients are symptom free after a mean follow up of 22 months. Mean number of ERCP in each patient is 1.7 and mean duration between last ERCP and relief of symptoms is 6 weeks.
Conclusions Endoscopic management is a safe and effective method in patients with PD disruption.

P-21

Spectrum of presentation of acute recurrent pancreatitis in young patients- Observational study

B Thinakar Mani*, M Kani Sheikh, S Ratnakar Kini, K Prem Kumar, Thangavelu Pugazhendhi*
Postgraduate Institute of Medical Gastroenterology, Madras Medical College,Chennai 600 003, India

Introduction Acute uncomplicated cases of childhood pancreatitis have an excellent prognosis. Early diagnosis and intervention can avoid chronic pancreatitis.
Aim To study the various etiology and pattern of presentation of recurrent in young patients.
Methods A total of 20 nonalcoholic young patients with recurrent pancreatitis has been studied for etiology and various spectrum of presentation.
Results Age ranged from 10 to 30 years with a mean age of 18 years. All of the patients were presented with acute recurrent pancreatitis. Detailed etiological work include autoimmune, genetic study, triglycerides levels and imaging studies done for most of patients. Among 15 patients five patients presented with traumatic pancreatitis, five had pancreatic divisum. Three had

autoimmune pancreatitis, remaining seven patients were probably had idiopathic pancreatitis.
Conclusion Acute recurrent pancreatitis in young people needs extensive workup and many of them were treatable. Early diagnosis can avoid disease related morbidity.

P-22

Pancreatic endotherapy - An audit

K Sibithooran*, T Pugazhendi*
Sibi Hospital, Erode Road, Vellakovil, Tiruppur DT, Tamil Nadu 638 111, India

Introduction To analyze the success rates among various diseases for which pancreatic endotherapy was done. *Study* A total of 48 patients for whom pancreatic endotherapy was done in our institution between January and July 2016 were taken for our study. Nine of them were females and 39 were males. Twenty-six procedures were totally successful. Success rates were much higher in cases of pancreas divisum and traumatic pancreatitis. Main causes of failure were local inflammatory changes, tight strictures, large pseudocysts compressing on the duodenum. Six patients required multiple settings. Main complication which was observed was post-ERCP pancreatitis in 4. All of them were managed conservatively.
Conclusion Pancreatic endotherapy in carefully selected patients with especially pancreatic divisum and traumatic pancreatitis has very high success rates and obviates the need for surgery.

P-23

Rare congenital variants and anomalies of pancreas-Our experience

B Mohammed Noufal*, Ratnakar Kini, Kani Sheikh, K Prem Kumar, T Pugazhendhi*
Institute of Medical Gastroenterology, Madras Medical College and Rajiv Gandhi Government General Hospital, Chennai 600 003, India

Introduction Congenital variants of the pancreas are seen in approximately 10 % of the general population which may be encountered in adulthood as well as in childhood. These conditions may be significant or asymptomatic. We report 3 cases of recurrent acute pancreatitis which were found to be due to relatively rare congenital anomalies and variants on further evaluation.
Case 1 Partial dorsal agenesis of pancreas
17-year-old female presented with recurrent abdominal pain of 2 years duration. Pancreatic type of pain. Had elevated amylase and lipase. CT abdomen showed normal appearing pancreatic head, absence of body and tail. MRCP showed absence of pancreatic body and tail, main pancreatic duct visualized up to the neck of pancreas with remnant dorsal duct, also showed a dilated dorsal duct in continuity, draining into the duodenum.
Case 2 Anomalous pancreaticobiliary union (APBU)
14-year-old male presented with recurrent pain abdomen (pancreatic type) of 1 year duration. Had elevated serum amylase and lipase. CT abdomen showed enlarged pancreas, pancreatic duct dilated bifid with beaded appearance fusing at neck. MRCP/MRI showed dilated, tortuous, duplicated pancreatic duct at level of mid body joining together and opening into common bile duct. ERP-duplication of PD at level of mid body.
Case 3 Meandering main pancreatic duct (MMPD)
A 21-year-old male patient presented with recurrent episodes of acute pancreatitis for last 2 years. MRCP at the time of first episode, showed necrotic collection in pancreatic head region. MRCP on present admission showed pancreas mildly reduced in bulk with prominent MPD, in the head region. No peripancreatic collection was seen. Pancreaticobiliary junction was normal. However, MPD showed abnormal curvature with formation of a loop in head region.
All the patients underwent ERCP and stenting was done.
Discussion Pancreaticobiliary anomalies are rare. Surgical or endoscopic treatment is required for symptomatic patients. Asymptomatic patients with anomalous pancreaticobiliary union should be followed for subsequent malignancy. The appreciation of these abnormalities is significant for proper diagnosis and appropriate treatment.

P-24

Coexistence of alcoholic liver disease and chronic pancreatitis: Our experience

B Thinakar Mani*, M Kani Sheikh, S Ratnakar Kini, K Prem Kumar, Thangavelu Pugazhendhi*
Madras Medical College, Chennai 600 003, India

Introduction Chronic pancreatitis and liver disease are two conditions that commonly co-exist in chronic alcoholics with variable incidences.
Aim To evaluate frequency of pancreatitis in patients with decompensated alcoholic liver disease.
Methods A total of 50 patients with decompensated alcoholic chronic liver disease has been studied for presence of coexistence of chronic pancreatitis.
Results Age ranged from 30 to 65 years with a mean age of 43 years. All 50 consecutive patients included in the study were males. All of the patients had primarily presented with alcohol related liver diseases. Features of chronic pancreatitis were observed in 7 patients in the form of imaging and biochemical abnormalities. Surprisingly among the 7 patients of chronic pancreatitis 5 of them were heavy smoker and age less than 40 years
Conclusion Chronic pancreatitis and decompensated chronic liver disease were co existed in many circumstances, particularly seen in chronic smoker and heavy drinker. High index of suspicion needed for making diagnosis of coexistence that will helpful in management.

P-25

Prevalance of cystic lesions of pancreas in patients referred for endoscopic ultrasound in tertiary referral centre in central India

Arvind Namdeo*, C C Chaubal, Sanjay Kumar, Sandesh Sharma, P K Pandey*
National Hospital, E-3/61, Arera Colony, Bhopal 462 016, India and Gastrocare Liver and Digestive Disease Centre, E 3/121, Main Road, Arera Colony, Bhopal 462 016, India

Aim To find out the prevalance of cystic lesions of pancreas in patients referred for endoscopic ultrasound (EUS) in tertiary referral centre in central India.
Method Total 223 patients from January 2015 to May 2016 were referred for EUS at our centre were analyzed retrospectively for prevalance of cystic lesions of pancreas.
Results Total 223 patients were referred for EUS from January 2015 to May 2016. Cystic lesions found in 21 patients. Sixteen were male and 5 were female patients. Total 19 patients had benign disease with pseudocyst in 14 which was infected in 3 patients. Five patients had WOPN. They were diagnosed as cystic lesion on CECT abdomen and diagnosis of WOPN was made on EUS. Two patients diagnosed as mucinous cyst adenoma.

Conclusion Benign cystic lesions are more common in pancreas than malignant in central India.

P-26

Interesting case series of autoimmune pancreatitis

***Manoj Munirathinam**, Pugazhendhi*
Postgraduate Institute of Medical Gastroenterology, Madras Medical College, Chennai 600 003, India

Background Autoimmune pancreatitis is a unique form of chronic pancreatitis characterized by irregular narrowing of the pancreatic duct, pancreatic swelling, and a favorable response to corticosteroids, in which the autoimmune mechanism is postulated in the pathogenesis. High serum IgG4 concentrations and various types of extrapancreatic involvement are prominent features of this disease. Herein we present our experience with 3 cases of AIP and we review the relevant literature. These 3 cases demonstrate the difficulties that exist in making the diagnosis of autoimmune pancreatitis and the impact that the diagnosis can have on patient management.
Case Reports Two women and one man with a mean age of 35 years presented with autoimmune pancreatiis. One patient presented with obstructive jaundice secondary to sclerosing cholangitis, another patient presented with pancreatic type of pain and the third patient had presented with abdominal pain and steatorrhea. Clinical, biochemical and CT results confirmed the diagnosis. IGG4 was elevated in two of the three patients. Anti Ro was positive in one patient. Two patients presented with inflammatory pancreatic head mass in imaging. The evolution after steroids and immunosuppressive was marked in all patients with good outcomes.
Conclusion Recognition of autoimmune pancreatitis is clinically important because it is reversible when diagnosed early and if treated correctly. It should be considered in any patient presenting with elevated pancreatic enzymes, abdominal pain, enlargement of the pancreatic head, and/or hypergammaglobulinemia.

P-27

Efficacy of pancreatic endotherapy

***Sudhir Gupta**, Nitin Gaikwad, Tushar Sankalecha, Nikhil Shirole, Harit Kothari*
Department of Gastroenterology, Government Medical College and Super Specialty Hospital (SSH), Nagpur 440 009, India

Introduction Pancreatic duct leaks can occur as a result of both acute and chronic pancreatitis or in the setting of pancreatic trauma. Pancreatic endotherapy has gained popularity in recent years.
Methods It was a retrospective analytical study for duration of three years from July 2013 to June 2016. Sixty patients who underwent pancreatic endotherapy were analyzed and presented here.
Results Male: Female ratio was 3:2. 36 (60 %) patients were alcoholic and 24 (40 %) were nonalcoholic. Clinically 39 (65 %) patients had pancreatic ascites, 18 (30 %) patients had pleural effusion. USG showed ascites in 44 (73.33 %) patients, dilated pancreatic duct in 39 (65 %) and MPD calculi in 19 patients (31.66 %). ERCP showed dilated PD in 42 (70 %) and PD calculus in 19 (31.66 %). All patients with ascites had pancreatic ductal leak. These leaks were seen at 50 (83.33 %) sites; most common site noted was genu 29 (57.57 %), tail 12 (24.24 %) and body 9 (18.18 %). Pancreas divisum was seen in 6 (10 %) for which minor papilla sphincterotomy with stent placement was performed. Communicating pseudocyst was seen in 6 (10 %). 54/60 (90 %) were benefited from the pancreatic endotherapy and 12/60 patients (20 %) required repeat endotherapy. 6/60 (10 %) with ascites expired due to complications related to pancreatitis.
Conclusion Pancreatic endotherapy is safe, effective modality of treatment in pancreatic diseases and reduces significant morbidity and mortality.

P-28

Spectrum of pancreatic lesions evaluated by endoscopic ultrasound in tertiary care centre

***Sudhir Gupta**, Amol Samarth, Nitin Gaikwad, Nikhil Shirole, Tushar Sankalecha, Sonal Gattewar*
Department of Gastroenterology, Government Medical College and Superspeciality Hospital, Nagpur 400 009, India

Introduction Endoscopic ultrasound guided fine needle aspiration (EUS-FNA) is an accurate technique for evaluation and sampling of the pancreatic lesions.
Aim To evaluate the pancreatic lesions by endoscopic ultrasound and fine needle aspiration cytology.
Methods Total 21 consecutive patients presented for endoscopic ultrasound (EUS) during August 2015 to July 2016 were included in this study. Each patient is evaluated by EUS and fine needle aspiration was performed using 22G EUS EUS-FNA needle along with other imaging techniques. Data was analyzed retrospectively.
Results Total 21 patients evaluated by EUS. 12 (57 %) patients had solid mass lesions and 9 (43 %) had cystic lesions. Of 12 solid mass lesions 10 (84 %) were pancreatic adenocarcinomas, 1 was granulomatous inflammation (tubercular) and 1 was adenoma. Three patients with adenocarcinoma also had vascular encasement noted by EUS. Remaining 9 lesions were cystic lesions. Of these 9 lesions, 7 (78 %) were pancreatic pseudocyst, 1 was intraductal papillary mucinous neoplasm and 1 was serous cystadenoma. All lesions were sampled by FNA without any procedure related complication. Only one patient required repeat sampling due to inadequate sample.
Conclusion In this study, most of the pancreatic solid mass lesions were adenocarcinomas and most of the cystic lesions were pancreatic pseudocysts. EUS was accurate in loco-regional characterisation of the malignant lesions and sampling of tissue from these lesions for diagnosis and staging.

P-29

Spontaneous rupture of pancreatic pseudocyst into stomach

***D Akhila**, Sharath Madhyastha, Raviraj Acharya, B Girisha*
Kasturba Medical Collage, Manipal 576 104, India

A 27-year-old man presented to the casualty with the history of one episode of hematemesis. He is a chronic alcoholic since 9 years. On examination his vitals were stable and mild tenderness was noted over epigastric region. Possibility of variceal rupture or peptic ulcer disease were made as differential diagnosis and he was posted for upper gastrointestinal endoscopy. Endoscopy showed large deep ulcer with irregular edge covered with slough and necrotic tissue starting just beyond

the diaphragmatic pinch along the greater curvature and extending up to proximal body. With the suspicion of malignancy, multiple biopsies were taken for histopathology and CECT abdomen was done which revealed hemorrhagic pancreatic pseudocyst (8.6 × 7.4 × 7.6 cm) with rupture into stomach. Patient was treated conservatively and repeat scan showed significant reduction in size of pseudocyst. Pancreatic pseudocyst is one of the complications of pancreatitis with incidence of about 3 % in those with initial attack of acute pancreatitis and about 25 % in those with chronic pancreatitis. Pseudocyst resolution occurs by many mechanisms. Often it regresses on resolution of inflammatory process or it can resolve by drainage in to duodenal duct. It rarely resolves by draining in to gastrointestinal tract through fistula. Usually fistula drains in to transverse colon, splenic flexure or duodenum. But drainage in to stomach is quite rare which presents as vomiting, hematemesis, diarrhea. Thus we report a rare case of pancreatic pseudocyst with rupture in to stomach which was managed conservatively.

Surgical Gastroenterology

SG-01

Spontaneous perforation in gastric cancer

Karthi Keyan. *Moses Amarjpthi*
M G R Medical University, 69, Anna Salai, Guindy, Chennai 600 032, India

SG-02

Endoscopic management of upper gastrointestinal bleed in early post-op period in bariatric surgery patient

G S Sharath Kote, *M Juned Khan, S Suganya, P Santosh, G S Gurudath, S Nityanand, T S Ramesh Kumar*
GEM Hospital, Ramanathanpuram, Coimbatore 641 045, India

Background Obesity is a common disease affecting large population. Laparoscopic sleeve gastrectomy (LSG) and Roux-en-Y Gastric Bye-pass (RYGB) is a effective procedure for weight loss. Early postoperative complications following above surgeries include bleeding which can be managed effectively by endoscopy upper gastrointestinal bleeding after bariatric surgery incidence ranges from 1 % to 4 % . There are 4 possible sites of hemorrhage at the staple lines: the gastric pouch, the gastrojejunostomy, the jejunojejunostomy, and the staple lines of the bypassed stomach. Laparoscopic RYGB is associated with a higher bleeding rate than Sleeve gastrectomy. Early bleeding usually occurs within 24 h postoperatively at the staple lines of the gastrojejunal anastomosis (GJA), gastric remnant, or jejunojejunal anastomosis. Some patients may develop hemodynamic instability, oliguria, and abdominal distention.
Observation Here we are presenting 5 cases of UGI bleed, 3 cases post-RYGB and 2 cases post Sleeve gastrectomy in which endoscopic hemostasis achieved. Except one all were males in age group of 30–50 years. Two patients develop bleeding within 4 h of sugery and 4 within 24 h. In all the cases dual mode of therapy in the form of hemoclip, epinephrine inj. and hemospray or collagen spray were used. Electrocautery is avoided in view of fresh stapler line.
Conclusion Endoscopy is proven to be safe and effective method for treatment of UGI bleed after bariatric surgery. Hemospray or collagen spray is successfully used for which limited data is available.

Pediatric Gastroenterology

PG-01

Clinical profile of pediatric inflammatory bowel disease in a tertiary care centre in Kerala

Varun Khandagale, *B M Raghu, Netaji Garad, Swapnil Kankare, Neha Roday, Aby Somu, Maya Peethambaran, Sayeed Shafique, Shibi Mathew, John Mathews, Prakash Zacharias, Mathew Philip*
Department of Gastroenterology, PVS Memorial Hospital, Kaloor, Cochin 682 017, India

Background The incidence of inflammatory bowel disease (IBD) is increasing worldwide particularly pediatric IBD which has distinct clinical features as compared to adult IBD. In view of paucity data from India and given the limitations of resources, a prospective study was done in a hospital based setting to study the clinical profile in pediatric IBD patients.
Methods This prospective observational study was done on children (less than 17 years of age) who were diagnosed with IBD in between May 2014 to April 2016. Their clinical and laboratory parameters were recorded by using predesigned questionnaire.
Results Study population consisted of 51 patients, of these 8 (15.6 %) were ulcerative colitis and 43 (84.4 %) Crohn's disease. Majority 44 (86.3 %) were in 10 to 17 years age group. Abdominal pain and weight loss were common symptoms at presentation in CD while diarrhea and blood in stool were common in UC. Extraintestinal manifestations were present in more than third patients (50 % in UC and 40 % in CD) in our study. Growth failure documented as short stature and underweight was seen in one third and one -half of children respectively. Microscopic upper GI involvement was seen in half of both UC and CD patients. Histological presence of granuloma with gastritis or duodenitis was seen in half and focal enhancing gastritis in two third of CD patients. In UC, left sided colitis (E_2) was the common phenotype with atypical phenotypes found in one fourth of children. In CD, ileocolonic (L3) and distal upper (L_{4b}) regions were commonly involved in half of patients. Nonstricturing and nonpenetrating (B_1) behavior was the common phenotype.
Conclusions Pediatric IBD showed distinctive clinical features like growth failure, microscopic and macroscopic upper GI involvement, atypical phenotypes compared to adult IBD.

PG-02

Report of severe early onset inflammatory bowel disease having autosomal inheritance Interleukin 10 receptor mutation in a family of Indian origin

Vijay Sharma, *Sunil Dutt Sharma, Richa Sharma, Satyendra Katewa*
Departments of Gastroenterology, Pediatrics, and Pediatric Hematooncology, Manipal Hospital, Sector 5, Main Sikar Road, Vidhyadhar Nagar, Jaipur 302 013, India, and Department of Public Health, Regional Institute of Health, Medicine and Research, Jaipur, India

Introduction Very early-onset inflammatory bowel disease may stem from inherited monogenetic defects in Interleukin 10 signaling pathways,

leading to defective anti-inflammatory responses. We report a male child with the disease.
Methods A 3-year-old boy of Indian origin presently living in Kenya. Presented with history of blood stained stools since 3 months of age with multiple perianal tags. Esophagoduodenoscopy at 4 months of age resulted in an esophageal perforation, conservatively managed. Colonoscopy done 6 months later resulted in perforation, requiring emergency laparotomy and left hemicolectomy and colostomy placement. Postoperation, the infant had a stormy course with sepsis and thromboembolism. Histology reported Crohn's. Child persistently steroid dependent for 18 months.
Results The parents had lost their first baby at 4 months of age with gastrointestinal problems, a younger sister with diarrhea, perianal tags, fistulae, fecal calprotectin positive. Genetic screening sample collected at Kenya, sent to University Hospital Munich, which detected a frameshift mutation in the IL10RB gene using whole exome sequencing. Then confirmed segregation of this mutation by DNA Sanger sequencing, since the patients are homozygous and both parents show a heterozygous genotype consistent with a pattern of autosomal inheritance. Hematopoietic stem cell transplantation done at our hospital.
Conclusion We should consider mutations in the IL10 receptor in patients born to consanguineous marriage, inflammatory bowel disease symptoms in first months of life. Prompt diagnosis might prevent unnecessary advanced pharmacological and surgical treatments.
Note: We are Thankful to Dr Ahmed Laving for sending the samples from Kenya, and to Professor (Dr) Christoph Klein, Dr Daniel Kotlarz, Professor (Dr) Koletzko Sibylle, Dr Albert Michael from Hospital of the University of Munich for doing the genetic testing of blood samples of the patients

PG-03

Three-year-old child presenting with massive lower gastrointestinal bleed with shock after allogenic hematopoietic stem cell transplantation

***Vijay Sharma**, Ankur Agarwal, Richa Sharma, Satyendra Katewa*
Departments of Gastroenterology, Pediatric Hematooncology, and Pathology, Manipal Hospital, Sector 5, Main Sikar Road, Vidhyadhar Nagar, Jaipur 302 013, India, and Department of Public Health, Regional Institute of Health, Medicine and Research, Jaipur, India

Introduction Allogenic hematopoietic stem cell transplantation (HSCT) is increasingly performed. Graft-versus host disease (GVHD) is the leading cause of morbidity and mortality.
Methods Three years old male child with suspected GVHD 20 days following HSCT done for Beta Thallasemia major, HLA-2 mismatched related donar. GVHD prophylaxis used as protocol. Medication side effects, chemoradiation toxicity and infections excluded. On examination poorly nourished child, high pulse rate, high respiratory rate, pyrexia, pallor, edema, abdomen distended, hepatosplenomegaly, fluid thrill present, rest systems normal. On hematology examination Total leukocyte count was 2220/cumm, neutrophil 70 %, lymphocyte 27 %, hemoglobin 6.9 g %, platelet count 25,000/cumm. On biochemistry examination all near normal. As patients had blood mixed stool, vomiting, anorexia, abdominal pain, prostration and hypotension. UGI endoscopy revealed tiny pin point spots on antrum and pylorus, colonoscopy revealed diffuse ulcers, red color spots, friability, loss of light reflex in whole colon, histopathology showed focal dropout and apoptosis of crypt epithelial cells, variable lymphocytic infiltration of the epithelium and lamina propria, Cytomegalovirus excluded on biopsy specimens. Grade 3 acute gastrointestinal GVHD diagnosed. We started treatment of patient with blood transfusions, cyclosporine, tacrolimus, prednisolone, mycofenolate mofetil, valgancyclovir, supportive treatment, antibiotic, electrolyte replacement, parenteral nutrition. Patient once developed colonic pseudoobstruction managed conservatively.
Discussion Seattle clinical grading system for acute GVHD based on volume of stool, histological proof, ileus and complications. High risk factors include HLA disparity, unrelated donor transplantation, donor-recipient gender difference, old age, and infection. Our case presented with severe lower gastrointestinal bleed, hypotension, anemia, while upper gastrointestinal symptoms were not there.
Conclusion Endoscopic examination is usually safe for patients with GVHD. Management needs team effort.

PG-04

Portal cavernoma cholangiopathy in children: Emergence of new dimensions and application of multimodality investigative tools

***Moinak Sen Sarma**, Surender Kumar Yachha, Praveer Rai, Zafar Neyaz, Anshu Srivastava, Ujjal Poddar*
Departments of Pediatric Gastroenterology, Gastroenterology and Radiodiagnosis, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow 226 014, India

Background and Aims Portal cavernoma cholangiopathy (PCC) has not been studied comprehensively, more so in children. Our study aimed to holistically evaluate PCC in children using a combination of magnetic resonance cholangiography-portovenography (MRC-MRPV) and endoscopic ultrasonography (EUS) to formulate clear-cut management.
Methods In this prospective study, recruited children with extrahepatic portal venous obstruction (EHPVO) underwent MRC-MRPV and radial array EUS. Concomitant ultrasonography of 55 normal healthy children (age-sex matched) was performed to derive cut-off levels for interpreting dilated biliary system. PCC was categorized as asymptomatic PCC (A-PCC), symptomatic (S-PCC) and no PCC (N-PCC). Prior to analysis, a new pediatric grading system (0-V) was devised based on anatomy, severity and stasis on MRC.
Results 66/72 (92 %) children had PCC (85 % A-PCC; 7 % S-PCC) on MRC. N-PCC, A-PCC and S-PCC corresponded to pediatric grading systems 0, I-IV and V respectively. Age at study and duration of disease had significant correlation ($r=0.588$, $p<0.001$). The grading system and superior mesenteric vein (SMV) block (64 %) on MRPV significantly corresponded with EUS changes (intracholedochal varices, choledochal perforators, intramural cholecystic collaterals. biliary calculi). SMV nonpatency was a determinant of advanced (grades III-V) PCC ($p=0.001$, OR:97.2, 95 % CI:2.91–3247.6). Pancreatic parenchymal changes mimicking chronic pancreatitis were significantly associated ($p<0.001$) with intrapancreatic collaterals.
Conclusions EHPVO children should be routinely evaluated for PCC by MRC-MRPV and managed by a new algorithm defined. Eighty-five percent are asymptomatic and majority have advanced cholangiopathy. Children with additional SMV block should urgently undergo early portosystemic shunt surgery irrespective of

the grade of cholangiopathy to arrest further progression of the disease.

PG-05

Obscure gastrointestinal bleeding in children: Algorithm for evaluation different from adults

***Nagendra Kumar**, Surender Kumar Yachha, Richa Lal, Moinak Sen Sarma, Anshu Srivastava, Ujjal Poddar*
Department of Pediatric Gastroenterology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow 226 014, India

Aims Pediatric etiologies of obscure gastrointestinal bleeding (OGIB) differ from adults and require clarity in diagnostic algorithm. There is paucity of studies addressing this issue. We aimed to study the etiology and diagnostic procedures in OGIB and formulate a feasible diagnostic approach.
Methods Children with OGIB from January 2000-June 2016 were analyzed. Three categories analyzed were non-variceal OGIB (group A), OGIB in portal hypertension (group B), hemobilia (group C).
Results Ninety children (median age 5.1 [0.3–18] y) presented with OGIB (77 overt; 15 occult). Twenty-seven were excluded. In 51/63, diagnosis was established by investigations and in seven by laparotomy. Group A was classified as painless (n=38) [Meckel's diverticulum (MD, n=23), duplication cyst (DC, n=10), vascular malformation (n=3), blind-loop (n=1), gastric Dieulafoy's lesion (n=1)] and pain-predominant (n=15) [small bowel stricture-ulcer (n=10; tuberculosis, Crohn's disease or indeterminate), jejunoilietis (n=3), polyarteritis nodosa (n=1), MD and DC (n=1each)]. Group A: CT enterography-angiography (CTEA) and Meckel's scintigraphy (MS), had better yield in overt than occult OGIB (p=0.001). Yield of MS in painless OGIB was higher in <5 y age (p=0.0001). CTEA yield was higher than MS (p=0.0001) in pain predominant OGIB. Yield with capsule endoscopy (CE) was 6/6. Group B: Small-bowel ectopic varices (n=2) identified by CTA and telangiectasia (n=1) by CE, three responded to presumptive beta-blockers. Group C (n=4): CTA identified right hepatic artery aneurysm (n=2, trauma; n=2, liver abscess).
Conclusions This is the largest global study of OGIB in children. MS should be used as primary modality for evaluation of painless OGIB <5 y age and CTEA for pain-predominant OGIB.

PG-06

Prognostic scoring systems and outcome of radiological intervention of chronic Budd-Chiari syndrome in children: A first time application

***Sumit Kumar Singh**, Moinak Sen Sarma, Rajanikant R Yadav, Sheo Kumar, Raghunandan Prasad, Surender Kumar Yachha, Anshu Srivastava, Ujjal Poddar*
Departments of Pediatric Gastroenterology, and Radiodiagnosis, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow 226 014, India.

Background and Aim Prognostic scoring systems (PSI) have not been validated in children with chronic Budd-Chiari syndrome (BCS). Our aim was to identify the known PSI that predicts outcome in various subgroups and poor outcome following radiological intervention.
Methods Admitted children with chronic BCS (October 2011-March 2016) were analyzed in three subgroups: a) SI: successful intervention (patent stent at last follow up) b) PO: poor outcome (stent block or death) and c) NU: nave unintervened (undergoing endotherapy and awaiting RI). PSI analyzed were PELD, Rotterdam score, BCS-TIPS, Zeitoun and Murad prognostic indices in all and MELD (MELD-Na, iMELD, uMELD) in children >12 years.
Results Sixty-eight patients had median age at presentation 10 (1.5–17) years. Twenty-six underwent 28 successful primary procedures. Successful re-stenting was done in 4/9 stent block. 4/5 stent block and 5 unintervened patients died. Twenty-three patients were lost to follow up. Three groups (SI: n=21, PO: n=10, NU: n=14) were analyzed. Comparisons: PELD [SI:4 (−8 to 68) vs. PO: 16 (9–67); p=0.009]; Rotterdam score [NU: 1.08 (0.04–2.45) vs. PO: 1.18 (1.09–3.43), p=0.04]; Murad prognostic index [SI:1.044 (0.01–3.03) vs. PO: 1.048 (1.04–3.05), p=0.04; NU: 1.042 (0.01–2.32) vs. PO:1.048 (1.04–3.05), p=0.04]. Other prognostic scores were not significant. PELD cut-off of 11 (AUC: 0.795, 80 % sensitivity, 72 % specificity, p=0.009) detrmined poor outcome following intervention.
Conclusions Interventional success and survival in pediatric chronic BCS is determined only by PELD and Murad prognostic indices. Rotterdam score in children is helpful in predicting the poor outcome group prior to intervention. Other PSI do not have prognostic values in children.

PG-07

Tyrosinemia-Titration of dose of nitisone (NTBC) based on blood levels

***Nikita Madgam**, Ira Shah*
Pediatric GI, Hepatology and Nutrition, Incharge, Pediatric GI and Hepatology Clinic, B JWadia Hospital for Children, Acharya Donde Marg, Parel, Mumbai 400 012, India

Introduction Tyrosinemia type 1 is caused by a defect in enzyme fumarylacetoacetase which is final enzyme of the pathway of the degradation of tyrosine. Due to this, toxic metabolites are formed including succinylacetone (SA), maleylacetoacetate and fumarylacetoacetate. These are responsible for severe disruption of intracellular metabolism of the liver and kidney. NTBC is the only drug which is used in management of tyrosinaemia type 1. With NTBC, there is a rapid decrease in the concentrations of SA, an increase in tyrosine and a clear clinical improvement As NTBC has adverse effect like corneal opacity, leukopenia, thrombocytopenia, convulsions, there is a need to monitor the levels of NTBC in the blood and adjust dose accordingly.
Case We present a 5 years 9 months old child with tyrosinemia type 1 on treatment with NTBC for 4 years. She had been doing well on NTBC dose of 1 mg/kg/day but then had increase in the levels of plasma tyrosine (987 umol/L) after 3½ years on therapy. On estimating the blood NTBC levels, it was found to be 50 umol/L (normal range-30–50). Subsequently on decreasing the dose of NTBC, plasma tyrosine levels decreased to 708 umol/L and NTBC levels remained in the normal range (30 umol/L). Her urine succinyl acetone remained negative. Thus it is important to monitor serum levels of NTBC to adjust doses and prevent adverse effects.
Conclusion Treatment with NTBC in tyrosinemia needs dose titration based on NTBC levels in blood to achieve optimum effect and minimal adverse effects.

PG-08

Biliary atresia with choledochal malformations- A case series

Nikita Madgam, Ira Shah
Pediatric GI, Hepatology and Nutrition, Incharge, Pediatric GI and Hepatology Clinic, Additional Professor of Pediatrics, B JWadia Hospital for Children, Acharya Donde Marg, Parel, Mumbai 400 012, India

Introduction Biliary atresia (BA) is a common cause of neonatal cholestasis. Choledochal cyst (CC) is a rare cause of neonatal cholestasis. The incidence of BA with CC is 8 % to 11 %.
Cases We present 2 children with biliary atresia and choledochal malformations. Both of them presented at 5 months of age with neonatal cholestasis and were diagnosed on the basis of ultrasound abdomen and MRCP. In patient 1, USG abdomen showed irregular dilatation of central intrahepatic biliary radicals (IHBR) with dilated right hepatic duct, left hepatic duct and common hepatic duct (CHD). MRCP revealed non-visualization of distal common bile duct (CBD) along with fusiform dilatation of the proximal and mid CBD, CHD and right and left hepatic ducts (Fig. 1) suggestive of biliary atresia with choledochal cyst (type 1A/4A). She underwent excision of the choledochal cyst with Roux-en-Y jejunostomy. However, the patient died at 6 months of age due to sepsis and cholangitis. In the second child, USG abdomen showed irregular cystic dilatation of IHBR as well as extrahepatic biliary radicals (EHBR) suggestive of Caroli's disease with BA. MRCP revealed cystic dilation of bilobar intrahepatic biliary radicals upto confluence with non-visualization of CHD and CBD suggestive of Caroli's disease with biliary atresia. Kasai surgery was not done due to advanced age and high risk of the surgery.
Conclusion: Outcome of biliary atresia with choledochal malformation was poor in our patients.

PG-09

Clinical profile of children presenting with acute abdominal pain

***Jenish Rajma**, A C Arun*

Department of Gastroenterology, Velammal Medical College Hospital and Research Institute, Near Chinthamani Tollgate, Anuppanadi, Madurai 625 009. India
Introduction Acute abdominal pain is a common cause of outpatient visits in any pediatric setting. Some diseases require urgent surgical intervention while some may be of functional origin.
Objective To study the clinical profile of children presenting with acute abdominal pain <5 years predominantly presented with pain abdomen, vomiting and loose stools and they were diagnosed to have acute gastroenteritis clinically. Fever with abdomen pain was the most common presentation in 6–15 years children and they were diagnosed to have dengue hemorrhagic fever with warning signs. The 3 common causes of pain abdomen in 1–5 years were acute gastroenteritis (12), dengue fever (8), urinary tract infection (7). In 6–10 years age group, dengue (9), urolithiasis (8), appendicitis (7) were common while in 11–15 years appendicitis (12), acid peptic disease (12) were common. The commonest cause for pain abdomen in boys was renal stones while in girls acid peptic disease was more prevalent.
Conclusion Our study helped us to identify the different spectrum of etiologies across the three age groups (1–5 years, 6–10 years, 11–15 years) and diseases showing male or female predilection. The study showed the increasing prevalence of urolithiasis and pancreatitis.

PG-10

Limited diagnostic significance of serum gammaglutamyl transpeptidase levels in advanced pediatric cholestatic liver diseases

***Vikrant Sood**, Bikrant Bihari Lal, Dinesh Rawat, Chhagan Bihari, Seema Alam*

Departments of Pediatric Hepatology and Pathology, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India
Introduction Serum Gammaglutamyl ranspeptidase (GGTP) levels is considered a useful test for diagnosis of cholestatic liver disorders where it helps in differentiating various disease entities (for e. g, high GGTP in biliary atresia/PFIC type 3, low GGTP levels in PFIC type 1 or 2). But some patients associated with high GGTP cholestasis and advanced liver disease with synthetic failure, may have progressive fall in GGTP levels leading to erroneous diagnosis. This limitation in diagnostic utility of serum GGTP levels in cholestatic liver diseases has not been described in literature before. So, this study was aimed to check the diagnostic significance of GGTP values in high GGTP pediatric cholestatic liver diseases.
Methods A retrospective evaluation of data from August 2011 to December 2015, where all pediatric cases (<18 years age) of cholestatic liver diseases presenting to the Department of Pediatric Hepatology of the Institute were admitted and evaluated as per the standard protocol. Only those cases which fulfilled all of following criteria were included in the study: (1) High GGTP cholestasis at baseline (normal ranges for serum GGTP : <2 months: <230 U/L; 2–4 months: <100 U/L; > 4 months: < 64 U/L), (2) Preserved synthetic functions at baseline (defined as International normalized Ratio/INR ≤1.3, serum albumin ≥3.5 g/dL and no present/past evidence of decompensation of liver disease e. g. ascites) and (3) Progression of liver disease during study period (defined as uncorrectable coagulopathy i.e. INR ≥1.5 after 6 h of vitamin K injection, serum albumin < 3.5 gm/dL and/or present/past evidence of decompensation of liver disease e. g. ascites).
Results A total of 146 children were diagnosed as having cholestatic liver disease during the study period. Out of these, a total of 117 children (BA=98, PFIC type 3=3, PSC=10 and PSC/AIH overlap=8) were diagnosed as having high GGTP cholestasis. Amongst these, 7 prototype cases (4 cases of biliary atresia, 2 cases of PFIC type 3 and 1 case of PSC) were selected for discussion (with complete workup and adequate follow up). The cases are described in detail in Table 1. In these cases, serum GGTP levels initially remained high and gradually went down as the disease progressed i.e. decompensation of hepatic function occurred.
Conclusion There is a progressive fall in serum GGTP levels with advancement of liver failure in cases with high GGTP cholestatic disorders. Thus, serum GGTP levels should not be used in isolation to diagnose or exclude pediatric cholestatic disorders and should always be used in clinical picture to avoid misdiagnosis.

Table 1 Clinical/laboratory parameters of selected cholestatic liver disease patients (Patient 1a-d- biliary atresia, Patient 2a and 2b- PFIC Type 3, patient 3- PSC)

Parameter	Patient 1a	Patient 1b	Patient 1c	Patient 1d	Patient 2a	Patient 2b	Patient 3
Age (at presentation)/Sex	53 days/Male	150 days/Male	124 days/Male	52 days/ Male	8 years/Male	10 years/Male	14 year/Male
Age at KPE surgery	58 days	155 days	127 days	56 days	NA	NA	NA
Baseline Data							
Bilirubin (T/D) (mg/dl)	9.0/5.1	11.3/8.1	7.1/6.1	11.5/6.6	3.2/2.4	5.57/2.5	4.4/3.2
SAP/GGTP (IU/L)	777/402	882/582	650/297	488/938	474/225	411/252	908/269
Albumin (gm/dl)	3.5	3.6	3.5	3.6	3.75	3.65	4.2
INR*	1.0	1.2	1.17	0.92	1.12	1.3	–
Ascites (USG Based)	None	None	None	None	None	None	None
6 month Follow up data							
Bilirubin (T/D) (mg/dl)	7.7/4.7	9.2/5.9	12.3/6.9	7.6/4.4	10.4/6.4	3.6/2.2	11.2/7.2[#]
SAP/GGTP (IU/L)	546/148	390/430	276/124	435/216	288/110	396/112	496/137[#]
Albumin (gm/dl)	2.7	2.8	2.5	2.8	2.4	2.7	2.1[#]
INR*	1.3	1.4	1.0	1.4	1.35	1.4	1.7[#]
Ascites (USG Based)	None	Minimal	Minimal	None	None	None	Minimal[#]
1 year Follow up data							
Bilirubin (T/D) (mg/dl)	4.8/2.5	4.2/2.1	23.9/13.4	15.4/8.7	14.7/8.4	6.3/4.2	17.5/14.9[##]
SAP/GGTP (IU/L)	543/96	549/148	460/52	977/83	236/74	550/110	417/154[##]
Albumin (gm/dl)	2.4	2.2	2.1	2.8	1.7	2.0	2.4[##]
INR*	1.6	1.53	1.45	1.61	1.87	1.48	1.5[##]
Ascites (USG Based)	None	Mild	Mild	None	Minimal	None	None[##]
Last Follow up data							
Follow up	28 months	30 months	27 months	32 months	36 months**	38 months**	64 months
Bilirubin (T/D) (mg/dl)	17.5/10.3	17/9.4	26.9/15.4	23.9/16.8	21.7/14.8	16.8/9.0	9.2/5.5
SAP/GGTP (IU/L)	457/40	122/31	512/50	864/62	212/57	327/59	286/63
Albumin (gm/dl)	2.2	0.9	1.6	2.1	1.5	1.2	1.5
INR*	2.3	3.19	3.4	2.1	2.12	2.50	2.58
Ascites (USG Based)	Minimal	Moderate	Mild	Mild	Mild	Mild	Moderate

* After Vitamin K Injection, ** LT done, [#] At 1 year follow up, [##] At 2.5 years follow up
GGTP- Gamma-glutamyl transpeptidase, *gm/dl* – Grams per decilitre, *INR* – International normalized ratio, *IU/L*- International Units per litre, *KPE*- Kasai portoenterosotomy, *LT*- Liver transplant, *mg/dl* – Milligrams per decilitre, *NA*- Not applicable/available, *SAP*- Serum alkaline phosphatase, *T/D*- Total/Direct, *USG*- ultrasonography.

PG-11

Lane-Hamilton syndrome: Atypical presentation of celiac disease

Sajan Agarwal*, Pooja Semwal, Raj Kumar Gupta, Anamika Gora, Manohar Lal Gupta, Sitaraman Sadasivan, Anu Bhandari, Arpita Jindal*
Departments of Pediatric, Radiology, and Pathology, SMS Medical College and Hospital, Jawaharlal Nehru Marg, Gangawal Park, Jaipur 302 004, India

Idiopathic pulmonary hemosiderosis (IPH) is manifest as triad of pulmonary symptoms, alveolar opacities on chest radiographs, and iron deficiency anemia. His association with celiac disease (CD) known as Lane-Hamilton syndrome could be due to the fact that both entities share a common pathogenic immune pathway. There are limited numbers of case reports of this syndrome in literature. A 14-years-old non-smoker adolescent boy presented with complaints of intermittent hemoptysis associated with cough and history of progressive pallor for last 5 months. Cough was present off and on with mild specks of blood. No other significant history was present. On admission he had severe pallor with respiratory distress. On auscultation, bilateral infrascapular crackles and hyperdynamic precordium with hemic murmer was present. There was no hepatosplenomegaly. Investigations showed severe anemia (Hb 2 gm/dL), ESR of 10. He had been investigated for anemia and blood investigations demonstrated iron deficiency anemia. Renal function tests, liver function tests, C-reactive protein, coagulation studies and urine analysis were within normal limits. Chest radiograph demonstrated bilateral lower zone alveolar type opacities. A contrast-enhanced computed tomography scan of the chest revealed scattered ground glass opacities predominantly in both lower lobe and fibrosis with bronchiectatic changes seen in bilateral upper lobes**.** Work up for pulmonary tuberculosis and HIV ELISA were negative. All laboratory workup for diffuse

alveolar hemorrhage (DAH) were negative. Cardiac evaluation was normal. Pulmonary function tests showed restrictive pattern with FEV1 63 %, FVC 68 %, FEV1/FVC 95 % and PEFR 78 % of predicted. In sputum examination, smear of sputum showed occasional squamous cells, few neutrophils and hemosiderin-laden macrophages (HLM) enmeshed in mucous, suggesting the possibility of intra-alveolar hemorrhage. The presence of bilateral ground-glass haziness and iron deficiency anemia, along with HLM in sputum examination with exclusion of other causes confirmed the diagnosis of IPH.

Though there was no gastrointestinal symptoms in our case but possibility of CD was considered in view of severe iron deficiency anemia (degree of anemia was out of proportion to the chest imaging findings) and previously described association between IPH and CD. Positive serology (anti-tissue transglutaminase tTG IgA >100 AU/mL, normal <10 AU/mL), presence of scalloping in second part of duodenum in esophagogastroduodenoscopy (EGD) and modified Marsh grade 3a histological finding in duodenal biopsy was consistent with diagnosis of CD. A final diagnosis of Lane-Hamilton syndrome (CD with IPH) was made. Child was initially managed with blood transfusions and put on gluten-free diet (GFD). Pulmonary symptoms were completely recovered after few days. Hemoglobin at 2 months follow up was normal with complete disappearance of previous radiological findings in chest X-Ray. Long-term follow up was advised to check the compliance of GFD and recurrence of sign or symptoms.

Conclusion A high index of suspicion for celiac disease should be kept in patients of pulmonary hemosiderosis, especially with disproportionately severe anemia despite having no gastrointestinal symptoms and vice-versa. Non-invasive investigation sputum examination for hemosiderin-laden macrophages is diagnostic. This entity is important to recognise as treatment with a gluten-free diet alone can lead to remission of the pulmonary symptoms.

PG-12

Late presentation of autoimmune hepatitis as end-stage liver disease in a diagnosed case of celiac disease with ataxia telangiectasia

***Sajan Agarwal**, Raj Kumar Gupta, Anamika Gora, Manohar Lal Gupta, Sitaraman Sadasivan, Anu Bhandari, Kalpana Mangal*
Departments of Pediatric, Radiology, and Pathology, SMS Medical College and Hospital, Jawaharlal Nehru Marg, Gangawal Park, Jaipur 302 004, India

The occurrence of liver impairment in celiac disease (CD) is well established. Autoimmune hepatitis (AIH) in association with celiac disease usually need specific immunosuppressive therapy, rather than just gluten-free diet (GFD). This is the first report of AIH presenting as end-stage liver disease (ESLD) in a diagnosed case of celiac disease (CD) with ataxia telangiectasia (A-T). A 14-years-old male child presented to us with sudden onset abdominal distension for last 30 days with features of hepatic encephalopathy. There was no history of jaundice, hematemesis, malena. In the past, he was diagnosed with CD at 8 years of age because of history of chronic diarrhea, failure to thrive and anemia. Diagnosis of CD was based on positive anti tissue transglutaminase antibody (tTG IgA >100 U/L) and modified Marsh grade 3a in duodenal biopsy. GFD resulted in a significant improvement with disappearance of gastrointestinal symptoms within 1 years. Subsequently he was diagnosed with A-T based on common clinical features (abnormal eye movement, ataxia, and abnormal speech appeared at 3, 4 and 7 years of age respectively), presence of telangiectatic lesion over bilateral bulbur conjunctiva and face, high AFP level and cerebellar hypoplasia in MRI brain at 9 years of age. After 5 years on strict GFD, asymptomatic transaminasemia (about 3 times above the normal limit) was found during routine screening which was persisting during further follow up. No work up was done for this persistent transaminasemia other than negative viral serology.

Child was hemodynamically unstable at the time of admission to our institute. Weight and height both were below 3~~rd~~ percentiles. Mild pallor and clubbing was present without icterus. Organomegaly couldn't be appreciated due to presence of tense ascites. On baseline work up, there was 3 times elevation of liver enzymes (AST/ALT), low serum albumin with reversible of albumin: globulin ratio and deranged INR (INR 1.9). Rest liver function test was normal. Ascites fluid examination showed serum ascites albumin gradient (SAAG) >1.1. On chronic liver disease work up, Anti LKM-1 was positive with elevated IgG level of 1950 IU/L. Work up for other autoimmune conditions (thyroid disease, type 1 DM) were negative with anti tTG IgA antibody <10 U/L suggesting good GFD compliance. Ultrasound-Doppler examination revealed cirrhotic liver. A diagnosis of AIH type 2 was made and liver transplantation was advised on basis of ESLD with high Child's Pugh score 10 and MELD score 16 but because of logistic constraints, the patient was managed medically. On 7th day of admission, child's condition further deteriorated and couldn't be survived. Post-mortem liver biopsy was performed after patient's parents consent which confirmed the diagnosis of AIH with cirrhotic changes.In conclusion, screening for autoimmune hepatitis in celiac children should become routine practice in cases with persistent transaminasemia which can develop during long-term follow up even on strict GFD. Early diagnosis and timely initiation of immunosuppressive therapy for AIH rather than just GFD may prevent progression to ESLD.

PG-13

Wheat allergy coexisting with Cows milk protein allergy - A case report

***Shyam Sundar Sharma**, Lalit Bharadia*
Fortis Escorts Hospital J L N Marg, Malviya Nagar, Jaipur 302 017, India

Introduction Food allergy is an increasing health care concern. Food allergy is defined as an adverse health effect arising from a specific immune response that occurs reproducibly following exposure to a given food.

Case Eight month old male child presented with diffuse eczema since 3 month of age, he was on breast feed and top feed since birth. He was started on Semilona (wheat) at 6 months of age when child developed sneezing and rhinorrhea. Similar reaction occurred a second and a third time too. He had dry skin with peeling and scratch marks all over the body. In view of symptom post wheat, he was tested for tTg IgA which was 195 (cut-off 15). Later negative antiendomysial antibody and HLA DQ2/8 ruled out celiac disease. Serum IgE was 7819 (1.5–378), milk specific IgE 3.03 (cut-off 0.1), wheat specific IgE > 100 (cut-off 0.1). He was thus diagnosed as wheat allergy and cows milk protein allergy (CMPA) and was started on dairy free and wheat free diet after which symptoms improved.

Discussion One hundred and seventy food have been documented to cause allergy in different studies. Commonest 8 allergens are egg, milk, fish, wheat, soy, tree nuts, shellfish and peanuts. An individual can be allergic to multiple food items as in our case.

Conclusion A high index of suspicion and careful history is required to suspect food allergy. Response to exclusion diet and recurrence to challenge is the gold standard for diagnoses.

PG-14

A study of clinical profile of inflammatory bowel disease in children

***Itish Patnaik**, Sudipta Dhar Chowdhury*
Tamilnadu Medical Council

PG-15

Validation of adapted dartmouth operative conditions scale for sedation during pediatric esophagogastroduodenoscopy

Vanmathi Chandran, ***Barath Jagadisan****, Barani Ganth*
Department of Paediatrics, Jawaharlal Institute of Postgraduate Medical Education and Research, Dhanvantri Nagar, Gorimedu, Puducherry 605 006, India, and Department of Applied Psychology, Puducherry University

Objectives Pediatric esophagogastroduodenoscopy (PEGD) requires deep sedation since it involves stimulation of the airway. Frequency of adverse events is higher with EGD. Hence, monitoring needs physiological sedation scales like Dartmouth operative condition scale (DOCS). DOCS needs adaptation and validation before use in PEGD.
Methods Items in DOCS were adapted for PEGD. Videos of thirty-five PEGDs were recorded. The recording started 10 min before sedation and continued till recovery. The videos were split into pre-procedure videos (PPV), intra-procedure videos (IPV) and recovery videos (RV) and further split into 30 s clips. Twenty representative IPV clips were selected. Ten raters scored the videos with adapted DOCS (ADOCS) and modified COMFORT (MCOMFORT) score. ADOCS scoring was repeated after a month. The PPV, IPV and RV of 10 patients (6 clips each) were scored by one rater to assess responsiveness.
Results Similar absolute scores were seen with under-sedated and over-sedated states. Early under-sedated states recognized by MCOMFORT were not reflected in ADOCS. ADOCS showed fair inter-rater reliability at timeline-1 [Intraclass correlation coefficient (ICC)=0.45, $p<0.05$)] and timeline-2 (ICC=0.65, $p<0.05$) but poor intra-rater reliability (ICC=0.32, $p<0.05$). ADOCS showed significant positive correlation with MCOMFORT (Spearman rank order correlation, r=0.150, $p<0.05$). ADOCS was a responsive score as seen by the difference in the PPV, IPV and RV scores (F=126.50, $p=0.000$).
Conclusion DOCS/ADOCS is a non-linear system for the depth of sedation. Early under-sedated states are not reflected. DOCS/ADOCS in its present form is unsuitable for use during PEGD. Further modification and validation are needed.

PG-16

Clinical profile of celiac disease in pediatric population in a tertiary care hospital in India

Anurag Tiwari*, Aadya Sharma, Amit Sharma, Deepika Chaturvedi, Vinod Kumar Dixit*
Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, India, Santokha Durlabhji Memorial Hospital and Research Institute, SB-15A, Bhawani Singh Road, Bapu Nagar, Near Rambagh Circle, Jaipur 302 015, India and Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background Celiac disease (CD) is a small intestinal immune-mediated enteropathy precipitated by dietary gluten. CD might present with either classical gastrointestinal symptom i. e. diarrhea or atypical gastrointestinal and non-gastrointestinal symptoms. Atypical celiac disease (ACD) is well recognized in the West.
Aims This study evaluates typical and atypical presentations of CD in patients presenting to a tertiary center in north India and observes response to gluten-free diet (GFD) after 3 months of follow up.
Methods In this prospective study we included 74 pediatric patients with CD meeting predefined criteria for inclusion and exclusion.
Results At presentation diarrhea was seen in 56.8 % (typical CD). Among non diarrheal presentations weight loss (41.9 %) was most common. The mean age at diagnosis was 8.5±5.1 years {typical (7.5±5.3) and atypical (9.9±4.7) $p=0.04$}. Wasting (kilogram) and stunting (centimeter) were more frequent in typical CD as compared to atypical CD (20.8±14.4 and 109.9±28.7 vs. 24.1±12.0 and 122.8±23.0 respectively) and p value for stunting was 0.04. Mean IgA tTg concentration was 232.5±135.5 U/mL {typical CD (241.5±149.8) as compared to atypical CD (220.8 ±115.5) $p>0.05$}. Most common histological (modified Marsh) stage was 3c (55.4 %) followed by 3a and 2 (16.2 % each) and 3b (12.2 %). 94.6 % patients had complete response to GFD. One patient was non-compliant and three were non responsive to therapy.
Conclusion Atypical CD is quite common in pediatric population in this part of the country. Patients with typical CD are significantly younger in age and more stunted than their atypical counterpart.

PG-17

Celiac disease-A profile from Eastern India

Bhaswati C Acharyya*, M K Goenka, Sujay Khan*
Department of Paediatric Gastroenterology, AMRI Hospitals, No. P-4 and 5, C.I.T Scheme, Block-A, Gariahat Road, Dhakuria, Kolkata 700 029, India, and Departments of Gastrosciences, and Allergy and Immunology, Apollo Gleneagles Hospitals, 58, Canal Circular Road, Kadapara, Kolkata 700 054, India

India had entered into the global scenario of celiac disease with Northern India being the celiac belt. But prevalence studies are lacking from the Eastern part of India. A retrospective study was undertaken where the case files of 720 children, who were screened for CD between the years 2011 to 2015, from three tertiary referral centres of Kolkata, were analyzed. Blood tests for serum iIgA level and anti tTGg-IgA antibody were used at screening. All children found positive for anti tTGg-IgA antibody at screening were subjected to endoscopic duodenal biopsy after informed consent. Fifty children underwent endoscopic duodenal biopsy as found to be positive on screening. In 45 children (25 male 20 female) duodenal biopsies were suggestive of celiac disease (Marsh classification II and above), with adjusted prevalence at 5.83 %. Prevalence of IgA deficiency was observed to be 0.42 % among the children studied, and 6 % among children with CD.

PG-18

Infantile hemangioendothelioma presenting as neonatal cholestasis syndrome: An uncommon presentation of a very rare cause

Sajan Agarwal*, Anamika Gora, Kamlesh Agarwal, Jeetam Meena, Kailash Meena, Madhur Jain, Sitaraman Sadasivan*
Departments of Pediatric, and Radiology, SMS Medical College and Hospital, Jawaharlal Nehru Marg, Gangawal Park, Jaipur 302 004, India

Case Thirty-days-old female baby, born by full-term delivery, admitted with complaints of noticed yellowish discolouration of eye and urine for last 15 days with diaper staining and ambiguous stool. On examination, baby had deep icterus with hemangioma like lesion over anterior abdominal wall and firm hepatosplenomegaly. In work up, there was severe anemia with thrombocytopenia and LFT showed high conjugated hyperbilirubinemia with high GGT. USG abdomen showed multiple hypoechoic lesion with hyperechoic rim (largest lesion 22 × 13 mm) noted in both lobes of liver and portal vein thrombosis with lesion communicating with left portal vein. CECT abdomen

with triple phase was also done for further confirmation which confirmed the USG findings with peripheral rim enhancement of lesions. Based on above details, final diagnosis of infantile hemangioendothelioma with obstructive jaundice, portal vein thrombosis, and consumption coagulopathy (Kasabach-Merritt syndrome) was made. Baby was managed medically with steroid and propanolol therapy. On day 4 of therapy, there was drastic fall in jaundice with improvement in coagulopathy and reduction in lesion size. Baby was discharged on same therapy after parent's persistent request.
Conclusion Infantile hemagioendothelioma can present with NCS and it should also be kept in differential diagnosis of NCS.

PG-19

Glycogen storage disease: Metabolic disease presenting with non-metabolic complications

Sajan Agarwal*, Garima Sultania, Raj Kumar Gupta, Anamika Gora, Manohar Lal Gupta, Sitaraman Sadasivan, Anu Bhandari, Kalpana Mangal*
Departments of Pediatric, Radiology, and Pathology, SMS Medical College and Hospital, Jawaharlal Nehru Marg, Gangawal Park, Jaipur 302 004, India

Glycogen storage diseases (GSDs) are metabolic liver disorders affecting glycogen metabolism. GSDs represent the enzymatic defects in glycogen metabolic pathway predominantly affecting liver, muscle and heart. Individuals with GSD usually presents with characteristic doll-like facies, hepatomegaly, hypoglycemia, hyperlipidemia and growth retardation. However, they may also presents with predominant non-metabolic complications like recurrent infection with or without enterocolitis due to neutropenia and neutrophil dysfunction in GSD Ib and hypophosphatemic rickets due to proximal renal dysfunction in GSD XI. Here we report these two rare GSD cases, who presented with non-metabolic complications. Case 1 presenting with frequent pneumonia, severe anemia and fistula in ano and case 2 presenting with hypertension and hypophosphatemic rickets were diagnosed as GSD type Ib and GSD type XI/Fanconi-Bickel syndrome respectively on the basis of massive hepatomegaly, deranged metabolic profile and liver biopsy. Frequent pneumonia in GSD Ib and hypertension in GSD XI could be explained by neutropenia related immune dysfunction and activated renin-angiotensin system respectively. Such an atypical presentations of these two rare GSDs has not been reported in literature to the best of our knowledge.
Conclusion GSDs may present with vast spectrum of manifestations including metabolic as well as non-metabolic complications. High index of suspicion, early detection and screening, simple dietary modification along with adjunctive pharmacotherapy are required to treat most of these complications. GSD XI/FBS cases should be studied from an early age for evidence of renal glomerular disease.

PG-20

Hepatorenal fibrocystic disease spectrum in 2 sisters

Sajan Agarwal*, Priti Vijay, Raj Kumar Gupta, Anamika Gora, Manohar Lal Gupta, Sitaraman Sadasivan, Anu Bhandari, Kalpana Mangal*
Department of Pediatric, Radiology, and Pathology, SMS Medical College and Hospital, Jawaharlal Nehru Marg, Gangawal Park, Jaipur 302 004, India

Background Caroli's syndrome (CS) is a rare congenital disorder characterized by multiple segmental cystic or saccular dilatations of the intrahepatic bile ducts and congenital hepatic fibrosis (CHF). The clinical features of this syndrome reflect both the characteristics of CHF such as hepatic fibrosis, portal hypertension, and renal cystic disease and that of Caroli's disease (CD) named as recurrent cholangitis and cholelithiasis. CS is associated with renal involvement in up to 60 % of patients and implies a dilatation of the collecting renal tubules.
Case Report We report a case of 2 sisters who were presented with hepatosplenomegaly, growth failure, intrahepatic bile duct dilatation and bilateral autosomal polycystic kidney disease (ARPKD) on imaging with histopathological diagnosis of CHF. Elder sisters also had asymptomatic stage-2 chronic kidney disease (CKD). Upper gastrointestinal (UGI) endoscopy of younger sister showed high risk esophageal varices (grade III with red colour sign) which was managed with band ligation. Nutritional rehabilitation with high calorie diet, fat soluble vitamin and MCT oil supplementation was started in both the sisters along with ursodeoxycholic acid supplementation in younger sister for cholestasis. Both the patients have been advised regular follow up for monitoring the progression of the disease. The family members of the patients were screened and both parents and younger brother had a normal abdominal ultrasound. Prognosis is fairly good unless recurrent cholangitis and renal failure develops. Combined liver and renal transplantation seems the ultimate treatment for this disease in case of end-stage renal disease (ESRD) with clinical significant portal hypertension and/or recurrent cholangitis.
Conclusion Patients with CS should be screened for renal cystic lesions and vice versa even if they are asymptomatic.

Nutrition

N-01

Effect of long-term aggressive nutritional therapy on survival in patients with alcoholic liver cirrhosis- Interim analysis of a randomized controlled trial

Chetan Ramesh Kalal*, Jaya Benjamin, Varsha Shashthry, Yogendra Kumar Joshi, Guresh Kumar, Shiv Kumar Sarin*
Departments of Hepatology, Clinical Nutrition, and Clinical Research, Institute of Liver and Biliary Sciences, D-1, Vasant Kunj, New Delhi 110 070, India

Background Malnutrition in alcoholic cirrhosis (AC) has prognostic implications. Benefits of long-term therapy on survival and clinical outcome is unexplored.
Aim To assess the effect of long-term aggressive nutritional therapy (ANT) on clinical outcomes and survival in AC.
Methods From June 2013 to August 2015, 104 patients (by RFH-SGA) randomized to the standard counselling gp (CG) (35–40 Kcal and 1.2 gm pr/Kg/d) or ANT group (IG) (giving additional 500 Kcal and 15 g pr) for 3 months. All were followed up at 3, 6 months and 1 year. Survival was analyzed at 1 year in 104 patients.
Results Patients (age 44.0±9 years, M (100 %) Child A:B:C (%)=11:39:50 randomized to CG (n=50) or IG (n=54), 21 patients in CG and 27 in IG completed at least 3 mnt. Baseline parameters were comparable. Median survival was comparable in both grps (p=0.86). Improvement from baseline to 3 months (i. e. increase of 506 Kcal (p=0.02) and prs 15 gm (p=0.06) in IG vs. CG), dry body weight (DBW) (64±10 to 66±11, p=0.04 vs. 60.8±9.2 to 63.2±10.7, p=0.009) and MUAC (924.7±3.3 to 25.5±3.3; p=0.116 vs. 23.5±2.7 to 24.1±2.9; p=0.015). The RFH-SGA improved in 7 (33.3 %; p=0.016) in IG vs. 3 (14.2 %; p=0.625) in CG. An exploratory analysis found overall survival benefit at 12 months with energy intake > 25 (n-36) vs. <25 Kcal/kg/day

(*n*=12) as 90.6 % vs. 71.3 %, *p* =0.004 and protein intake >0.8 (*n*=39) vs. <0.8 g/kg/d (*n*=11) as 94 % vs. 36.6 %, *p*=0.001.
Conclusion ANT achieved significantly greater improvement in RFH-SGA, DBW, MUAC at 3 months. compared to standard counselling, though with no significant survival advantage. Intake of energy >25 Kcal and protein >0.8 gm/ Kg/d significantly improved 12 month survival in patients with AC.

N-02

Assessment of nutrition in cirrhosis and its impact on complications

G Challa Rao*, C Dinesh Reddy, M Harsha, Sree Harsha, Ankit, K R Thankappan, M G Srinivas*
Narayana Medical College, Chinthareddipalem, Nellore 524 002, India

Miscellaneous

M-01

Analgesia in active transaminiitis - A case report

Rahul D Arora
Annexe Building, Tata Memorial Centre Hospital, Ernest Borges Marg, Parel, Mumbai 400 012

Background Pain management in active liver parenchymal disease with transamiinitis with reduced oral intake due to altered sensorium is an important clinical entity.
Case details A female patient with active transaminitis and intracranial metastasis was prescribed Inj Tramadol 50 mg intravenous prn for visceral nociceptive pain of moderate intensity. The search for optimum pain medication prompted a rethink on the route of administration and choice of pharmacological pain management in this setting.
Discussion Intravenous Tramadol use may increase the propensity for seizures. No intravenous formulation of Tapentadol is available at present. Transdermal formulations of strong opioids are available but dosage adjustment in hepatic dysfunction and absence of pain of severe intensity in this patient preclude their usage. Diclofenac has been proven to be a relatively hepatosafe drug for chronic use as ALT elevations of more than 10 times normal were identified only in 0.5 % of the 17,289 subjects in the MEDAL study. Ibuprofen is also an unlikely cause of liver injury. Etoricoxib and Rofecoxib have been associated with a very low incidence of hepatic reactions.
Conclusion Expert consensus on the biochemical markers of liver injury to be applied to pre marketing studies and clinical markers of liver damage is lacking. In the absence of renal dysfunction, NSAIDs like Diclofenac (Transdermal delivery system and Parenteral), parenteral adjuvant pain medication constitute the pharmacoanalgesia of choice but the risk of gastrointestinal bleeding and potential for development of renal dysfunction needs to be borne in mind while prescribing NSAIDs. Key words transaminiitis pharmacological management pain.

M-02

Jaundice in elderly

Rajan Mittal*, P Padmanabhan, P Bibin, S Rajanikanth, S N K Chenduran*
Meenakshi Medical College, Enathur, Karrapettai Post, Kanchipuram 631 552, India

The present study was conducted to assess the causes of jaundice in elderly patients (more than 60 years) attending a tertiary care hospital in South India in 1 year. The cases were included based on clinical presentation of jaundice and subsequently investigations were directed to ascertain the possible etiology.
During the study 30 patients were included in the study. Three patients were lost to follow up. Out of 27 patients, mostly jaundice was noticed as a part of underlying cardiac disease and sepsis in 26 % (7 patients).
Hepatic cause was seen in 26 % (7 patients- 2 with alcohol related chronic liver disease, 2 with ischemic hepatitis, 1 patient with liver abscess, 1 with hepatocellular carcinoma and 1 patient with reactivation of hepatitis B infection).
Obstructive cause was ascertained in 22 % (6 patients) of the cases, with cholilithiasis being the most common (4 patients). Extrahepatic malignancy was noted in 14 % (4 patients - 2 with carcinoma head of pancreas, 1 each with carcinoma esophagus and gallbladder, both metastasizing to liver). Two patients had pancreatits and 1 patient was found to have hemolytic anemia.
This study undermines the fact although elderly patient are more prone to have malignancy/obstruction as a cause for jaundice, other systemic causes such as cardiac disease and sepsis can lead to jaundice in significant number of the patients thereby warranting a cautious individual evaluation to their diagnosis and management.

M-03

Non-invasive lactulose hydrogen breath test to analyze gut bacterial concentration in type 2 diabetic patients

Satyavati Rana, ***Rajesh Kumar Morya****, Aastha Malik, Sanjay Kumar Bhadada*
Departments of Gastroenterology and Endocrinology, Post Graduate Institute of Medical Education and Research, Chandigarh 160 012, India

Diabetic patients generally complain about various gastrointestinal (GI) problems such as flatulence, diarrhea and/or constipation. These problems may arise due to abnormal bacterial concentration in GI tract. Relationship of hydrogen concentration, which is indirect representation of bacterial concentration, with GI problems in diabetic patients has not yet been analyzed.
Aim To analyze GI bacterial concentration on basis of hydrogen levels of diabetic patients.
Methods Eighty-eight patients of type 2 diabetes mellitus with age range 24–65 years and 50 age and sex matched apparently healthy controls (age range 24–67 years) were enrolled. Hydrogen concentration and SIBO were measured by non-invasive lactulose and glucose hydrogen breath tests respectively. Concentration of hydrogen was measured by using SC Microlyser from Quintron, USA. Rise in hydrogen concentration ‰ ¥10 ppm over fasting value within 2 h of glucose ingestion was considered as SIBO.
Results It was observed that percentage of SIBO 15/88 (17 %) was significantly higher in diabetic patients as compared to controls 1/50 (2 %). Mean±SD of hydrogen concentration (1219.9 ±504.9 ppm) was significantly higher (*p*,0.05) in diabetic patients as compared to controls (1008.3±371.7 ppm). Furthermore, SIBO positive diabetic patients showed significantly higher (*p*,0.05) hydrogen concentration (1594.9±746.9 ppm) as compared to SIBO negative diabetic patients (1069.9±359.5 ppm).
Conclusion This study indicates that higher hydrogen concentration in diabetic patients may be due to excess of gut bacteria in these patients. Secondly, diabetic patients with SIBO also had higher concentration of gut bacteria which may be responsible for flatus or bloating in these patients.

M-04

Incidence of small intestinal bacterial overgrowth and its relationship with orocecal transit time in type 1 diabetic patients

Aastha Malik*, Satyavati Rana, Rajesh Kumar Morya, Sanjay Kumar Bhadada*
Departments of Gastroenterology and Endocrinology, Post Graduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background Type 1 diabetes is an autoimmune disease that is characterized by self-destruction of beta pancreatic cells leading to insulin deficiency. Gastrointestinal disorders are common among T1DM.
Aim To assess incidence of small intestinal bacterial overgrowth and its relationship with orocecal transit time in T1DM.
Methods Fifty-three T1DM with age range (18–30 years) attending Endocrinology Clinic at PGIMER, Chandigarh were enrolled. Fifty-three age and sex matched healthy controls who gave consent for study were also enrolled. Non-invasive glucose and lactulose breath tests were done after overnight fast for measurement of small intestinal bacterial overgrowth (SIBO) and orocecal transit time (OCTT) respectively. OCTT was measured by analysis of end-expiratory breath samples for 4 h using SC Microlyser from Quintron, USA after ingesting 10 g lactulose. SIBO was measured by analysis of end-expiratory breath for 2 h after giving 75 g glucose dissolved in 450 mL water.
Results Out of 53 T1DM patients, 26 (49 %) were females. Mean±SD of age in female patients was 21.24±6.45 years and that of males 19.3 ±5.32 years. Mean±SD of OCTT (137.92±45.3 ppm) in T1DM patients was significantly higher ($p<0.05$) as compared to controls (90 ±13.54 ppm). Percentage of SIBO in T1DM, (22.64 %) was significantly higher (<0.05) as compared to controls, (3.77 %). OCTT was more delayed in SIBO+ve patients as compared to SIBO-ve. SIBO was present in 40.9 % of T1DM patients who had duration of disease for >5 years and 12.9 % in patients who had duration <5 years.
Conclusion This study indicates that SIBO was more in T1DM patients and this would have been due to increased OCTT. With increase in duration of disease, incidence of SIBO tends to increase in these patients.

M-05

Tumor lysi s following sorafenib therapy- A rare complication

Uday Sanglodkar*, Mayank Jain, Joy Vargese, VJayanthi, Mohamed Rela*
Department of Medical Gastroenterology, Global Health City, Chennai 600 100, India

Background we report a case of tumor lysis syndrome 4 weeks following Sorafenib treatment in a patient with advanced hepatitis B virus-related HCC with post trans arterial chemoembolization (TACE).
Case A 53-year-old male, a known case of hepatitis B related cirrhosis of liver presented with a brief history of right upper abdominal pain and weight loss of 8 kg. CT abdomen showed an arterial enhancing mass in segment 5, 6, 8 (12.2 × 15.8 cm), multiple satellite nodules on a background of liver cirrhosis with main portal vein thrombus. Bone scan showed no skeletal metastasis (BCLC stage C). Based on our recent personal observation of an improved survival of 9 months when TACE was combined with sorafenib in BCLC C, patient was offered this option with a sorafenib dose of 200 mg twice a day. During review at one month, patient reported excessive fatigue and decreased urine output. Table summarises pre and post laboratory parameters. Urine routine examination was normal. Ultrasound scan showed no ascites; kidneys, bladder and prostrate were normal. The rise in serum creatinine and potassium from the baseline with a significant increase in serum uric acid was sine en quo of a diagnosis of tumor lysis syndrome as per Cairo-Bishop definition. He was started on aggressive intravenous hydration with anti hyperkalemia measures and close monitoring of renal and electrolyte parameters. Patient showed clinical improvement to treatment.

Table of investigations

	Pre TACE	Post TACE
Hb (g/dL)	11.8	11.2
Platelet count ((cells/cu mm)	1.2	2.09
WBC count (cell/cu mm)	8620	9270
S. Creatinine (mg/dL)	0.9	2.9
S. Sodium (mmol / L)	132	129
S. Potassium (mmol / L)	4.1	5.4
S. Bilirubin (mg/dL)	1.2	1.89
AST / ALT (U/L)	38/54	102/36
INR	1.2	1.4
S. LDH	Not done	901 U/L
S. Uric acid	Not done	12.1 mg/dl
S. AFP	90,000	177,000 IU/mL

M-06

Losartan induced enteropathy ~ A reality?

Anirban Ghosh, ***Jagruti Balde****, MannaValiathan*
Kasturba Medical College, SH 65, Madhav Nagar, Manipal 576 104, India

Losartan induced sprue like enteropathy is a rare occurrence for which only one case has been reported in world literature, till date. It is characterized by chronic diarrhea, malabsorption syndrome and intestinal villous atrophy. In a setting where sprue like enteropathy is a common occurrence due to gluten rich diet we report case of a 63-year-old hypertensive male presenting with chronic diarrhea since past six years who is also a known case of myelofibrosis on treatment. Patient was on losartan at a dosage of 25 mgs per day. Histopathological evidence of duodenal biopsy showed shortening of crypts and focal villous atrophy with increase in intraepithelial lymphocytes and its presence in the lamina propria. Tissue transglutaminase-IgA antibody was negative ruling out the possibility of celiac disease and stool examination showed no occult blood or parasitic infestation. Patient was started on amlodipine and losartan withdrawn. At one month follow up patient came with decrease in primary symptoms of diarrhea and abdominal bloating. We thence report the same with review of literature.

M-07

Melioidosis-difficult to deal in series of cirrhosis

Vaibhav Patil*, Mayank Jain, Joy Varghese, V Jayanthi, Mohmed Rela*
Department of Gastroenterology, Global Healthcity, Perumbakkam, Cheran Nagar, Chennai 600 100, India

Melioidosis is caused by B. pseudomallei, a gram negative, endemic in southeast Asia. Clinically presents from dermal involvement to pneumonia, visceral abscesses, septic arthritis. Multiple organ dysfunction, metabolic disturbances, severe sepsis signify prognosis. 1. A 34-year-old cirrhotic ethanol related, diabetic, presented fever, jaundice. CT abdomen revealed hypodense, cavitatory lesions, honeycombing in liver and spleen suggestive

of liver and splenic abscesses. Blood culture positive for B. pseudomallei. Patient was treated with meropenem, with CT guided drainage of hepatic abscess. Significant improvenment noted clinicoradiologically. In 3 week complicated with septic embolization in brain with septic arthritis. He expired after 4 days due to disseminated melidiosis involving liver,spleen,brain, joint, lungs at the end. 2 A 39-year-old male, cirrhosis ethanol related, presented with lobar pneumonia with septic shock. He was treated with ICU management, antibiotics blood culture grew B. pseudomallei. Patient improved over period of 10 days, extubated with complete resolution of pneumonia. In 3rd week, complicated with septic arthritis, inspite of continued antibiotic therapy. 3. A 45-year-old male, HBV related cirrhosis presented with splenic abscess with blood culture positive for melioidosis treated with antibiotics. With Initial clinical response, dissemination was seen in form of septic arthritis, prostatic abscess, reuired drainage.
Conclusion In spite of aggressive appropriate antibiotic therapy, interventions for abscess drainage, initial significant clinical response, there is possibility of dissemination morbidity and mortality, being studied in our series of liver cirrhosis.

M-08

Role of confounding concomitant tuberculosis in gastrointestinal malignancies at a tertiary care centre

***J S Dhingra**, P Patil, S Mehta, P Gambhire, S Tandon*
Homi Bhabha Block, Tata memorial Hospital, Parel, Mumbai 400 012, India

Background Tuberculosis is the holy grail of missed diagnosis and misdiagnosis in our country. Tuberculosis is a cause of false upstaging in GI cancer. Here we present a case series in which tuberculosis changed oncological management.
Case series Case 1: 60-year-old male treated for adenocarcinoma stomach and on surveillance follow up, had a hypoechoic lesion in liver with pleural thickening. Liver FNAC showed no tumor cells and biopsy showed granulomatous inflammation with fibrosis with no evidence of malignancy. Pleural biopsy showed necrotising granulomatous inflammation. Case 2: 50-year-old female underwent right hemicolectomy for ascending colon cancer followed by adjuvant chemotherapy. For rising CEA, PET-CECT was done which showed metabolically active bilateral hilar, mediastinal and sub carinal nodes. Mediastinal node biopsy showed non-necrotising epithelioid cell granuloma and no tumor. Case 3: 73-year-old, female, diagnosed with cholangiocarcinoma had tiny aortocaval, supraclavicular, mediastinal and axillary nodes. PET CT scan was s/o of metastatic nodes. Left supraclavicular lymph node biopsy showed no tumor, mature lymphocytes, Ill formed epithelioid granuloma. Case 4: 36-year-old male diagnosed as Grade 1NET rectum with diffuse peritoneal deposits, retroperitoneal, subcarinal and left supraclavicular nodes. After starting LA Octreotide injections monthly, he developed headache, seizures, backache and visual disturbances which on further investigations revealed Spinal and brain tuberculoma.
Results All above cases were diagnosed with concomitant tuberculosis confounding with different presentations of GI malignancy and causing cancer upstaging. With timely diagnosis and treatment all patients had a curative course of malignancy.

M-09

Visceral scalloping on abdominal computed tomography due to abdominal tuberculosis

*Vishal Sharma, Anmol Bhatia, **Sarthak Malik**, Navjeet Singh, Surinder S Rana*
Departments of Gastroenterology and Radiology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background Visceral scalloping of intraperitoneal organs has been reported with pseudomyxoma peritonei, malignant ascites amongst other conditions but not tuberculosis.
Methods A retrospective study of patients with abdominal tuberculosis who had visceral scalloping on abdominal computed tomography (CT) was done. Diagnosis of abdominal tuberculosis was made on basis of combination of clinical, biochemical, microbiological criteria. The clinical data, hematological and biochemical parameters and findings of chest X-ray, CT, Mantoux test, HIV serology were recorded.
Results Of 72 cases of abdominal tuberculosis whose CT were analyzed, seven patients were found to have visceral scalloping. The mean age of these patients was 32.14±8.43 years and four were males. Six patients had scalloping of liver while one had splenic scalloping. The patients presented with abdominal pain (all), distension (5 patients), loss of weight or appetite (all) and fever (four patients). Mantoux test was positive in five while none had HIV infection. The diagnosis was based fluid evaluation in four patients, ileocecal biopsy in one patient, fine needle aspiration from omental thickening in one patient and sputum positivity for AFB in one patient. On CT four patients had ascites, five had collections, lymphadenopathy in one, peritoneal involvement in four, pleural effusion in three, and ileo-cecal thickening in two patients. All except one patient received standard ATT for 6 months or 9 months (1 patient). Pigtail drainage for collections was needed for two patients.
Conclusion Visceral scalloping may not conclusively discriminate peritoneal tubercular involvement from peritoneal carcinomatosis or pseudomyxoma peritonei.

M-10

Kikuchi-Fujimoto disease : Atypical presentation of a rare disease

*M. Juned Khan, **G S Sharath Kote**, G S Gurudath, T Ramesh Kumar, S Suganya, Santosh Palve, S Nityanand, C Palanivelu*
GEM Hospital, 45, Pankaja Mills Road, Sowripalayam Pirivu, Ramanathapuram, Coimbatore 641 045, India

Background Kikuchi and Fujimoto first described the disease in 1972 in Japan . Kikuchi-Fujimoto disease (KFD) or necrotizing histiocytic lymphadenitis is rare benign, self-limited disease that mainly affects young people. Clinical manifestation varies from asymptomatic lymphadenopathy, mainly painless cervical lymphadenopathy, PUO to manifestation simulating lymphoproliferative disorder or connective tissue disease.
Case Presentation A 28-year-old male presented with low grade fever, anorexia and abdominal pain since one month duration, on examination revealed non-significant cervical and axillary lymphadenopathy (5 mm) with mild hepatomegaly. Routine blood investigation revealed elevated WBC (lymphocyte-40 %), LFT and urine routine was normal. LDH was found to be elevated. Patient was investigated to rule out all infectious etiology including TB, viral serology for EBV, hepatitis, dengue, CMV and scrub typhus. Blood and urine culture was negative. CT chest and abdomen showed significant mediastinal and abdominal lymphadenopathy- suggestive of lymphoma/TB and few fibrotic bands in posterior basal segments of left lung. However peripheral smear and bone marrow was normal. In view of suspected lymphoma PET scan was done showed hypermetabolic cervical, mediastinal, iliac, paraaortic and mesentric lymphnodes suggestive of lymphoma, however no extranodal involvement. Elevated LDH was suggestive of liver involvement but PET did not show any activity. For further confirmation diagnostic lap with lymph node biopsy was done histopathology of lymph node showed numerous histiocyte with karyorrhectic debris, suggestive of Kikuchi disease. IHC was negative for lymphoma.

Conclusion In India even though tuberculosis should always be considered as first diagnosis, rare disease should always be kept as differential.

M-11

Ergosterol peroxide from Chaga mushroom prevents colorectal cancer growth by downregulating β-catenin signaling

Siddhartha Kumar Mishra
School of Biological Sciences (Zoology), Dr. Harisingh Gour Central University, Sagar 470 003, India

Inflammatory bowel diseases (IBDs) including ulcerative colitis and Crohn's disease increases the risk of colorectal cancer (CRC) with an account of approximately 15 % annual deaths in IBD patients. Anti-inflammatory drugs are the common therapeutic modalities yet associated with several chronic side-effects. Thus drug development studies involving natural products with lesser side-effects are on demand. We have recently found that an aqueous extract of Chaga mushroom has anti-inflammatory and antitumor properties against intestinal inflammation and CRC by inducing apoptosis, suppressing Wntcatenin-NF-B-iNOS-COX-2 signaling. We have further examined the effect of ergosterol peroxide (EPX), isolated from Chaga mushroom, on proliferation of CRC cells in cultures and on inflammation-driven colitis-associated colon cancer induced in mice by administration of azoxymethane (AOM) and dextran sulfate sodium (SDS). Main experimental methods used were MTT assays, flow cytometry, western blotting, colony formation, RT-PCR, and immunohistochemistry (IHC). EPX inhibited cell proliferation and suppressed clonogenic colony formation in HCT116, HT-29, SW620 and DLD-1 CRC cell lines by inducing apoptosis. EPX inhibited the nuclear levels of-catenin leading to reduced transcription of c-Myc, cyclinD1, and CDK-8. EPX administration to AOM/DSS-induced mice showed tumor suppressive tendency in colon of mice. EPX administration to AOM/DSS-induced mice caused dramatic increase in TUNEL staining of colonic epithelial cells in showing apoptosis induction.
Conclusively results demonstrate that EPX from Chaga mushroom suppresses intestinal inflammation and growth of CRC cells in vitro and tumor suppression in vivo by downregulation of -catenin signaling.

M-12

Sclerosing encapsulating peritonitis (cocoon) due to tuberculosis - A report of 15 cases

Vishal Sharma, ***Harshal S Mandavdhare****, Surinder S Rana, Harjeet Singh, Rajesh Gupta*
Departments of Gastroenterology and Surgery, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background Peritoneal tuberculosis can present as sclerosing encapsulating peritonitis (cocoon). Appropriate management of this condition is uncertain.
Methods Retrospective analysis of patients with tubercular abdominal cocoon (TAC).
Results Of 18 patients with abdominal cocoon 2 were due to peritoneal carcinomatosis and 1 idiopathic. Of 15 patients with TAC (Mean age: 33.06+− 13.5 years), 12 (80 %) were male. All had abdominal pain for 1–9 months. Eleven patients had atleast one episode of SAIO, 10 had fever, 13 loss of appetite/weight and 9 had palpable lump. Two patients each had diabetes and cirrhosis, 1 each had nephrotic syndrome, COPD and chronic hepatitis B. Twelve patients had positive Mantoux test, none had HIV. Pulmonary involvement was noted in 4 patients, pleural in 5, splenic and intestinal in 2 each, hepatic and mediastinal lymph-nodal in 1 each. Of nine patients with ascites, 8 each had low SAAG and elevated ADA. AFB positivity was seen in 3 patients (sputum, splenic aspirate and peritoneal biopsy). Thirteen patients were started on usual 4-drug ATT while 2 cirrhotics needed modified ATT. One patient needed modification in ATT due to hepatitis. One patient was lost to follow up. Of the rest of 14 patients 2 underwent surgery, 1 at the initial presentation while another after 4 months of ATT. Five patients developed SAIO on ATT, 1 needed surgery and 1 died of liver failure while others improved with conservative means.
Conclusion Tubercular abdominal cocoon can be managed conservatively in a subset of patients.

M-13

Metastatic malignant melanoma of the gastrointestinal tract-A case report

Kartikayan Rangathilakam Kannayan*, Rajkumar Solomon, Murali Ananthavadivelu, Aravind Arumugam, Balamurali Rangachari, Ramkumar Govindarajan, Muthukumaran Kalyanasundaram, Vaishnavi Priya Gunasekaran, Kavitha Muralikrishnan*
Department of Digestive Health and Diseases, Kilpauk Medical College and Hospital, Poonamallee High Road, Kilpauk, Chennai 600 010, India

Melanoma involving the gastrointestinal (GI) tract is a relatively rare entity; either primary or secondary. Metastatic involvement of the GI tract may present at the time of diagnosis of the primary tumor or several decades later. We report a case of metastatic malignant involvement of the GI tract with liver and lung secondaries and ascites

M-14

Intestinal myiasis - All worms are not worms

Vinoth Boopathy*, Srinivasan Ranganathan, Padhmini Balasubramaniam*
Departments of Medical Gastroenterology and Radiology, Aarupadai Veedu Medical Colllege, Cuddalore Road, Kirumampakkam, Puducherry 607 402, India, Vector Control Research Centre, Puducherry, India

Introduction Intestinal myiasis is a condition wherein the dipterous fly larvae are present in the human intestine and feeds on dead or living tissue. This condition is usually diagnosed by the presence of these larvae in the faeces or vomitus. This condition is rare but few cases have been reported from few parts of India. Here we report a case were in what we thought as a worm infestation turned out to be an intestinal myiasis.
Case: Thirty-eight years male, presented with history of passing worms in his stool for four years. He didn't have any abdominal symptoms and his general and systemic examination was normal. His stool samples were repeatedly negative for any parasitic infection and he didn't respond to any form of antihelminthic treatment. He was then asked to bring the stool sample and on closer examination the worm appeared to be a maggot and was identified finally as IInd instar maggot of Sarcophaga hemorrhidalis. On probing it was found that he used to consume rotten bananas and also used to go for open defecation instead of latrine frequently. Both of these were found to be the reason for his intestinal myiasis and he then responded to maintenance of a good hygiene, avoiding open defecation along with a course of purgatives and albendazole.
Conclusion In a patient with worm infestation, with repeatedly negative stool samples for parasitic infection and not responding to any antihelmintihic medications one has to consider the possibility of intestinal myiasis.