Indian J Gastroenterol (November 2011) 30(Suppl 1):A1–A105
DOI 10.1007/s12664-011-0142-4

ABSTRACTS

Indian Society of Gastroenterology

Plenary Session

A1

Evidence of extrahepatic replication of hepatitis E virus in human placenta leading to high fetal loss

Purabi Deka Bose,[1] *B C Das,*[2] *Rajib K Hazam,*[1] *Ashok Kumar,*[3] *Subhash Medhi,*[1] ***P Kar***[1]
[1]Departments of Medicine, [3]Obstetrics and Gynecology, Maulana Azad Medical College, University of Delhi, [2]Dr B R Ambedkar Center for Biomedical Research, University of Delhi, Delhi 110 007, India

Background: The incidence and severity of hepatitis E virus (HEV) infection in pregnant women is very high in developing countries with a high mortality rate. Transplacental transmission of HEV in the third trimester of pregnancy has been found to be associated with a high fetal mortality. Based on this evidence, this study was designed to investigate if HEV replication occurs in the placenta of the infected mothers.
Methods: The study included 68 acute viral hepatitis (AVH) and 22 fulminant hepatic failure (FHF) pregnant patients. Viral RNA was extracted from blood and placenta, HEV RNA was detected by reverse transcription PCR using random hexamer. HEV replication in placenta was confirmed by a replicative negative strand-specific rt-PCR. Viral load was estimated by real time PCR.
Results: Viral load in blood was significantly higher in FHF compared to AVH but in placenta it did not differ much suggesting that high HEV load in serum may serve as an indicator of the severity of hepatitis E in pregnancy. Replicative HEV RNA was detectable only in the placenta of 5 FHF and 22 AVH patients and not in the blood. In FHF, since patient as well as fetal deaths were very common, no association of HEV replication in placenta could be demonstrated with the pregnancy outcome. Interestingly, fetal loss was comparatively higher in AVH patients who were positive for replicative tissue viral RNA (50%) than those who were negative (26.66%).
Conclusion: HEV replication occurs in human placenta and is associated with high fetal mortality.

A2

Splenectomy in cirrhosis with hypersplenism: improvement in cytopenias, Child's status and institution of specific treatment for hepatitis C with success

Saurabh Kedia,[1] *Rohit Goyal,*[1] *Vivek Mangla,*[2] *Prasanjit Das,*[3] *Peush Sahni,*[2] *Subrat K Acharya*[1]
[1]Departments of Gastroenterology and Human Nutrition, [2]Gastrointestinal Surgery, and [3]Pathology, All India Institute of Medical Sciences, New Delhi 110 068, India

Background: Hypersplenism in cirrhosis is not infrequent and may compromise with quality of life and therapy. Splenectomy is a therapeutic option, but information on results of splenectomy is scarce.
Methods: Consecutive patients with cirrhosis who underwent splenectomy between 2001–2010 were included in the study. Safety, efficacy of splenectomy and subsequent influence on therapy were evaluated.
Results: Thirty-three patients (mean age 30.9±11.6 years, 19 men, viral 48.5%, autoimmune 15.1%, cryptogenic 36.4%) underwent splenectomy. Twenty were Childs A, 13 Childs B. Twenty patients had >6 months follow up. Common indications were inability to treat with interferon, transfusion-dependent anemia, recurrent mucosal bleeds, and large spleen compromising quality of life. Median

hospital stay was 7 (4–24) days. Splenectomy related mortality was not documented. Twenty-three (70%) patients had postoperative complications, most commonly infections. Two patients required percutaneous drainage of postoperative collections, and 1 needed re-exploration for intra-abdominal bleed. Subsequent to splenectomy platelet count (5.2 x 10^4 to 17.1 x 10^4/mm^3, $p< 0.01$) and TLC (2.5 x 10^3 to 14.2 x 10^3/mm^3, $p< 0.01$) had sustained increase in all patients except one. Five HCV cirrhotics completed interferon and ribavarin therapy, 4 achieved sustained viral response. There was no recurrence of GI bleed, infections, mucosal bleed or anemia requiring transfusions in any patient. In patients with long term follow up (median duration 27 months), the mean Child score improved from 6.2±1.2 at baseline to 5.5±0.9 *($p< 0.05$)*.

Conclusions: Splenectomy was safe and effective in patients with cirrhosis, and improved therapeutic options as well as Child's score.

A3

Implications of a novel immunoisolatory device-TheraCyte in clinical islet cell transplantation

M Sasikala,[1] *G V Rao,*[1] *R Pradeep,*[1] *V Vijayalakshmi,*[2] *P Pavan Kumar,*[1] *G Radhika,*[1] *M Sirisha,*[2] *P Suresh,*[3] *D Nageshwar Reddy,*[1] *V Seshadri*[4]

[1]Asian Institute of Gastroenterology, 6-3-661, Somajiguda, Hyderabad 500 082, [2]National Institute of Nutrition, Jamai-Osmania Post Office, Tarnaka Road, Hyderabad 500 007, India, [3]National Center for Laboratory Animals, Hyderabad 500 007, [4]National Center for Cell Sciences, Hyderabad

Background: Autologous islet cell transplantation after total/subtotal pancreatectomy for chronic pancreatitis is performed in a few centers. Immunosuppression to prevent islet graft rejection may be deleterious to islet functions. Immunoisolation of islets in alginate capsules (microencapsulation) is reported to be beneficial in cell-based therapy for treatment of diabetes. Our aim was to investigate the short- and long term viability and functionality of transplanted islets using theracytes in a non-human primate model.

Methods: Healthy rhesus monkeys (n=4; 10±2 years) were selected from the primate facility of National Institute of Nutrition and tested for baseline blood glucose levels. Distal pancreatectomy was done and islets were isolated using Recordie isolator and loaded into the theracytes. Loaded theracytes were implanted on the thigh (2) and neck (2) in an autologus and allogenic manner in 2 monkeys each. One set of theracytes were retrieved after 2 months of implantation (short-term). Viability of the islets was assessed by MTT assay, dithiazone and trypan blue staining. Islet functions were evaluated in vitro and in vivo.

Results: Retrieved theracytes from both the regions showed vascularization, indicating engraftment. The implanted islets doubled after 2 months and 95% of them were viable. In vitro glucose stimulated insulin release of the islets in the theracytes increased in parallel to islet doubling. In vivo insulin secretion was 2 times more in the theracyte implanted thigh as compared to non theracyte thigh, supporting their functionality.

Conclusion: Islets proliferate in theracytes and secrete insulin after implantation and respond to glucose challenge.

A4

Hemodynamics improves after recovery in patients of acute-on-chronic liver failure

Hitendra Garg,[1,2] *Ashish Kumar,*[1,2,3] *Vishal Garg,*[1] *Praveen Sharma,*[2] *Manoj Kumar Sharma,*[1] *Shiv Kumar Sarin*[1,2,3]

[1]Department of Gastroenterology, G B Pant Hospital, J L Nehru Marg, New Delhi 110 002, India, [2]Department of Hepatology, Institute of Liver and Biliary Sciences (ILBS), Vasant Kunj Marg, New Delhi 110 070, India and [3]Special Centre for Molecular Medicine, Jawaharlal Nehru University, New Delhi 110 067, India

Background: Hepatic hemodynamics may improve with recovery in patients of acute-on-chronic liver failure (ACLF); however, there is scarcity of data. We studied portal and systemic hemodynamics during the acute phase of ACLF and after 3 months.

Methods: Hemodynamic measurements were done in all consecutive patients with ACLF within 48 h. of admission and were repeated in survivors after 3 months. Patients were given standard medical therapy.

Results: One hundred and thirty-eight patients of ACLF were recruited in the study. Of these 57 underwent HVPG measurement during the acute phase. After a period of 3 months; 26 (46%) patients died. Of the remaining 31 patients, 22 (median age 38 [range 20–67) years, males 77%) consented for a repeat HVPG. The etiology of cirrhosis was alcohol (36%), HBV (27%), cryptogenic (27%), and Wilson's disease in (9%). The acute hepatic insult was due to reactivation of HBV (42%), alcoholic hepatitis (8%), HEV (25%) and unknown cause (25%) patients. The median MELD score at admission was 27 (19–35) which had improved to 14 (7–

25) with recovery ($p<0.05$). Fourteen (64%) patients had small esophageal varices while the remaining had no varices. Seven of the patients had variceal bleed during follow up. The median baseline HVPG in these 22 patients was 15.7 (range 12–30) mmHg. On follow up, the HVPG reduced to 13 (range 6–21) mmHg ($p<0.05$). Similarly, the mean arterial pressure and systemic vascular resistance index increased significantly from baseline ($p<0.05$). The reduction in HVPG correlated with clinical, biochemical recovery and reduction in variceal size ($p<0.05$).
Conclusions: The rise in portal pressure in ACLF is partly due to underlying chronic liver disease and partly due to transient increase in portal pressure. The portal pressure reduces significantly after recovery from ACLF. The need for pharmacotherapy to reduce variceal bleeding for these patients needs to be evaluated.

A5

SpyGlass pancreatoscopy guided laser lithotripsy for pancreatic duct stones

Amit Maydeo, ***Suryaprakash Bhandari****, Mukta Bapat, Vinay Dhir*
Institute of Advanced Endoscopy, 5th Floor, 123, Om Chambers, August Kranti Marg, Mumbai 400 036, India

Background: Endotherapy in patients with chronic pancreatitis and ductal stones has excellent results in terms of ductal clearance and long term pain relief. The SpyGlass guided Holmium LASER system has been found to be useful in difficult bile duct stones. There is no data about the utility of SpyGlass guided Holmium LASER therapy for pancreatic duct stones.
Aims: To evaluate technical feasibility and success rate of stone fragmentation using SpyGlass guided laser lithotripsy for patients with dilated pancreatic duct and pancreatic ductal stones.
Methods: Between August 2010 to June 2011, 8 patients having pancreatic ductal stones with dilated pancreatic duct (total stone load=12, 3 impacted) underwent laser lithotripsy using SpyGlass system. Pancreatic stones were located in head (4 stones), genu (2 stone) and body (6 stones). All patients had dilated PD in its entire extent. Laser lithotripsy was done using holmium laser (Medtech, Germany). ESWL was done in 3 patients prior to laser lithotripsy. These patients had large stone fragments inspite of ESWL and these fragments could not be extracted with a basket/balloon.
Results: Excellent pulverization could be achieved in all patients (single sitting 10, two sittings 2). Complete ductal clearance could be achieved in all patients (7 patients in single sitting and 5 patients in 2 sittings).
Conclusion: SpyGlass guided laser lithotripsy for a pancreatic ductal stone is technically feasible, and can be a good adjunct to ESWL.

A6

A correlative analysis of the histomorphological spectrum in duodenal biopsy of adult celiac disease with epithelial functional state and autophagy in antigen presenting dendritic cells

K Vaiphei, A Khaliq, P Rajaguru, U Dutta, R Kochhar, V Dhawan, K Singh
Departments of Histopathology, Gastroenterology and Experimental Medicine, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background: Adult celiac disease (CD) is increasingly being diagnosed. They usually present with atypical features.
Aims: To analyse the duodenal histomorphology by light and electron microscopy and to correlate with the autophagy activity of mucosal dendritic cells and the mucosal permeation.
Methods: There were 60 adult CD patients who had either typical or atypical features. Every patient had significant positivity for IgA anti-tissue transglutaminase. Duodenal biopsy was done in all cases. In 40 cases, mucosal permeation tests were carried out.
Results: Thirty-four (60%) patients presented with diarrhea and 16 had non-diarrheal presentation, mean age=30 years and 78% were anemic. *Histology:* 47% had normal villous, rest had mild to moderate villous atrophy. Marsh's gradings: 1=13%. 2=37%, 3a=30% and 3b=20% of the biopsies.
Immunohistochemistry: 90% showed moderate to marked increased in CD86+ive cells in lamina propria; LC3, Beclin1 and Lamp2 were also increased in majority of the biopsies and showed a positive correlation with Marsh's gradings. Electron microscopy study revealed degenerative changes in epithelial cells correlated to the Marsh's higher gradings, similarly the permeability tests also showed co-relationship with higher Marsh's gradings.
Conclusion: Adult CD patients with extraintestinal manifestation show moderate to heavy mucosal inflammation, increased autophagy activity and defective intestinal permeation. EM study supports morphological evidence of intestinal epithelial cell injury.

Young Investigator Award Session

B1

Esterified starch as a treatment for acute infectious diarrhea—a double blind randomized controlled trial

Sandip Pal, *Gopinath Sekar, C Murugan, J M Clarke, T J Lockett, G P Young, B S Ramakrishna*
Christian Medical College, Vellore 632 004, India CSIRO and Flinders University, Adelaide, Australia

Background: Although standard glucose-based oral rehydration therapy corrects the dehydration caused by diarrhea, it does not reduce the diarrhea. The addition of a resistant starch to oral rehydration solution reduced fecal fluid loss and shortened duration of diarrhea in patients with cholera. (Ramakrishna BS, et al. *NEJM* 2000). We hypothesized that high amylose maize starch acetate, an esterified starch, will significantly reduce diarrhea duration and severity.
Design: Randomized double blind controlled clinical trial.
Participants: Adults with diarrhea of less than 3 days' duration with severe dehydration.
Methods: Patients were randomly assigned to treatment with standard oral rehydration therapy and esterified starch (35 patients, case group) or to standard oral rehydration therapy and high amylose maize starch to preserve blinding (35 patients, control group). The primary outcome measure was diarrheal duration, defined as time from randomization to therapy to the first formed stool.
Results: Seventy-four adult patients were enrolled. The mean (±SD) fecal weights from enrollment to formed stools were lower in the starch A group (2797±2862 g) than in starch B group (3452±3359 g). The mean duration of diarrhea was significantly shorter with starch A therapy (20.69+10.72 h) than with starch B therapy (36.27+ 28.46 h, p=0.031).
Conclusions: In this ongoing study, interim analysis reveals statistically significant differences in diarrhea duration between the two groups. At this time, there are no indications to stop the trial for reasons of safety or overwhelming efficacy of one treatment over the other.

B2

High prevalence of pre-neoplastic lesions and loss of heterozygosity at tumor suppressor genes in patients with gallbladder stones: implications for etiopathogenesis of gallbladder cancer

Kajal Jain, *Prasenjit Das, T Mohapatra, Siddharth Dattagupta, Madhulika Kabra, Umesh Kapil, M C Mishra, Pramod Kumar Garg*
Departments of Gastroenterology, Pathology, Pediatrics (Genetics Unit), and Surgery, All India Institute of Medical Sciences, New Delhi 110 068, India

Background: Causal association of gallbladder stones with gallbladder cancer (GBC) is not yet clear.
Objective: To study the prevalence of pre-neoplastic histological lesions and loss of heterozygosity (LOH) at tumor suppressor genes in patients with gallstones.
Methods: All consecutive gallstones patients undergoing cholecystectomy were included prospectively. Gallbladder specimens were examined in detail for the presence of pre-neoplastic lesions. LOH at 5 loci i.e. 3p14.2, 3p12, 5q21, 17p13, 9p21 for tumor suppressor genes (FHIT, DUTT1, APC, p53, and p16 genes that are usually associated with GBC) was tested using microsatellite markers in genomic DNA from microdissected pre-neoplastic lesions by fragment analysis with fluorescent dyes. Fractional allelic loss (FAL) was calculated as an expression of allelic loss for all chromosomal loci.
Results: Three hundred and fifty consecutive gallbladder specimens from gallstones patients and 12 normal gallbladders were studied. Hyperplasia, metaplasia and dysplasia alone were found in 11.7%, 24.6% and 1.4% of gallstone patients. A combination of hyperplasia and dysplasia was found in 3.4%, metaplasia and dysplasia in 6.3%, and hyperplasia, metaplasia and dysplasia together were found in 4.3% of patients. No lesion was found in normal gallbladders. A total of 4420 PCRs were carried out on 884 DNA samples for LOH. LOH was present in 15.1–47.8% of pre-neoplastic lesions compared with none in normal gallbladders. FAL was significantly higher in those with dysplasia compared with other pre-neoplastic lesions (0.35 vs. 0.26; p=0.017).
Conclusion: Patients with gallstones had a high prevalence of pre-neoplastic lesions and accumulation of LOH at various tumor suppressor genes in those lesions.

B3

CD 163, a candidate circulating biomarker for evaluation of patients with acute-on-chronic liver failure and can predict hepatic encephalopathy

Jaswinder Singh Maras,[1] *H C Harsha,*[2,3] *Vishal Garg,*[1] *Nirupama Trehanpati,*[1] *Arshi Khanam*[1]*, Sukriti,*[1] *Akhilesh Pandey,*[2,3] *Shiv Kumar Sarin*[1]
[1]Department of Hepatology, Institute of Liver and Biliary Sciences (ILBS), Vasant Kunj Marg, New Delhi—110 070, [2]Institute of Bioinformatics, International Technology Park, Bangalore 560 066, India, [3]McKusick-Nathans Institute of Genetic Medicine, Departments of Biological Chemistry, Pathology, Oncology, and Surgery, Institute of Basic Biomedical Sciences, Section of Hepatology and Liver Transplantation, Johns Hopkins University School of Medicine, Baltimore, USA

Acute-on-chronic liver failure (ACLF) is a serious ailment with high mortality and limited treatment options. It is not known whether altered expression profile of various plasma proteins can predict the development and the pathogenesis of ACLF and be used as potential biomarkers.

Aim: To identify candidate circulating biomarkers using proteomics, to predict the diagnosis and prognosis in ACLF, and differentiate those with or without hepatic encephalopathy (HE).
Methods: After depleting 14 major plasma proteins, the low abundant protein fraction was trypsin digested, iTRAQ labeled and fractionated using (SCX, RP) HPLC subjected to high resolution mass spectrometry for quantitative expression profiling. Two levels of validation of protein expression profiling were done using ELISA and FACS in 4 groups. 1 with ACLF (n=25), 2=ACLF with HE (n=25), 3=compensated cirrhosis (n=20) and 4=healthy controls (n=20).
Results: Six hundred differentially regulated proteins were identified of which 100 were more than 2 fold differentially regulated. Proteins involved in clearance of hemoglobin-hepatoglobin (He-Hp) complex were highly upregulated in 1 and 2 (CD163-6 fold, calreticulin-5 fold, calmodulin-5 fold). sCD163 was upregulated in 1 (580 ng/mL) and 2 (620 ng/mL) vs. 4 (430 ng/mL) (p=0.04, p=0.0001). The level of sCD163 was raised in 2 compared to 3 (520 ng/mL) and 1 (580 ng/mL) (p=0.01, p=0.04). The He-Hp complex (Ligand CD163) was decreased in 1(10 ng/mL) and 2 (7 ng/mL) compared to 4 (14 ng/mL) (p=0.02, p=0.003). Levels were lower in 2 vs. 3 (13 ng/mL) and 1, (p=0.002, p=0.02). Bilirubin(t), ALT, CTP, MELD, Sofa Score and ammonia level were all raised in 1 and 2 vs. 3 and 4 (p< 0.001) suggesting an hyperactive CD163 signaling cascade in (ACLF). One and 2 (0.9%, 0.7%) had a higher frequency of rCD163 than 3 (0.2%) (p=0.019, 0.045). Perivascular macrophages ($CD11b^{+}CD14^{+}CD45^{+}$) showed a higher expression of rCD163 in 1 (28%) and 2 (31%) vs. 4 (10%) (p=0.0001, p=0.03). Microglia linage macrophages ($CD11b^{+}CD14^{-}CD45^{-}$) showed a higher expression of rCD163 in 2 (12%) than 4 (2%) (p=0.009) and 1 (5%) (p=0.0004) making this macrophage subset a distinguishing factor between ACLF-HE and ACLF. Further CD45 and CD14 were down regulated in 1 and 2.
Conclusion: CD163 expression was significantly upregulated in patients with ACLF, more so in those with HE. High serum bilirubin and low He-Hp complex in the ACLF patients with HE suggests a strong activation of CD163 signaling cascade. Over expression of CD163 on perivascular and microglia linage macrophages suggests an overt mechanism of breakdown of the blood-brain barrier for the development of HE in ACLF.CD163 can serve as a candidate biomarker for early identification of ACLF and HE.

B4

Generation of induced pluripotent stem cell-like colonies from human omental mesenchymal cells

Madhusudana Girija Sanal*, Dhananjay Kumar, Saira Hussain, Shiv Kumar Sarin*
Institute of Liver and Biliary Sciences (ILBS), Vasant Kunj Marg, New Delhi 110 070, India

Introduction: Induced pluripotent stem cells (iPSCs) represent an ideal cell source for future cell therapy and research. iPSC lines have been generated from skin fibroblasts and other cell types. However there is no data of generating iPSCs from human omental mesenchymal cells-OMC). Skin is the preferred cell source for iPSC generation but it is exposed to UV-rays and chemical carcinogens and the cell turnover is high. These factors increase the chances of accumulating somatic mutations. Omental tissue is less exposed to carcinogens and has low the cell turnover. Hence omentum represents a good source for generating iPSC. Here we report generation of iPSC from OMC.
Methods: OMCs were cultured from bits of adult human omental tissue in 10% FBS, containing DMEM, FGF-2 (10 ng/mL) in 35 mm gelatin-coated dishes. Cells were harvested and re-plated onto a similar dish after 3 weeks. Once the number of cells reached ~50,000 they were infected with commercially available Lentivirus containing polycistronic Yamanaka's factors. After 24-hours post-infection the media was changed to hESC media. Ten days after infection the cells were re-plated on STO-NL feeder cells which had been mitotically inactivated using mitomycin.
Results: On day 20 colonies appeared with morphology similar to that of human embryonic stem cell colonies (HuES). On day 25 these colonies turned red when stained for alkaline phosphatase while the background OMCs and feeder-layer remained unstained.
Conclusion: We document for the first time that it is possible to generate alkaline phosphatase-positive colonies with morphology similar to HuES from human omental cells.

B5

Response to trial of antitubercular therapy in patients with ulceroconstrictive intestinal disease and an eventual diagnosis of Crohn's disease

Khushboo Munot,[1] Ashwin N Ananthakrishnan,[2] ***Saurabh Kedia,[1]*** *Sushil Kumar,[1] Vikas Singla,[1] Jaya Benjamin,[1] Rajan Dhingra,[1] Govind Makharia,[1] Vineet Ahuja[1]*
[1]Department of Gastroenterology and Human Nutrition, All India Institute of Medical Sciences, New Delhi 110 068, India, [2]Gastrointestinal Unit, Massachusetts General Hospital, Boston, USA

Background: Lack of confirmatory test to differentiate between intestinal tuberculosis (ITB) and Crohn's disease (CD) leads to a trial of antitubercular therapy (ATT) to classify these patients based on the ATT response.
Aim: To evaluate the symptom and mucosal response to ATT and temporal profile of nonresponse/relapse in patients with an eventual diagnosis of CD.
Methods: The study included patients of ulceroconstrictive intestinal disease on ATT trial. Those eventually diagnosed with CD formed the case group while 25 consecutive ITB patients were included as controls. The outcome variables were global and individual symptomatic response at 1, 2, 3, 6 and >6 months after starting ATT. Colonoscopy findings at baseline and after ATT were compared.
Results: One hundred and fifteen (30.3%) of 380 CD patients received ATT and 109 (mean age 35.1±13.5 years, 40.4% females) were included in this study. Partial/complete response on ATT in CD was seen in 43 (39.5%) patients at 3 months, 34 (51.1%) at 6 months and 30 (47.6%) at >6 months. Mucosal healing was seen in only 16.1% of CD patients compared to ITB (88.2%). ITB patients had higher rates of complete response at 3 months compared to CD (68% vs. 4.6%, $p<0.001$).
Conclusions: Partial/complete response after 6 months of ATT trial was seen in 51.1% of patients eventually diagnosed with CD. However, colonoscopy did not show corresponding mucosal healing suggesting a need for early repeat colonoscopy. All ITB patients showed either complete or partial response by 3 months of therapy suggesting that persistence of symptoms or relapse after a 3-month ATT trial may indicate a diagnosis of CD.

B6

Proinflammatory cytokines play a role in the development of cerebral edema in acute-on-chronic liver failure

Murali Rangan,[1] *Santosh Kumar Yadav,*[2] *Vivek Anand Saraswat,*[1] *Ram Kishore Singh Rathore,*[3] *Michael Albert Thomas,*[4] *Kashi Nath Prasad,*[5] *Chandra Mohan Pandey,*[6] *Rakesh Kumar Gupta*[2]
Departments of Gastroenterology,[1] Radiology,[2] Microbiology,[5] and Biostatistics,[6] Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow 226 014, India, Department of Mathematics and Statistics,[3] Indian Institute of Technology, Kanpur, India, Department of Radiological Sciences,[4] David Geffen School of Medicine, UCLA, Los Angeles, CA, USA

Background: Though hyperammonemia is known to be a major factor in the pathogenesis of cerebral edema (CE) and hepatic encephalopathy (HE) in liver failure, recent reports suggest that pro-inflammatory cytokines also contribute significantly. Data correlating elevated pro-inflammatory cytokines with CE in acute-on-chronic liver failure (ACLF) are lacking.
Aims: This study looked at the relationship of pro-inflammatory cytokines with glutamate/glutamine ratio (Glx) on ^{1}H-MR spectroscopy (^{1}H-MRS), a measure of cerebral ammonia elevation, and diffusion tensor imaging (DTI) derived metrics for CE, namely mean diffusivity (MD) and spherical anisotropy (CS), which are decreased and increased respectively in CE of ACLF patients.
Methods: Seventeen patients with ACLF and 14 controls were included. Serum pro-inflammatory cytokines (IL-6 and TNF-α), blood ammonia and Glx were measured in both groups along with MRI studies (^{1}H-MRS and DTI). Correlations between cytokines and MR derived metrics were assessed using Pearson's correlation coefficient.
Results: Levels of cytokines, blood ammonia and Glx were significantly increased in ACLF patients as compared to controls ($p<0.001$). Significant positive correlation was present between cytokines and Glx [($r=0.66$, $p=0.003$) for TNF-α and ($r=0.502$, $p=0.04$) for IL-6] as well as with spectroscopy voxel (SV) derived CS [($r=0.578$, $p=0.015$) for TNF-α and ($r=0.681$, $p=0.003$) for IL-6], while a negative correlation was noted with SV derived MD [($r=-0.506$, $p=0.038$) for TNF-α and ($r=-0.619$, $p=0.008$) for IL-6].
Conclusions: These results provide evidence for the role of pro-inflammatory cytokines in the pathogenesis of CE in ACLF patients. DTI derived metrics and ^{1}H-MRS are very good non-invasive tools for understanding the pathogenesis of CE in ACLF.

Free Paper Session

FP1

Persistent systemic inflammatory response syndrome and rising BUN predicts the development of primary intra-abdominal infection in patients with acute pancreatitis

Rupjyoti Talukdar,[#] *Hana Nechutova,*[##] *Magdalen Clemens,*[##] *Santhi Swaroop Vege*[##]
[#]Asian Institute of Gastroenterology, 6-3-661, Somajiguda, Hyderabad 500 082, India, [##]Division of Gastroenterology and Hepatology, Mayo Clinic, Rochester, MN, USA

Background: Infected necrosis in acute pancreatitis (AP) is associated with organ failure and high mortality. There are no known predictors of intra-abdominal infection (IAI) in AP. The aim of this study was to assess the capability of simple parameters to predict primary IAI in AP.

Methods: We studied 281 patients with AP admitted to Mayo Clinic hospitals over a 2-year period and identified those with microbiologically confirmed infections in (peri)pancreatic necrosis and collections. We defined primary IAI as any infection that developed prior to any abdominal interventions. We recorded admission hematocrit, BMI, serum BUN and creatinine, systemic inflammatory response syndrome (SIRS) score; and followed SIRS and BUN for at least 48 h. We used univariate and multivariate analysis to assess predictive capability and expressed results as odds ratio (OR) [95% confidence intervals (CI)].
Results: Twenty-seven (9.6%) patients had IAI, of whom 21 (77.7%) had primary IAI. Of these, 38.1% had gram positive, 9.5% gram negative and 52.3% mixed bacterial infections. 23.8% patients had additional fungal infection. On univariate analysis, among all study variables, SIRS≥2 at admission, persistence of SIRS for 48 h and rise in BUN by 5 mg/dL within 48 h of admission significantly predicted development of primary IAI with OR (95% CI) of 4.12 (1.53–11.15), 1.19 (1.69–10.39) and 7.62 (2.69–21.54) [2-tailed p=0.004, 0.002 and <0.0001] respectively. On multivariate analysis, the predictive capability of these three variables persisted (p= 0.01, 0.01 and 0.007 respectively). The predictive capability of rise in BUN was the maximum.
Conclusions: SIRS score and BUN are simple, repeatable parameters that can predict the development of primary IAI in AP within 48 h of admission.

FP2

Gastric neuroendocrine tumors—management by endoscopic mucosal resection

Ameet Kumar Banka*, Amarender Singh Puri, Amit Agarwal, Sanjeev Sachdeva*
Department of Gastroenterology, G B Pant Hospital, J L Nehru Marg, New Delhi 110 002, India

Background and Aims: Gastric neuroendocrine tumors (G-NET) are uncommon tumors and recently in our institution, we have observed G-NET more frequently in the course of upper gastrointestinal tract endoscopy (UGIE).The outcome of endoscopic mucosal resection (EMR) with multi-band mucosectomy device in such patients was evaluated.
Patients and Methods: A prospective study was done on patients undergoing UGIE between August 2010 and April 2011. EMR was carried out in patients with G-NET.
Results: Of the 2,396 UGIE done, G-NET was found in 7 patients. The median age of the patients was 55 years. UGIE revealed multiple (3 to 10) nodules in 6 patients whereas a solitary nodule in 1 patient. The tumors measured 10 mm or less in five patients. One patient had a 25 mm nodule in the body of the stomach and underwent total gastrectomy. Six patients had type I and one had type II G-NET. The serum gastrin levels ranged from 627 to 1254 pg/mL. The serum chromogranin ranged from 346 to 975 ng/mL. EMR with rubber band application was done. Progressive fall in serum gastrin levels were observed post EMR in five patients. There was no evidence of recurrence during follow up (2 to 9 months).
Conclusions: Our experience shows a rising trend in the diagnosis of G-NET in patients undergoing UGIE. Better quality video endoscopes and increased awareness among clinicians may also be contributing factors. EMR is useful in the management of type I and II G-NET. The procedure is safe, can be performed on an out patient basis, results in less morbidity and has a good short term outcome when performed with good technical expertise.

FP3

Endoscopic diagnosis and management of gastroduodenal tuberculosis

Amarender Singh Puri, Sanjeev Sachdeva, V V Mittal, Nitin Gupta, Ameet Banka, Puja Sakhuja,[1] Sunil Kumar Puri[2]
Departments of Gastroenterology, Pathology[1] and Radiology, [2]G B Pant Hospital, J L Nehru Marg, New Delhi 110 002, India

Background: Current guidelines for gastroduodenal tuberculosis suggest that surgery in conjunction with anti-tubercular therapy (ATT) is the primary therapy. Role of surgery is both diagnostic and therapeutic in view of the low yield of histological diagnosis with endoscopic methods. The aim of this study was to determine the efficacy of endoscopic balloon dilatation along with ATT as the primary treatment for this condition.
Methods: Patients with gastric outlet obstruction at endoscopy were prospectively evaluated and subjected to multiple biopsies from the involved area. Those in whom mucosal biopsy revealed non-specific inflammation, underwent endoscopic mucosal resection (EMR). Patients showing granulomatous inflammation with/without acid-fast bacilli (AFB) were subjected to endoscopic balloon dilatation under fluoroscopic guidance along with ATT. End point of dilatation was arbitrarily taken as dilatation with 18 mm balloon. The time taken to resume normal diet post endotherapy was determined on subsequent follow up.
Results: Over a two year period 13 patients were diagnosed to have gastroduodenal tuberculosis. Granulomatous inflammation with or without demonstration of AFB was documented in 92% of the patients by endoscopic biopsy

and EMR. Endoscopic balloon dilatation of the strictures was successful in 11/12 patients (92%); these patients could resume their normal diet at a median of 11 days (range 7–60) post-dilatation. Retroperitoneal perforation in 1 patient was managed conservatively.
Conclusions: Endoscopic therapy in combination with ATT is recommended as the first line therapy for gastroduodenal tuberculosis. Surgical intervention is reserved for the minority where endoscopic therapy is a failure.

FP4

Serum hepatitis B surface antigen levels correlates well with serum HBV DNA levels in patients with chronic hepatitis B: a cross sectional study

Ekta Gupta,[1] Ashish Kumar,[2] Aashish Choudhary,[1] Manoj Kumar,[2] Shiv Kumar Sarin[2]
[1]Departments of Virology and [2]Hepatology, Institute of Liver and Biliary Sciences (ILBS), Vasant Kunj Marg, New Delhi 110 070, India

Background: Recently hepatitis B surface antigen quantitation has gained lot of focus in chronic hepatitis B (CHB) patients. However, data correlating HBV DNA with HBsAg is scarce.
Aim: To correlate HBV DNA with HBsAg in CHB patients and to find out the subgroups of patients where it can be more suitably used.
Methods: Consecutive patients of CHB (both naïve and on-treatment) were included. HBV DNA was measured by real time PCR (COBAS TaqMan, Roche Diagnostics). Serum HBsAg was measured by Architect HBsAg (Abbott Diagnostics). Non-parametric two-tailed Spearman's test was used for correlation.
Results: Of 198 patients enrolled 166 fulfilled the inclusion criteria (mean age 43±14 years, 87% males), median HBV DNA was 1.7×10^3 (range 6.0 to 1.1×10) IU/mL. Median HBsAg was 8.7×10^3 (range 5.0 to 3.2×10^5) IU/mL. Overall there was significant correlation between HBV DNA and HBsAg (ρ=0.443, p<0.01). Correlation in e antigen positive group was stronger (p<0.01) in contrast to e antigen negative group. Good correlation was seen in treatment naïve group. Correlation was regardless of normal or raised ALT.
Eighty (48%) patients had high HBV DNA (≥2000 IU/mL). Correlation in high DNA group was significant (p<0.01) as compared to low DNA group. The best cut-off of HBsAg for diagnosing high DNA is 3.36×10^3 IU/mL.
Conclusions: Serum HBsAg correlates well with HBV DNA in CHB patients especially in e antigen positive and treatment naïve group. HBsAg levels can reliably be used for diagnosing high HBV DNA.

FP5

Notch 1 helps differentiate immune cells in acute hepatitis B and with TGF-β regulates FoxP3 expression on liver infiltrating lymphocytes in HBV related cirrhosis and HCC

Nirupma Trehanpati,[1] *Shikha Shrivastava,[1] Binayak Kumar,[1] Sukriti Sukriti,[1] Dinesh M Tripathi,[1] Shivender Singh,[1] Subhash Gupta,[3] Shyam Kotillil,[2] Shiv Kumar Sarin[1]*
Institute of Liver and Biliary Sciences (ILBS), Vasant Kunj Marg, New Delhi 110 070, India

Notch and its ligands have been implicated in the regulation and differentiation of various CD4+ T-helper cells including TH1, TH2, and regulatory T cells (Tregs). Previous study shows that, CD4+CD25+ regulatory T cells express the transcription factor Foxp3 and can be generated from naive T cells following stimulation in the presence of TGFβ1.
In this study, we have analysed the involvement of Notch expression in differentiating T cells and regulatory T cells, which are critical to eradicate hepatitis B infection. For this we have compared (1) mRNA expression of Notch signaling molecules in peripheral mononuclear cells and in CD4+/CD8+T cells healthy controls (n=10), acute HBV infection (AVH-B, n=15), chronic HBV infection (CHB, n=16), and in, liver infiltrated lymphocytes and liver biopsies of chronic, cirrhotic (n=12) and HCC (n=9) patients by using RT-PCR (2) Notch1 induced expression of FOXP3 on regulatory T cells in peripheral mononuclear cells and liver infiltrated lymphocytes in chronic, cirrhotic and HCC patients (3) expression of TGF-β receptors and its downstream signaling molecules in peripheral mononuclear cells and in liver infiltrated lymphocytes. Our results showed, decreased expression of Notch1 and its ligand Jag1 in AVH-B and CHB patients than healthy controls (HC vs. AVH-B p=0.041; HC vs. AVH-B and CHB p=0.001). NFkB was increased in both AVH-B and CHB peripheral cells than HC. However, increased expression of HES1 in peripheral blood mononuclear cells of acute HBV (AVH-B) than healthy controls and CHB infection (AVH-B vs. CHB; p=.011). When analysed, CD4+ and CD8+ T cells, Hes1 expression was significantly skewed in CD4+T of AVH-B than CD8+T cells (AVH-B vs. HC and CHB p=0.002). In acute HBV, there was also more HBV antigen induced IFN-gamma production and CD8+T cells proliferation than CD4+T cells. We show here, no significant difference in the mRNA expression of Notch1, Notch 2, Notch 3 and Notch 4, Jagged1, Hes1 except NFkB in PBMCs of pre cirrhotic, cirrhotic and HCC patients compared to controls. However, cirrhotic and HCC liver showed significantly increased

mRNA expression of Notch1 and decreased HES1 compared to pre-cirrhotic and controls, this was also confirmed histologically. Notch1 and Notch 3 expression was reduced in pre-cirrhotic patients compared to control ($p=0.023$ Cont vs. Pre-cirrhotic). There was no significant difference in the expression of Notch 2 and 3. Notch 4, Jagged 1 in all pathogenic stages of liver. Flow cytometry analysis showed increased intracellular expression of Notch1 and FOXP3 in cirrhotic and HCC patients. TgfB expression was less in cirrhotic and HCC than controls, Notch1 mRNA and flow cytometry expression was enhanced in cirrhotic PBMCs, liver infiltrated lymphocytes as well as in biopsies than HCC PBMCs, liver infiltrate lymphocytes and biopsy.
Conclusions: Our findings suggest the involvement of higher Notch1 expression may regulate the higher FoXP3 expression in cirrhosis however deranged expression of TGF-b signaling does not support suppressive functions of T regs

FP6

Determinants of liver stiffness in chronic hepatitis B virus infection

Manoj Kumar Sharma*, Archana Rastogi, Pankaj Tyagi, Chagan Behari, Tarandeep Singh, Praveen Sharma, Hitendra Garg, Ramesh Kumar, Vikram Bhatia, Shiv Kumar Sarin*
Departments of Hepatology and Pathology, Institute of Liver and Biliary Sciences (ILBS), Vasant Kunj Marg, New Delhi 110 070, India

Background: Transient elastography (TE) is used to assess liver fibrosis in chronic hepatitis B virus (CHBV) infection. However, factors affecting, liver stiffness (LS) values and discordance between TE and liver biopsy in CHBV infection remains to be evaluated.
Aims: To define the optimal cut off values of LS for significant fibrosis (F2) and cirrhosis (F4) and to study clinical and histological variables associated with LS values and discordance between TE and liver biopsy in assessing liver fibrosis in CHBV infected subjects.
Methods: Patients with CHBV infection ($n=200$; 159 male; age 37.6±3.7 yrs) underwent liver biopsy concomitantly with TE. Liver biopsy was scored for activity (Ishak score), Fibrosis (METAVIR score), steatosis, cholestasis, congestion. Hepatic fibrosis percentage was estimated by morphometry.
Results: LS values were significantly correlated with HAI score, F score and fibrosis percentage. Optimal cut off values for prediction of significant fibrosis and cirrhosis were 7.05 kPa (sensitivity 81.2%; specificity 74.0%; AUROC 0.850) and 10.85 kPa (sensitivity 87.0%; specificity 85.3%; AUROC 0.907) respectively. Forty-seven (23.5%) [overestimation of actual F by TE, 34 (17.0%); underestimation, 13 (6.5%)] and 28 (14%) [overestimation, 25 (12.5%); underestimation, 3 (1.5%)] patients showed discrepant results for diagnosis of significant fibrosis and cirrhosis respectively. HAI was the only factor predictive of overestimation in cirrhosis.
Conclusions: Fibrosis and necroinflammatory activity are the main determinants of TE in CHBV infection. Overestimation of actual Fibrosis stage by TE is common and is influenced by necroinflammatory activity.

FP7

Pathogenesis of tropical malabsorption: study of antroduodenal manometry, duodenocecal transit time and fat-induced ileal brake

Uday C Ghoshal*, Sunil Kumar, Asha Misra, Gourdas Choudhuri*
Department of Gastroenterology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow 226 014, India

Background: Small intestinal bacterial overgrowth (SIBO) due to ileal brake-induced hypomotility may cause tropical malabsorption (TM).
Objectives: We evaluated effect of fat or placebo in duodenum randomly in patients with TM and controls on, (a) antroduodenal manometry (ADM) and mediators of ileal brake, and (b) duodenocecal transit time (DCTT).
Methods: ADM and DCTT (lactulose hydrogen breath test, HBT) were evaluated with placebo and fat in eight controls and 13 patients with TM (diagnostic criteria: tests showing malabsorption of two unrelated substances, abnormal duodenal histology, absence of other causes, response to antibiotics and folate).
Results: Patients with TM (6 had SIBO by glucose HBT) were similar in age and gender with controls. After fat infusion, proximal gut motility index (MI) was reduced compared to fasting state in TM, and DCTT was longer in TM than controls (200 min, 120–380 vs. 130, 70–160, $p=0.001$), though comparable after placebo (70 min, 30–140 vs. 60, 40–90). TM patients had higher PYY and neurotensin than controls after fat. DCTT after fat infusion correlated with plasma level of PYY in TM but not in controls. Post-fat PYY and neurotensin levels were higher in TM with lower BMI (<16 Kg/m^2) than those with higher BMI. Parameters of ileal brake (post-fat DCTT, PYY and neurotensin) were higher in patients with than without SIBO.
Conclusion: Fat infusion reduced proximal gut MI, increased DCTT, PYY, and neurotensin among patients with

TM. Malabsorbed fat might cause exaggerated ileal brake reducing gut motility, promoting SIBO and malabsorption in TM.

FP8

Post transplant biliary complications—an analysis from a predominantly living donor liver transplant centre

Manav Wadhawan,[1] Subash Gupta,[2] Neerav Goyal,[2] Anupam Sibal,[3] ***Ajay Kumar[1]***
[1]Departments of Gastroenterology and Hepatology, [2]Surgical Gastroenterology and Liver Transplantation, and [3]Pediatric Gastroenterology, Indraprastha Apollo Hospital, Sarita Vihar, New Delhi 110 076, India

Background: Biliary anastomosis is the Achilles heel of liver transplant. The reported incidence of biliary complications is 5% to 15% after deceased donor liver transplantation (DDLT) and 20% to 34% after right-lobe live donor liver transplantation (LDLT). We report our experience from predominantly LDLT program.
Methods: Between September 2006 to August 2010, 338 liver transplants were performed at our centre. Biliary reconstructions were carried out with an end-to-end choledochocholedochostomy (CDC); primary hepaticojejunostomy was performed in 31 cases. All recipients were monitored for any evidence of bile leak during initial hospital stay. After discharge they were monitored for any obstruction by MRCP if they developed raised bilirubin.
Results: Of 338 transplants performed during this time period, a total of 65 patients had biliary complications (19%). Of these 30 were biliary leaks and 35 patients had biliary stricture (10 patients developed a stricture following a leak at same site). Four were cut surface leaks which settled without any intervention. One patient had leak from primary HJ which settled on conservative management. Twenty-five patients had anastomotic leaks of which 17 underwent ERCP and stenting, another 8 underwent re-exploration and hepaticojejunostomy. Forty-five patients had biliary strictures. Of these 10 patients had bile leak initially, followed by biliary stricture. Patients with a double duct anastomosis had a significantly higher risk of developing a biliary complication compared to those with a single duct anastomosis (p=0.008). There was no statistically significant difference in survival between those with or without biliary complications.
Conclusions: Biliary complications are common after LRLT. Most leaks will subsequently form strictures. ERCP is the first line treatment for biliary complications with surgery required in a minority of cases. The incidence of biliary complications is higher in multiple duct anastomosis. Biliary complications are not associated with increased mortality.

FP9

Correlation and diagnostic performance of liver stiffness measurement values for severity of non-alcoholic fatty liver disease in Asian Indian

Ramesh Kumar,[1] *Archana Rastogi,[2] Manoj Kumar Sharma,[1] Vikram Bhatia,[1] Pankaj Tyagi,[1] Praveen Sharma,[1] Hitendra Garg,[1]K Chandan,[1] Chhagan Bihari,[2] Shiv Kumar Sarin[1]*
Departments of [1]Hepatology, and [2]Pathology, Institute of Liver and Biliary Sciences (ILBS), Vasant Kunj Marg, New Delhi 110 070, India

Background: Liver stiffness measurement (LSM) by FibroScan is a fast, non-invasive, and reproducible method for assessment of disease severity in chronic liver disease. This study was aimed to evaluate the diagnostic performance and correlation of LSM with disease severity, complications, and portal hypertension in the Asian Indian patients with non-alcoholic fatty liver disease (NAFLD) including cirrhosis
Methods: Successful LSM performed in 380 subjects (193 NAFLD, 85 NAFLD related cirrhosis and 102 healthy controls) and its associations with disease severity and complications were studied. Liver biopsy was available in 87 NAFLD patients.
Results: In NAFLD patients, LSM increased progressively with increasing histological severity of hepatic fibrosis (p< 0.0001) with significant correlation (r=0.67, p<0.001); however, the differences between F1 and F2 was not significant (p=0.36). The median LSM of NAFLD patients without fibrosis (F0) was similar to those of healthy control (5.2 vs. 5.7 KPa, p=0.32). In absence of fibrosis, BMI (p= 0.75), serum transaminases levels (p=0.82), and NAFLD activity score (p=0.74) did not influence LSM. The areas under receiver-operating characteristics curve (AUROC) of LSM for fibrosis ≥F 1, ≥F 2, ≥F 3, and≥F 4—were 0.82, 0.81, 0.93, and 0.94, respectively. The best LSM discriminate cut off were: 6.0 KPa for ≥F1, 6.7 KPa for ≥F2, 9.3 KPa for ≥F3 and 18.7 KPa for cirrhosis. The LSM (5.7 [3.3–2.9] KPa) in 106 NAFLD patients without liver biopsy were similar to those of biopsied patients. In multivariate analysis, only insulin resistance independently predicted advanced fibrosis as assessed by LSM ≥9.3 KPa (OR 4.1, 95% CI 1.5–10.8, p=0.004). In patients with NAFLD cirrhosis (n=85), LSM significantly correlated with the Child-Pugh score (r 0.040, p<0.001), serum bilirubin (r

0.34, p 0.02), and grades of varices (r=0.23, p0.04), while correlation with hepatic venous pressure gradient was poor (r 0.12, p 0.33). The AUROC of the LSM for presence of esophageal varices was 0.72 (0.54–0.91).
Conclusion: LSM appears to be is a promising non-invasive method for assessment of disease severity of various spectrum NAFLD patients of Asian Indian.

FP10

Correlation of early viral kinetics and treatment response during Tenofovir treatment in chronic hepatitis B patients

Syed Hissar,[1,3] *Siddhartha Kumar Mishra,*[1] *Eva Herrmann,*[2] *Manoj Kumar,*[1,3] *Sadaf Bashir Dar,*[1,3] *Nirupma Trehanpati,*[1,3] *Shiv Kumar Sarin*[1,3]
[1]Department of Gastroenterology, G B Pant Hospital, J L Nehru Marg, New Delhi 110 002, India, [2]Internal Medicine, Johann Wolfgang Goethe-University Hospital, Frankfurt am Main, Germany and [3]Department of Hepatology, Institute of Liver and Biliary Sciences (ILBS), Vasant Kunj Marg, New Delhi 110 070, India

Background: Mathematical analysis of viral kinetics is helpful in predicting treatment response and outcome of antiviral therapy. However, limited data is available on HBV kinetics during Tenofovir treatment in chronic hepatitis B (CHB) patients.
Methods: We analyzed the viral kinetics during initial 12 weeks of Tenofovir therapy and to correlate it with the 52 weeks viral response. Viral decay during the initial 12 weeks of therapy was determined by the effectiveness of blocking virion production (ε) and the loss of infected cells (δ). HBV DNA was measured with TaqMan probed real-time.
Results: Thirty-three treatment naïve CHB patients [HBeAg positive (n=18): age=28 (18–49), M:F=17:1; and HBeAg negative (n=15): age=35 (22–55), M:F=13:2] were studied. The median (interquartile range, IQR) baseline HBV DNA was 6.9 (6.4–7.9) and 5.3 (4.9–7.3) log copies/mL, in HBeAg+ve and HBeAg-ve groups respectively. Virological response at week 52 was achieved in 39% and 34% patients in HBeAg+ve and HBeAg-ve groups, respectively. Sigma was 96.7 (59.6–99.9) and 99.9 (98.0–99.9) %, and delta was δ=0.07 (0.01–0.28) and 0.01 (0.01–0.07) in both groups respectively. At 52 weeks, no correlation was found between virological response and blocking virion production (ε) (r=−0.05, p>0.2) and loss of infected cells (δ) (r=−0.05, p>0.2) in HBeAg positive patients. However, significant correlation was found between virological response and ε (r=0.54, p=0.05) and δ (r=0.60, p=0.03) in HBeAg negative patients.
Conclusions: Tenofovir treatment showed similar decline in HBV DNA levels in HBeAg positive as well as negative patients. Viral kinetic studies at 12 weeks significantly correlated with treatment outcome at 52 weeks in HBeAg-ve patients but not in HBeAg+ve patients.

FP11

Enhanced IFN-γ production by intrahepatic CD8+T lymphocytes despite increased tregs and PD1, leads to massive hepatocellular injury in acute-on-chronic liver failure

Arshi Khanam, *Nirupma Trehan Pati, Vishal Garg, Shikha Shrivastava*
Institute of Liver and Biliary Sciences (ILBS), Vasant Kunj Marg, New Delhi 110 070, India

Background: CD8+Tcell-mediated immune response plays critical role in acute hepatic injury; however, its role in ACLF remains unknown. Functional capacity of CD8+T cells could provide an insight into the extent and mechanisms responsible for hepatocellular injury.
Methods: We characterized effect or function of CD8+ T cells in hepatic tissue, hepatic vein (HV) and peripheral blood (PV); and analyzed their association with liver injury in 47 ACLF patients and compared with 35 chronic hepatitis B (CHB) and 14 healthy individuals.
Results: We found increased frequencies of CD8T and activated T cells (CD8+CD69+) in ACLF compared with CHB and HC. When ACLF liver was compared with HV and PV, significant increased frequencies of intrahepatic CD8 and activated CD8 T cells (48.23% vs. 24.36 vs. 23.55, p=0.002, 0.001) were observed. This might be due to influx of activated T cells from periphery to liver with chemokine dependent manner as CCR5, was upregulated on liver CD8 T cells (8.84% vs. 5.83%). In ACLF, CD8T cells had increased interferon-I[3] production despite increased frequency of PD1 (18.59% vs. 1.17% vs. 0.67%, p=0.00, 0.00) and Tregs (28.57% vs. 0.8% vs. 2.7%, p=0.00, 0.00), which negatively regulates the immune response.
Conclusions: These novel data imply that increased liver CD8T cells in ACLF had enhanced IFN-γ production, resulting in massive liver damage and hepatocellular necrosis. However, high Tregs and PD1 were not able to counter balance the massive induction of IFN-γ by CD8T cells which may lead to immuno-pathogenesis.

FP12

Increase in number and function of endothelial progenitor cells enhance angiogenesis in chronic liver diseases through paracrine factors

Savneet Kaur, *Ketki Dongre, Dinesh Tripathi, Vishal Garg, Sheetalnath Rooge, Asok Mukopadhyay, Puja Sakuja, Shiv Kumar Sarin*
School of Biotechnology, Gautam Buddha University, Greater Noida 201 308, Institute of Liver and Biliary Sciences (ILBS), Vasant Kunj Marg, New Delhi 110 070, G B Pant Hospital, J L Nehru Marg, New Delhi 110 002, India, National Institute of Immunology, Aruna Asaf Ali Marg, New Delhi 110 067, India

Background and Aims: Recent studies have shown a pathological role of angiogenesis in the progression of chronic liver diseases (CLDs). The present study focused on the numbers and functions of circulating endothelial progenitor cells (EPCs) in patients with CLDs.
Methods: Circulating EPCs were enumerated by flow-cytometry, and correlated with the biochemical parameters of liver functions and the tissue fibrosis stages. They were expanded ex-vivo in patients and controls to compare their colony-formation, proliferation and tube-formation ability. Interactions of EPCs with liver non-parenchymal cells (NPCs) was examined by indirect and direct co-cultures using EPCs and rat liver NPCs.
Results: Number of circulating EPCs was substantially higher in CLD patients compared to the controls ($p<0.05$), and showed a significant positive correlation with increasing fibrosis of the patients ($r=0.69$, $p=0.01$). Functional assays revealed that colony number and proliferation of EPCs were significantly increased in cirrhotic patients than the controls ($p<0.05$). However, studies with labeled-EPCs revealed that they did not involve themselves in the formation of tube-like structures.
Conclusions: Mobilization and proliferation of EPCs is significantly enhanced in cirrhotic patients than that in healthy subjects. Though EPCs are not directly involved in vessel formation; they may play a paracrine role in liver angiogenesis and probably fibrosis with the help of resident NPCs.

FP13

D–Dimer as a single marker for early prediction of severity, necrosis, organ failure and mortality in acute pancreatitis

Sreekanth Appasani,[1] *R B Thandassery,*[1] *N Varma,*[2] *T D Yadav,*[3] *S V Attri,*[4] *S V Rana,*[1] *K Singh,*[1] *R Kochhar*[1]
Departments of Gastroenterology,[1] Hematology,[2] Surgery,[3] and Biochemistry,[4] Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Aims: To prospectively evaluate the role of serum D-Dimer (SDD) levels in determination of severity and hospital course of acute pancreatitis and correlate it with standard scoring systems.
Methods: Seventy consecutive acute pancreatitis patients from July 2009 to June 2010 (64% males, age 15–76 years) were stratified into mild and severe pancreatitis as per Atlanta criteria. SDD levels were analyzed quantitatively at admission by immune turbidity method and were compared with RANSON, APACHE, BISAP and MOFS scores along with CRP levels while analyzing severity and outcome.
Result: The median SDD levels were higher with severe pancreatitis (49.75 μg/mL, $n=40$) than with mild pancreatitis (16.50 μg/mL, $n=30$, $p<0.001$). At a cut off of 12.10 μg/mL, SDD had sensitivity and specificity of 95% and 97% in predicting severe pancreatitis (AUC=0.975). The median SDD levels were higher with higher degree of necrosis (>50%=50.68 μg/mL, 30% to 50%=43.44 μg/mL, <30%=40.14 μg/mL and no necrosis=20.06 μg/mL, $p<0.001$). The median SDD levels were higher with organ failure than those without (47.44 μg/mL vs. 16.48 μg/ml, $p<0.001$) and with fluid collections than without (43.43 μg/mL vs. 27.87 μg/mL, $p<0.001$). Patients who died had higher SDD levels than who survived (54.93 μg/mL vs. 30.64 μg/mL, $p<0.001$). There was good correlation ($p<0.001$) of SDD with CTSI (0.512), CRP (0.505), APACHE (0.677), RANSON (0.565), BISAP (0.612) and MOFS score (0.687).
Summary: SDD level at admission is an effective predictor of severity of acute pancreatitis as well as development of organ failure, necrosis and mortality. SDD correlated with APACHE, RANSON, BISAP and MOFS scores and serum CRP in predicting hospital course and outcome. We recommend SDD as a single marker as predictor of severity of acute pancreatitis.

FP14

Serotonin transporter gene polymorphism in patients with irritable bowel syndrome and healthy controls

Sunil Kumar,[1] *Balraj Mittal,*[2] *Uday C Ghoshal*[1]
[1]Departments of Gastroenterology and [2]Medical Genetics, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow 226 014, India

Background: Polymorphisms in serotonin re-uptake transporter (SERT) gene may underlie disturbance in gut function in irritable bowel syndrome (IBS). The aim of

this study was to evaluate association between SERT polymorphisms and serotonin concentration in IBS.
Methods: One hundred and fifty IBS (Rome-III criteria) and 252 controls were subjected to SERT genotyping. Serotonin was measured in rectal tissue of patients only.
Results: Patients and controls were age and sex matched. Patients were classified into D-IBS 79 (52%), C-IBS 52 (35%) and AIBS 19 (13%). SERT polymorphism differed in IBS and controls [genotypes s/s, 89 (59%), l/s, 44 (29%), and l/l, 17 (12%) vs. s/s, 92 (37%), l/s, 114 (45%), and l/l, 46 (18%), $p<0.001$]. SERT s/s genotype was higher in D-IBS than in controls. A strong genotypic association was observed between SERT s/s genotype and D-IBS ($p<0.0001$). Serotonin level was higher in D-IBS than A-IBS and C-IBS (154.7+37.1 vs. 112.4+24.6 vs. 104.3+23.7-nmol/L, $p<0.0001$) and in "s/s" genotype than "s/l" and "l/l" (151.1+37.3 vs. 105.0+ 20.9 vs. 100.9+ 28.0 nmol/L, $p<0.0001$). IBS with "s/s" genotype more often had abdominal pain and discomfort than "s/l" and "l/l" [78/89 (87.6%) vs. 19/44 (43%) vs. 5/17 (29%), $p<0.0001$] and [72/89 (81%) vs. 25/44 (57%) vs. 12/17 (70%), $p=0.013$]. Serotonin level was higher among IBS with symptoms of abdominal pain than without (142.9+39.4 vs. 108.4+ 28.9 nmol/L, $p<0.0001$).
Conclusion: A significant association was observed between SERT-polymorphism and serotonin concentration in IBS, especially D-IBS, suggesting that SERT-gene is a potential candidate gene involved in IBS in Indian population.

FP15

In cirrhotic patients with SIRS absolute eosinophil count obtained at admission is an excellent predictor of in-hospital mortality

Hardik Kotecha*, Ashish Kumar, Romesh Chawlani, Jay Toshniwal, Naresh Bansal, Mandhir Kumar, Anil Arora*
Sir Ganga Ram Hospital, Rajinder Nagar, New Delhi 110 060, India

Background: Absolute eosinophil count (AEC) and procalcitonin (PCT) level may have a prognostic value in critically ill patients. However, their role in cirrhotic patients has never been studied. We evaluated the role of AEC and PCT, obtained at admission, in predicting in-hospital mortality in cirrhotic patients with SIRS.
Methods: In consecutive patients of cirrhosis with SIRS, AEC and PCT levels were estimated at admission. They were categorized into those having sepsis and those without. Their outcome was correlated with the baseline parameters.
Results: Eighty-three patients were enrolled (median age 52 [range 17–78] years, 83% males). The etiology of cirrhosis was alcohol (43%), cryptogenic (37%), viral (15%), and others (5%). Their median MELD- and CTP-scores were 24 (range 5–56) and 11 (range 5–15), respectively. Sepsis was present in 63% patients and rest 37% had SIRS without infection. There was a significant difference between median levels of AEC and PCT between patients who had sepsis and who did not ($p<0.01$). Fifty (60%) patients recovered from SIRS and were discharged, 29 (35%) patients died, and 4 (5%) received orthotopic-liver-transplantation (OLT) during the same admission. Baseline-AEC and PCT levels were significantly different between patients who recovered and died. On multivariate analysis, baseline-AEC values could independently predict in-hospital-mortality, in addition to MELD. The AUROC of AEC for predicting mortality was 0.731; and the best cut-off of AEC, obtained by Younden's index was 104 cells/cumm, indicating that patients having baseline AEC values less than 104 cells/cumm had higher in-hospital mortality (sensitivity 62%, specificity 76%).
Conclusions: In critically ill patients of cirrhosis with SIRS, a baseline-AEC value of less than 104 cells/cumm accurately predicts in-hospital mortality. The prediction of mortality by AEC is independent of MELD score.

Esophagus

E1

Cutaneous metastasis in esophageal squamous cell carcinoma

Rajiv Bajal, H R Praveen Kumar, Mayank Jain, ***Deepak Gupta***
Department of Gastroenterology, Jagjivanram Hospital, Maratha Mandir Marg, Mumbai Central, Mumbai 400 008, India

Cancer of the esophagus is the ninth most common malignancy and the sixth most common cause of cancer related death the world over. Esophageal cancers are predominantly squamous cell carcinomas. Cutaneous metastases from the malignant tumors of internal organs are rarely seen and account for 0.7% to 9% cases. The cutaneous involvement occurs as a result of hematologic or lymphatic spread and presents as nodules or papules.
Case presentation: A 34-year-old male patient from Ajmer presented with history of weight loss of 10 kgs in last 2 months and 2 episodes of hemetemesis, approximately 250 mL each, associated in melena in last 15 days. He was a chronic smoker. He had noticed a swelling in lower chest on left side since the onset of complaints. A computed tomogaphy scan done outside showed diffuse thickening of

the esophageal wall and hepatosplenomegaly with infiltrative lesions in the liver (films not available). On examination, he was pale. Vitals were stable. A subcutaneous nodule was noted in the lower chest on left side extending from 11–12 rib, 2 cms x 1.5 cms, non tender and fixed. Liver was palpable 7 cms below the costal margin and was non tender. Upper gastrointestinal endoscopy showed diffuse esophageal ulceration in the entire length of esophagus. Endoscopic biopsy from the esophagus revealed poorly differentiated squamous cell carcinoma of the esophagus. FNAC from the lesion showed features suggestive of squamous cell carcinoma.

E2

Tuberculous tracheoesophageal fistula at tertiary referral centre

R Baijal, H R Praveen Kumar, Mayank Jain, ***Deepak Gupta****, Nimish Shah*
Department of Gastroenterology, Jagjivanram Hospital, Maratha Mandir Marg, Mumbai 400 008, India

Aim: Case series report of 5 patients with tuberculous tracheoesophageal fistula.
Methods: Details of patients diagnosed with tuberculous tracheoesophageal fistula regarding demographic, symptomatology, barium swallow, upper endoscopy with biopsy and HRCT thorax were recorded and diagnosis confirmed by tracheoesophageal fluid aspirate positive for AFB, biopsy or HRCT showing necrotic lymphnodes with FNAC.
Results: Of 18 patients with esophageal tuberculosis 5 patients (4 male, 1 female) had tracheoesophageal fistula. Mean age was 48+/−10. Out of 5 patients 3 were immunocompromised (2 seropositive and 1 post renal transplant). Patients mean duration of symptoms was 38+/7 days. Most common symptom was coughing on swallowing followed by dysphagia. Barium swallow of 4 patients showed tracheoesophageal fistula and 1 showed bronchoesophageal fistula. Endoscopically lesions were seen from 28 cm to 32 cm; most common was ulcer with fistulous opening tract (4 patients) and small fistulous tract (1 patient). All 5 patients had paratracheal or subcarinal lymph nodes (3 showed necrosis), tracheoesophageal fluid for AFB positive in 2 patients and granuloma on histological examination in 3 patients. Two patients had concomitant pulmonary tuberculosis, 4 patients were kept on Ryle's tube feeding for 1 month, 3 underwent PEG tube insertion and 1 required surgery. One patient improved with only antituberculous drugs. All patients were successfully treated with antituberculosis treatment given for 1 year. PEG lube were removed after 3 months of insertion in 2 patients. One immunocompromised patient was kept on PEG tube for a duration of 5 months. Healing of the fistula confirmed by endoscopy and barium swallow.
Conclusion: Tuberculous tracheoesophageal fistula can be efficiently managed with antituberculous drugs and PEG insertion

E3

Pneumatic balloon dilation in achalasia cardia—an audit

B Prakash Shankar*, P Jagadeesan, G Ram Kumar, K Muthukumaran, T Pugazhendhi , S Jeevan Kumar*
Department of Digestive Health and Diseases, Kilpauk Medical College and Hospital, Chennai 600 010, India

Background and Aim: Achalasia cardia is a common motility disorder of esophagus with many definitive treatment options. This study is a retrospective analysis of achalasia cardia and response to pneumatic balloon dilatation.
Method: Study population comprised of 20 patients diagnosed to have achalasia cardia from January 2010 till July 2011. Age, sex, clinical features, response to pneumatic dilatation and complications were analyzed.
Observation: Out of the 20 patients, 14 men and six women. Age (average range 37.5 years) with range 17 to 52 years. Nineteen patients presented with classical dysphagia, 1 patient presented with stale food vomiting. Interestingly 2 patients were previously diagnosed as stricture of distal esophagus somewhere else. All patients underwent pneumatic balloon dilatation under endoscopic guidance using Wilson Cook balloon, with average pressure ranging from 10 to 12 Psi for 60 s. No procedure related complications and 0% mortality rate. Three women had to undergo pneumatic balloon dilatation twice within a period of three months. They were later treated with high dose PPI for severe GERD. All the other patients had immediate improvement in symptoms. Six month follow up with timed barium swallow of all patients were satisfactory.
Conclusion: Achalasia cardia is not an uncommon esophageal motility disorder. In this study there is slight male preponderance with presentation at middle age. All responded well to pneumatic balloon dilatation with negligible complications and mortality rate of 0%. GERD could be a cause for concern.

E4

Self expanding metallic stent in esophageal carcinoma a 4 year audit

R Senthil Kumar*, T Arun, R Balamurali, K Muthukumaran, T Pugazhendhi, S Jeevan Kumar*
Department of Digestive Health and Diseases, Kilpauk Medical College and Hospital, Chennai 600 010, India

Aim: To study the demographic profile, indications, safety and efficacy of self expanding metallic stent [SEMS] in patients with advanced carcinoma of esophagus.
Methods: This is a retrospective study done in patients admitted in our department from 2006 to 2010. All patients were biopsy proven and staged as advanced malignancy and planned for palliative stenting. Indications included dysphagia and tracheoesophageal fistula. Endoscopic dilatation was done with Savary-Gillard dilators upto a maximum of 12.8 mm and SEMS placement was done.
Observation: Eighteen patients [M:F 14:4] aged between 35 to 70 years with a mean age of 53 years were included in the study. All patients were proven cases of squamous cell carcinoma previously treated with radiotherapy and chemotherapy except one, [8 well differentiated, 5 moderately differentiated, 5 poorly differentiated]. Mean length of the growth was 7.3 cms and all were in the middle third of esophagus. TOF were seen in 11 patients between 24 to 35 cms. SEMS was successfully placed in all patients. Symptomatic improvement noted in all patients and were able to drink and swallow. No mortality was noted in first 2 weeks. Average life span after palliative stenting was four to five months. Most common cause of death were respiratory complications. One patient survived upto fourteen months. No procedure related mortality was noted.
Conclusion: Palliative SEMS placement in patients with advanced carcinoma of esophagus improve the quality of life.

E5

A study on esophageal candidiasis

P Jagadesan, *B Prakash Shankar, G Ram Kumar, K Muthukumaran, T Pugazhendhi, S Jeevan Kumar*
Department of Digestive Health and Diseases, Kilpauk Medical College and Hospital, Chennai 600 010, India

Aim: To analyse the clinical profile, underlying etiology and prognosis in patients with esophageal candidiasis.
Methods: A retrospective study on patients with endoscopically proven esophageal candidiasis at our institution from June 2010 to May 2011 was done and immunity status and relevant etiology among them were scrutinised.
Observation: Twenty-seven patients had candidial esophagitis. Among them 20 were males and 7 were females. Three of them had Kodsi grade III, 18 of them had grade II and 6 of them had grade I. Only 12 patients were symptomatic and they had dysphagia as their main complaint. Among them 6 patients had esophageal malignancy. Uncontrolled diabetes mellitus was found in 7 patients. Twelve patients were aged above 50 years. Alcoholic liver disease was found in 3 patients.
Conclusion: Asymptomatic esophageal candidiasis is still common and needs thorough evaluation to detect underlying etiology.

E6

Microscopic changes in non erosive reflux disease patients

Mukesh Agarwala, Bhavesh Thakkar, T M Amruthesh, ***J K Pradeepkumar****, Ubal Dhus, P Piramanayagam, K R Palaniswamy*
Apollo Hospitals, Greams Road, Chennai 600 006, India

Background: Non erosive reflux disease (NERD) is defined as presence of troublesome reflux-associated symptoms and the absence of mucosal breaks at endoscopy. Twenty-four hours pH metry is gold standard for diagnosing NERD, but this method is time consuming, not widely available, and is normal in 37% to 60% patients. Histological changes have been described in GERD.
Aim: To find out frequency of histological changes of reflux disease in biopsies taken from lower third of esophagus in patients with reflux symptoms with normal white light endoscopy.
Methods: Ninety patients with GERD symptoms and normal esophageal mucosa on conventional endoscopy were included. Patients with erosive esophagitis, Barrett's esophagus, malignancies, stricture, history of upper GI surgeries were excluded. Twenty patients without GERD symptoms but undergoing UGI endoscopy for other indications were taken as control. Esophageal biopsies were taken from lower third of esophagus, between 2–5 cm from OG junction in both groups and evaluated for histological changes of GERD (basal cell hyperplasia, papillary length, cellular infiltration).
Results: Seventy-three percent patients with reflux symptoms had NERD. Both groups are comparable in age, sex, BMI, alcohol use and smoking. Histological changes of GERD like mucosal acanthosis (77.8% vs. 45%, $p=0.003$), basal cell hyperplasia (73.3% vs. 35%, $p=0.001$), high up capillaries (43.3% vs. 10%, $p=0.005$), neutrophil infiltration (25% vs. 0%, $p=0.012$) were more common in patients with reflux symptoms than controls.
Conclusion: Lower esophageal biopsy is routinely recommended in evaluation of patients with reflux symptoms and normal conventional endoscopy.

E7

Loss of methylation at promoter region of DNMT3L gene in esophageal squamous cell carcinoma—a pilot study

*M Guru Prasad,[1] K Sandhya, [1] Manu Tandon,[2] **G Naga Harini,**[1] G Varadaraj,[2] D Nageshwar Reddy,[2] M Sasikala[1]*
Asian Healthcare Foundation,[1] Asian Institute of Gastroenterology,[2] 6-3-661, Somajiguda, Hyderabad 500 082, India

Background/Aim: Epigenetic modifications and DNA methylation status have been demonstrated to be one of the important factors in the genesis of cancer. Earlier studies have shown alterations in DNA methytransferase (DNMT) methylation status associated with pathological conditions like cervical cancer and ocular squamous neoplasia. Esophageal squamous cell carcinoma is 4th most common cancer in developing countries like India. Our aim of the present study was to evaluate the methylation status in promoter region of DNMT3L gene in esophageal squamous cell carcinoma (OSCC).
Methods: In a pilot study, patients diagnosed with esophageal squamous cell carcinoma and who underwent endoscopic procedure for histopathological confirmation were enrolled. Fifteen tissues were collected from tumor and adjacent normal areas. DNA was extracted and subjected to bisulfite conversion, followed by PCR. The amplified product was cloned and sequenced which was further analyzed statistically. Sixteen CpGs were analyzed.
Results: Methylation in promoter region of DNMT3L in normal tissue was 46% as compared to that of esophageal squamous cell carcinoma which was only 22%. Variable loss of methylation was observed in tumor region in all 16 CpGs analyzed, significant loss was noticed in 4th and 12 to 16 CpGs of DNMT3L promoter region.
Conclusion: Present study shows significant loss of methylation at 4th and 12 to 16 CpGs in the promoter region of DNMT3L gene in esophageal squamous cell carcinoma.

E8

Carcinoma esophagus an audit in a tertiary care centre

***Jayakumar Jayakrishnan**, G Ramkumar, K Muthukumaran, R Balamurali, T Pugazhendi, S Jeevan Kumar*
Department of Medical Gastroenterology, Kilpauk Medical College and Government Peripheral Hospital, Anna Nagar, Chennai 600 010, India

Aim: To determine demographic profile, risk factors, symptomatology and histopathology of carcinoma esophagus patients.
Methods: A retrospective study with data from patients' records, endoscopy and biopsy registers of carcinoma esophagus patients seen between August 2010 and July 2011.
Results: Total esophageal carcinoma cases was 64. Thirty-seven were male (58%) and 27 female (42%) patients. Agewise distribution: <40 yrs=8, 40–50 yrs=7, 50–60 yrs=22, 60–70 yrs=15 and >70 yrs=12. Regarding risk factors, 29 persons were smokers (male), 1 tobacco chewer (female) and 5 had post-cricoid web (female). Predominant presentation was dysphagia (57), abdominal pain (3), vomiting (3) and constipation (1). Eight persons also had odynophagia. Tumor present in upper third of esophagus in 18 (28%) cases, middle third in 28 (44%) and lower third in 18 (28%). Twenty-nine lesions were ulceroproliferative, 26 proliferative, 5 ulcerative and 4 nodular. Histologically, squamous cell carcinoma was seen in 62 patients, adenocarcinoma in 1 and indeterminate in 1 patient.
Discussion: In this study, male preponderance noted and 57% cases occurred between 50–70 years. Of 8 persons <40 years, 5 were female (3 had post-cricoid web). Dysphagia was predominant presentation and 47 patients required esophageal dilatation at presentation. The tumor was commonly seen as an ulceroproliferative/proliferative growth in middle third of esophagus. 97% cases were squamous cell carcinoma.
Conclusion: This study confirms carcinoma esophagus in Chennai correlates with global statistics with male preponderance, common in 6th and 7th decades, predominant presentation being dysphagia but squamous cell carcinoma is the predominant type (adenocarcinoma in developed world).

E9

Esophageal strictures induced by radiation therapy for cancer of the esophagus behavior pattern and response to dilatation

***G Ayyappan**, T M Ramachandran*
Department of Gastroenterology, Medical College, Calicut 673 008 Kerala, India

Background: Following palliative or radical radiotherapy for carcinoma esophagus, 30% to 44% of patients develop strictures of the esophagus and 50% to 72% of them require intervention. Treatment of symptomatic esophageal strictures requires endoscopic dilatation using Savary-Gilliard dilators.
Aim: To study the technical success and the functional outcome of dilatation of radiation induced strictures of esophagus using Savary-Gilliard dilators.

Methods: Patients undergoing dilation of esophageal strictures induced by radiation therapy for squamous cell cancer of the esophagus using Savary-Gilliard dilators from January 2010 to May 2011 at Medical College, Calicut were enrolled in the study.
Results: Twenty-seven patients with post radiation strictures of esophagus were enrolled (males −16 M:F=1.5). Mean age was 59.7 (range-33 to 76 yrs). Time between completion of radiotherapy and dilation ranged from 2 to 36 months (median 3 months). Length of strictures ranged from 1 to 7 cm (median, 4 cm) and luminal diameter from 0.5 to 9 mm (median 5 mm). Technical success was achieved in 25/27 (92.5%) patients. The strictures of 17/25 (68%) patients were dilated in 1 session, 6/25 (24%) in 2 sessions, 1 in 3 sessions, and 1 in 4 sessions. Total of 36 sessions. Adequate relief of dysphagia occurred in 19/25 (76%) patients and lasted from 3 to 72 weeks (median 16 weeks). The success score as assessed by modified grades of Rourke et al. were 1a 7/25 (28.0%), 1b none, II 15/25 (60.0%), III 1 patient and IV 1 patient.
Conclusion: Radiation induced strictures of the esophagus can be effectively palliated in majority of patients by dilation using Savary-Gilliard dilators.

E10

An audit on esophageal manometry in a GI Motility Unit

***T A Balakumaran**, S Palaniappan, N S Balaji, S Vijaya, V Jayanthi*
Global Hospitals and Health City, #439, Cheran Nagar, Perumbakkam, Off OMR, Near Sholinganallur, Chennai 600 100, India

Background: High resolution manometry (HRM) measures pressure changes within the esophagus and its sphincters and helps in diagnosis of motor disorders of the esophagus.
Aim: To assess the correlation between clinical diagnosis and HRM in various esophageal motor disorders.
Methods: Patients with various symptoms like retrosternal burn, chest pain, and difficulty in swallowing, non specific/atypical gastroesophageal reflux symptoms were assessed clinically and subjected for HRM to confirm or refute the clinical diagnosis.
Statistics: Agreement rates using Kappa test were computed.
Results: Twelve out of 63 patients had a clinical diagnosis of achalasia, 38 had GERD, 8 had dysphagia and/or non cardiac chest pain. Five non specific esophageal symptoms. Agreement rate using Kappa statistic was 82% for achalasia and 18% for GERD. Thirteen out of 38 patients with GERD had normal esophageal peristalsis, 6 had hypotensive LES, and one had hypertensive LES. The latter was eventually diagnosed as a case of achalasia cardia at HRM. In 5 patients with non specific esophageal symptoms one patient had a hypertensive lower esophageal sphincter. Among the 8 patients with non-cardiac chest pain, 2 had nut cracker esophagus, one had hypotensive LES, 3 had non-specific esophageal manometry findings.
Conclusion: HRM provides essential information on normal and abnormal peristaltic findings in GERD, a prerequisite for fundoplication. In NCCP, HRM identified nutcracker esophagus, which otherwise would have been missed. It excludes major esophageal motor disorders in patients with non specific esophageal symptoms. HRM has no additional role in diagnosis of achalasia cardia.

E11

Study of etiological review of causes of dysphagia on upper GI endoscopy—a study of 100 patients

*Santokh Singh, Gurpal Singh, Shivcharan, **Jatinderpal Singh**, Parampreet Singh*
Government Medical College, Circular Road, Amritsar 143 001, Baba Farid University of Health Sciences, Faridkot, India

Dysphagia is a common GIT problem and an indication for UGIE. We conducted this study to observe the etiological causes of dysphagia. This study was conducted on 100 patients from June 2009 to June 2011, in Department of Medicine, Gastroenterology of Guru Nanak Dev Hospital of Government Medical College, Amritsar.
Methods: Adult patients of either sex presenting with dysphagia were included. Detailed history, examination and routine investigation including ECG was done. Every patient was subjected to UGIE. Dysphagia was graded using Cowling's classification. Those with neurological dysphagia were excluded.
Results: Out of 100, 49 males and 51 were females. The patients were between 18 to 70 years of age and mean was 48.8 years. Fifty-three were from rural and 47 from urban areas. Dysphagia was grade I in 46 and grade III in 54 cases. GERD with pain was present in 42; esophageal cancer in 18 out of which, squamous cell carcinoma in 10 and adenocarcinoma in 8 cases. Out of 18 cases 12 cases had involvement of lower 1/3rd part of esophagus. Esophagitis in 15; single esophageal ulcers in 12; esophageal candidiasis in 7 (5 were HIV); esophageal ring was seen in 2 cases. One patient each of corrosive stricture and achlasia presented with dysphagia. Diverticulum was seen in 2 patients one of which later turned out to be malignant on biopsy.
Conclusion: In the present study GERD was found to be the most common cause of painful dysphagia followed by

esophageal carcinoma as the cause of painless mechanical dysphagia.

E12

Endoscopic ultrasonography guided fine needle aspiration of unexplained thickening of the esophagogastric wall

S S Rana, D K Bhasin, R Srinivasan, ***C Rao****, K Singh*
Departments of Gastroenterology and Cytology,* Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background: Patients with thickened esophagogastric wall on CT but without evidence of malignancy on endoscopic mucosal biopsies are a difficult diagnostic dilemma.
Aim: To evaluate the role of endoscopic ultrasonography (EUS), fine needle aspiration (FNA) in establishing the diagnosis in patients with unexplained esophagogastric wall thickening.
Methods: Twelve patients (10 males) with unexplained thickened esophagogastric wall were studied. Under EUS guidance FNA of the thickened esophagogastric wall was performed using 22 G needle.
Results: Nine patients had unexplained thickening of the esophageal wall and three patients had unexplained thickening of the gastric wall. All the patients with thickened esophageal wall had loss of the wall stratification with the wall thickness ranging from 11 to 21 mm. Five of these patients underwent positron emission tomography (PET) and all of them had increased uptake in the area of the thickening. EUS FNA from the thickened wall established the diagnosis of malignancy in 3/12 (25%) of the patients and it revealed benign cells in the remaining 9 patients. EUS could identify mediastinal or celiac lymph nodes in 3/9 (33%) of these patients and EUS FNA could detect malignancy in 2/3 patients. In remaining 7 patients with no diagnosis, on follow up malignancy could be detected in 6 patients.
Conclusion: EUS FNA of the thickened esophagogastric wall is not a good modality in establishing the diagnosis.

E13

Esophageal tuberculosis—interesting case series

Shafique*, Biggs Saravanan, Malarvizhi, Vinodh, Kani Sheik, Anand, Arvind, Hemamala, Senthil Kumar, Radha, Caroline Selvi, Premukumar, Ratnagar Kini, P Padmanabhan, Mohammed Ali*
Department of Medical Gastroenterology, Madras Medical College Hospital, Chennai 600 003, India

Introduction: The rarest form of GI tuberculosis is esophageal TB. It can present as primary or secondary forms. Incidence of primary and secondary tuberculosis accounts for 0.15% and 0.14% respectively. Its clinical presentation is easily confused with that of malignancy. Esophageal TB usually cured with ATT without sequelae even in the presence of tracheoesophageal fistula. Here we report 2 cases of esophageal tuberculosis.
Case 1: Forty-six years old female presented with dysphagia Gr1- 11 since 1 month along with history of food held up in chest. Chest X-ray and CT chest—normal study. UGI scopy revealed eccentricaly placed large excavating ulcer with overhanging edges at 22 cm of esophagus. Biopsy revealed epitheloid granuloma and caseating necrosis suggestive of tuberculosis.
Case 2: Twenty-eight years old female presented with dysphagia gr11 since 15 days which was progressive in nature associated with retrosternal discomfort. Patient was known case of GERD, hence peptic stricture was suspected. OGD revealed smooth globular eccentricaly placed submucosal lesion at 25 cm which showed ulceration on subsequent endoscopy. CT chest showed hypodense subcarinal mass? node involving the esophageal wall. EUS guided FNAC done which showed features suggestive of tuberculosis.
Both the patients were put on ATT for 6 months and their symptoms improved well with the treatment as well as in endoscopy no lesion was made out.
Conclusion: Esophageal uberculosis though it's a rare entity has a varied presentation which mimicks strictureeither benign or malignant, TOF and GI bleed and a differential diagnosis of tuberculosis to be kept in mind in a tropical country like ours and ATT given to these patients gave excellent results.

E14

Role of endoscopic ultrasonography in management of benign esophageal strictures

S S Rana*, D K Bhasin, C Rao, K Singh*
Department of Gastroenterology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Endoscopic dilatation is an effective therapeutic modality for benign esophageal strictures but the factors that predict the response to dilatation have not been well defined.
Aim: Prospectively evaluate role of endoscopic ultrasonography (EUS) in predicting response to endoscopic dilatation in benign esophageal strictures.

Methods: Twenty-seven patients (corrosive 14, peptic 10 and post radiation 3) were prospectively studied with radial EUS prior to dilatation.
Results: The mean length of peptic and post radiation strictures was 1.98±0.52 cms and 2.6±0.20 cms respectively whereas the corrosive strictures were significantly longer with the mean length being 4.38±0.87 cms. The maximum esophageal wall thickness was significantly more in patients with corrosive and post radiation strictures in comparison to patients with peptic strictures. In patients with peptic stricture, the mucosal thickness involved either the mucosa (2) or submucosa (8) and in none of the patients the muscularis propria was involved. However, muscularis propria was involved in all the 3 patients with post radiation strictures and in 11/14 (78.5%) patients with corrosive strictures. Two patients with peptic stricture with only mucosal thickness required a single session of dilatation whereas patients with involvement of submucosa required 2–4 sessions of dilatation. Patients with corrosive stricture having only involvement of submucosa required significantly lesser number of dilating sessions in comparison to patients having muscularis propria involvement (2.67± 0.58 vs. 6.30±1.16 sessions respectively; p=0.0003).
Conclusion: EUS by delineating extent of esophageal wall involvement in benign esophageal strictures predicts response to endoscopic dilatation.

E15

SRS endoscopic stapling maybe an alternative to Nissen fundoplication

***A Bapaye**, A Aher, S Date R Pujari, A Upasani*
Deenanath Mangeshkar Hospital and Research Center, Erandawne, Pune 411 004, India

Objectives: Assessment- safety and effectiveness of SRS endoscopic stapling system.
Methods: IRB approved, open ended, prospective study. Per-oral endoscopic 120–180° anterior fundoplication, 3 cm from GE junction using SRS endoscope. Procedures under GA, overnight hospitalization. Three staple quintuplets. Postop chest X-ray and hematocrit. Symptoms assessed using off PPI 7 days GERD-HRQL scores; > or=50% improvement was primary success criterion. Procedure successful in 12/13 subjects. One failure because tissues thin and outside operating range of device. Follow up (1, 2, 4, 12, 24 weeks) using patient satisfaction, antireflux medication usage, Velanovich GERD HRQL scores.
Results: Thirteen patients over 8-months. Average age 43.61 years (29–74). M:F ratio 1.2:1. Average BMI 22.25 (19–33). Average symptom duration and PPI usage 4.2 years (2–10). Average operating time 173 min. Preop Hill's classification (GE flap valve) grade 3 in 11, 4 in 2. No major complication; one each jaw pain, minor mucosal laceration, chest pain with blood stained single vomit. Return to work <7 days. Chief postop symptom bloating (9/12, 75%). No dysphagia. Postop 3 months 11/12 (91%) significant improvement >6 (scale 1–10; 1 unsatisfied, 10 fully satisfied), one partial (=6). Six months 10/12 (83%) patients significant relief, satisfied and willing to redo procedure. Three continued smaller dose antireflux medications. Mean GERD-HRQL scores dropped 26.6–8.3 (6 months); in 9/12 dropped >50%.
Conclusion: SRS endoscopic fundoplication is a safe and effective anti reflux procedure.

E16

Corrosive injury profile and predictors of injury

***Neeraj Nagaich,** Sandeep Nijhawan*
S M S Medical College, Jaipur, Rajasthan, India

Objective: To determine the outcome of esophageal dilatation in caustic esophageal strictures and study histopathology changes in patients with chronic dilatation (mean duration 3.6 year).
Methods: This study was conducted in the Department of gastroenterology SMS Medical College, Jaipur. Patients with caustic esophageal strictures, above 3 years of age and >1 year duration of dilatation were included. Wire guided dilatation with increasing size of plastic dilator was done. Various aspects of study group, stricture, response to dilatation, complications and histopathology changes were studied.
Results: Out of 21 patients, 16 patients (77%) were more than 12 years of age. Mean age is 22.9 ranging from 3 years to 50 years. There were thirteen males (62%) and eight females (38%). Total dilatations were 356. Mean duration of dilatation was 3.6 years (range 1.6–4.8 years). Five patients (24%) had multiple strictures. Six patients (28.5%) had long stricture (>3 cm). Successful dilatation up to a lumen size of 15 mm could be achieved in fourteen patients (66.6%). Significant symptomatic improvement was seen in all 21 patients following dilatations. No perforation and other complication was reported. Out of 15 patients who underwent biopsy, no dysplasia was reported.
Conclusions: Caustic stricture is more common in adolescent and adults in our population. High incidence of acid injury as compared to alkali injury. Endoscopic dilatation is modestly effective in achieving adequate initial dilatation and relieving dysphagia. Alkali related

strictures required more number of dilatations than acid related strictures. Multiple strictures required more number of dilatations than single stricture. Dysplastic changes are rare in patients on chronic dilatation (3.6 year).

E17

Effect of nocturnal awakening due to gastroesophageal reflux disease on neurocognitive functions and response to proton pump inhibitors

R Dewan, ***N Nischal****, R Nehru, M Negi, P Goyal*
Department of Medicine, Maulana Azad Medical College, Bahadur Shah Zafar Marg, Delhi Gate, New Delhi, Delhi 110 002, India

Aim: Gastroesophageal reflux disease (GERD) is known to affect sleep quality. Sleep disturbance can lead to neurocognitive impairments. The present study investigated the effect of nocturnal awakening due to GERD on neurocognitive functions.
Methods: Sixty-three patients presenting with symptoms of heartburn and regurgitation (>2 episodes/week) were included in the study. Those on drugs or having diseases known to cause sleep disturbances were excluded. Patients also underwent upper gastrointestinal endoscopy and 24 h pHmetry. Sleep quality was assessed using SHHS Questionnaire. Neurocognitive function assessment was done using TRAIL making test, Digit span test and MMSE. Patients were then given PPIs for 4 weeks. Sleep quality questionnaire and neurocognitive function tests were repeated.
Results: In all the 63 patients, quality of sleep was affected (Mean awakening episodes 2.14±1.51). Forty-nine patients had significant reflux on pH-metry. Patients having significant reflux had more frequent symptom related night time awakenings (2.42±1.21). In these patients, neurocognitive function was also more significantly affected as reflected by poor trail making and digit span scores ($p<0.05$). There was a significant negative correlation between sleep quality score and trail making scores ($p<0.01$). After 4 weeks of PPI therapy symptom related awakenings (1.17±0.96) improved significantly ($p<0.005$). The neurocognitive functions of the patients also improved. This difference was statistically significant ($p<0.05$). Improvement was more marked in patients having higher grades of GERD on endoscopy and pH-metry.
Conclusion: GERD causes neurocognitive impairment by affecting sleep quality. Neurocognitive impairments in these patients can be screened and monitored These disturbances respond well to PPI therapy.

Stomach (Non-*H. pylori*)

ST1

Clinical pattern of peptic ulcer disease in north east India with special reference to non *H. pylori* and non NSAID disease

Mallika Bhattacharyya, B D Goswami
Guwahati Medical College and Hospital, Guwahati 781 032, India

Introduction: Studies have shown rise in *H. pylori* HP -ve and non NSAID PUD. Due to dearth of data from north east India it is important to analyse such patients.
Aims: To assess the etiology of the patients presenting with peptic ulcer disease and compare the characteristics of HP positive and HP negative groups.
Methods: In adults with GU or DU on endoscopy, *H. pylori* testing was done. Actively bleeding ulcers, recent antibiotics or anti- ulcer treatment were excluded. History of smoking, alcohol, noted.
Results: Total patients with PUD: 889. 715 patients (80.42%) DU. Of 174 cases, 9 excluded due to malignancy. One hundred and sixty-five cases (18.75%) of GU were included. *H. pylori* was positive in 52.27% cases and -ve in 47.73% patients. Among HP -ve cases, 37 patients (7.6%) were on PPI or H2RA and 11 (2.61%) patients had active bleeding and hence were excluded. Among the HP negative cases, patients on NSAIDS were 44 (11.82%). Three hundred and twenty-eight patients, 37.27% patients were idiopathic ulcers. Among idiopathic ulcers, helminthiasis was found in 7.62% cases. Clinical characteristics like, smoking and alcoholism in the HP -ve and HP+patients were comparable in both groups.
Conclusion: Patients with HP negativity is high among patients from north east and a significant proportion of the idiopathic group have helminthiasis which could play an important role in pathogenesis of peptic ulcer.

ST2

Granulocytic sarcoma of the stomach presenting as dysphagia during pregnancy

Anuradha Sekaran*, Nitesh Pratap, Santosh Darisetty, Sandeep Lakhtakia, Mohan Ramchandani, D Nageshwar Reddy*
Asian Institute of Gastroenterology, 6-3-661, Somajiguda, Hyderabad 500 082, India

Granulocytic sarcoma (extra-medullary myeloid sarcoma or chloroma) is a uncommon manifestation of leukemia.

Granulocytic sarcoma (GS) is composed of immature granulocytic precursors and is usually found in acute myeloid leukemia (AML) patients with t (8;21). They presents as deposit of leukemic cells outside the bone marrow. There is limited reported literature on granulocytic sarcoma of the stomach. Concurrent gastric granulocytic sarcoma involving cardia and AML in pregnancy has not been reported till date. We report a case of a 25 year old pregnant woman who presented with progressive dysphagia and recurrent post prandial vomiting. Upper GI endoscopy had shown large flat laterally spread nodular lesions in the cardia and proximal body of stomach. Biopsies from the gastric lesion showed granulocytic sarcoma of the stomach. Concurrent peripheral and bone marrow picture was suggestive of acute myeloid leukemia (AML—M4).

ST3

Gastric polyps –interesting case reports

Senthil Kumar*, Biggs Saravanan R, M Radha, Anand, Hemamala, Arvind, Shaffique, Malarvizhi, Ratnakar Gini, Caroline Selvi, Prem Kumar, P Padmanaban, Mohamed Ali*
Department of Medical Gastroenterology, Madras Medical College, Chennai 600 003, India

Introduction: The prevalence of gastric polyps is very rare (0.8% to 2.4%). We report three cases which presented to our center because of their rarity and varied pictures they presented with.
Case 1: A 30-years-old male presented with complaints of abdominal pain, melena, bleeding per rectum, epitaxis. Colonoscopy revealed scattered polyps in transverse colon. OGD showed ulcero proliferative lesion in the antrum and multiple polyps in body, antrum of the stomach, bulb and D2. Histopathology of the polyps showed features of villous adenoma.
Case 2: A 61-years-old male presented with progressive dysphagia of 1 month duration, grade II. Altered voice 15 days, melena, loss of weight, loss of appetite and altered bowel habits were there. OGD showed large ulcerated polypoidal lesion in the cardia and fundus. Sessile polyp at D2 entry, nodular polyp surrounding ampulla HPE: chronic inflammation and ulcers from the polyp and adenocarcinoma well differentiated from the fundic lesion. Colonoscopy: scattered polyp of varying sizes sessile and pedunculated and proliferative growth in decending colon. HPE revealed adenocarcinoma.
Case 3: A 55-years-male presented with abdominal pain, pallor, hemetemesis, melena, loss of weight and appetite, bleeding per rectum. P/A: epigastric tenderness. Colonoscopy revealed normal study. OGD showed multiple polyps in body, antrum and duodenum, of varying sizes. HPE revealed villous adenoma.
Conclusion: We report these three cases because of their rarity and one case turned out to be a frank malignancy. So we should be vigilant when we encounter a case of gastric polyp.

ST4

Brunneroma: clip assisted polypectomy: a case report

Manoj Kumar Sahu*, S Arulprakash, Dinesh Jothimani, Subash S Samal, George M Chandy*
MIOT Advanced Center for GI and Liver Diseases, MIOT Hospitals, 4/112, Mount Poonamalle Road, Manapakkam, Chennai 600 089, India

Introduction: Brunner's gland hamartoma is a rare, benign, proliferative lesion arising from the Brunner's glands of the duodenum, accounting for 10% of benign tumors of the duodenum. We report a case of Brunner's gland hamartoma presenting as non cardiac chest pain removed by clip assisted polypectomy
Case: A 42-year-old man with a 6 month history of vague intermittent retrosternal discomfort was evaluated. Cardiac evaluation including ECG, ECHO and treadmill were normal. Upper GI endoscopy was performed which revealed a 4 cm x 3 cm long pedunculated large polypoidal mass seen in the anterior wall of first part of duodenum entering into second part of duodenum.
Endoscopic clip assisted polypectomy was done. Two metallic clips were applied on the stalk to decrease the blood flow. Polyp (4 cm×3 cm) was removed by electrosurgical snare polypectomy. Histopathologic examination confirmed a brunner gland hamartoma.
Discussion: Fifty-seven percent of brunneroma originate from the duodenal bulb causing duodenal obstruction or gastrointestinal hemorrhage, which requires surgical excision. Brunner's gland hyperplasia is characterized by lobules of glands that are increased in both size and number, and are separated by thin fibrous septae. Upper gastrointestinal endoscopy with biopsy is the diagnostic method of choice and confirmation is by biopsy. Endoscopic polypectomy represents the ideal approach depending on the site and size of Brunner's gland hamartoma and the presence of a peduncle open surgical excision is reserved for cases where snaring has failed or when tumor is too large. The outcome of this endoscopic procedure is usually excellent.
Conclusion: Brunneroma can be managed by endoscopic excision. The use of a detachable snare or hemoclip is

recommended during the resection of large hamartoma to avoid the risk of gastrointestinal bleeding.

ST5

MUC1 association with etiological factors, localization to mitochondria and its impact on intrinsic apoptotic pathway in preneoplastic and neoplastic gastric tissues

J B Elisha Benjamin,[a] *V Jayanthi,*[b] *H Devaraj*[a]
[a]Unit of Glycotechnology and Biochemistry, Department of Zoology, University of Madras, Chennai, India; [b]Department of Medical Gastroenterology, Government Stanley Medical College and Hospital, Chennai 600 108, India

Background: The molecular events that underlie the progression of normal human gastric epithelium to an adenocarcinoma are poorly understood. MUC1 over expression and its localization in mitochondria might confer an attenuation of stress induced apoptosis on cancer cells.
Aim: To determine the expression of MUC1, localisation of MUC1-CT into mitochondria and the expression pattern of pro-apoptotic and anti-apoptotic molecules in preneoplastic and neoplastic human gastric mucosa.
Methods: MUC1 expression was correlated with risk factors (smoking, alcohol and *H. pylori* status) that predisposes to cancer. MUC1 expression pattern and localization in mitochondria was studied by immuno-histochemistry and western blot. The latter was also used for Bcl-2, Bax, Bad, Caspase 8, and Caspase 3 expression.
Results: Overall MUC1 was expressed in 75.8% (147/194) of patients. Its expression showed significant association with smoking (χ^2=5.945; p<0.015), alcohol consumption (χ^2=4.055; p<0.044) and did not show appreciable association with age (χ^2=0.15; p<0.698), sex (χ^2=0.22; p<0.640) or *H. pylori* infection (χ^2=3.06; p<0.080). MUCI over expression was detected in 50% (19/38 cases) in dysplasia and 58.2% (32/55 cases) in adenocarcinoma. MUC1-CT and HSP 70 (Heat shock protein) interaction was seen in 71.66% (43/60 cases) and its localisation to mitochondria was present in 33.33% (5/15) and 47.05% (8/17) in dysplasia and adenocarcinoma samples respectively.
Conclusions: MUC1 showed aberrant expression in dysplasia and adenocarcinoma. The cytosolic tail of MUC1 was localized to mitochondria only in the dysplasia and adenocarcinoma. This modifies the expressional pattern of the molecules of the intrinsic apoptotic pathway.

ST6

Profile of upper gastrointestinal bleeding in a tertiary care hospital in coastal Orissa

M K Panigrahi, *H S Das, C R Panda, S K Kar, B Misra, S P Singh*
Department of Gastroenterology, S C B Medical College, Cuttack 753 007, India

Background: Upper GI bleeding is a potentially life threatening condition.
Objective: To study the profile of patients presenting with upper GI bleeding in a tertiary care hospital in coastal Orissa.
Methods: The study population consists of 4,665 patients attending the Gastroenterology outpatient department of S C B Medical College and Hospital, Cuttack from June 2007 to July 2011 for upper GI bleeding. Patients underwent upper GI endoscopy, USG abdomen and Doppler USG, CT or MR angiography whenever required to diagnose the etiology of bleeding.
Results: Out of 4,665 patients 54% were hospitalized. Mean age group was 28±14.27 years and 76.05% were male. Patients presented with melena alone in 79.48%, only hematemesis in 27.78% and 44.99% had both. Mean blood transfusions received was 2.06 units in hospitalized patients. Duodenal ulcer was commonest cause of upper GI bleed (53.98%). Variceal bleeding was found in 24.3% of patients. Erosive gastritis and gastric ulcers were found in 15% and 2.21% of bleeders respectively. Carcinoma of stomach was found in 4.32%. Other rare causes are Dieulafoy's lesion (0.08%), Mallory-Weiss tear (0.55%), duodenal carcinoid (0.04%), tubercular ulcer (0.06%), stomal tumor (0.08%). EHPVO accounted for 50% of variceal bleeding. Surgery was done in 4.65% of duodenal ulcer bleeding. Mortality rate of UGI bleeding was 7.5%.
Conclusion: Duodenal ulcer is the most common cause of UGI bleeding in coastal Orissa. Dietary habit may be a contributory cause. Variceal bleeding and erosive gastritis are among the next common causes of upper GI bleeding.

Stomach (*H. Pylori*)

STH1

Prevelance of *Helicobacter pylori* infection in patient with liver cirrhosis

O P Dhakal, *Mona Dhakal*
Sikkim Manipal Institute of Medical Science, Gangtok, Sikkim

Introduction: In cirrhotics, *H. pylori* infection is the major cause of peptic lesions, which are an important cause of upper intestinal hemorrhage apart from variceal bleed and for persisting dyspeptic symptoms. It has also been seen that apart from *H. pylori* infection, oxygen-free radicals also have a role in gastric inflammation and are abnormal in CLD. Various study have also shown that nitric oxide is increased in gastric mucosa in cirrhosis.
Aim: To see the prevelence of *H. pylori* infection in cirrhotic patient.
Method: One hundred cases of decompensated liver cirhosis were taken for study and during routine endoscopy procedure, antral biopsy was taken and rapid urease test was performed.
Result: Twenty-seven percent was positive for RUT, 73% was negative, 80% had esophageal varices, 14% had gastric varices, 76% had portal gastropathy, 24% had duodenal ulcer (12% was RUT positive) 18% had antral erosions (8% was RUT positive).
Conclusion: It was seen that majority patient tested negative for *H. pylori* infection in cirrhotic, but those who had associated peptic ulcer disease, *H. pylori* positivity was seen higher in them.

STH2

Halitosis and *Helicobacter pylori* infection

Satheesh. Rao.A, .K.
Consultant Gastroenterologist

Introduction: Chronic halitosis is one of common problem in general population. One of the reason suspected for this condition is *H. pylori* infection of stomach. Few studies show that eradicating *H. pylori* eliminated the bad breath.
Method and Results: We studied 18 cases of chronic halitosis and response to anti *H. pylori* therapy. Upper GI endoscopy and *H. pylori* testing done to all. 14/18 patients were *H. pylori* positive. All of them treated with triple drug therapy for 14 days. 4/14 patients relieved of halitosis with *H. pylori* therapy. 10/14 patients, showed partial relief during therapy, however halitosis recurred after stopping therapy. Repeat testing in this group showed 8/10, cleared *H. pylori*. Remaining 2/10, non responders treated with quadruple therapy, but their halitosis persisted.
Discussion: Our results show there is a possible association between *H. pylori* and halitosis with 28.6% showing response to triple therapy. Majority [71.4%] showed recurrence of symptoms, suggested that secretion of antimicrobials in the saliva during therapy partially inhibited the anaerobic putrefactive activity in the mouth, resulted in temporary relief.
Conclusion: Majority of halitosis patients, though *H. pylori* positive may not get relieved of their symptoms after complete eradication of bacteria from stomach.

STH3

Prevalence of *Helicobacter pylori* infection among dyspeptic patients

Shibi Mathew, M Ramesh, R Sobhana Devi
Department of Medical Gastroenterology, Medical College, Kottayam

Aim: Helicobacter pylori infection is becoming uncommon in developed countries. Kerala is still labelled as a high prevalence area for *H. pylori* infection. This study was done to assess the prevalence of *H. pylori* infection in patients presenting to our center for dyspepsia evaluation.
Methods: All dyspeptic adult patients attending our outpatient department were evaluated with the help of a proforma and *H. pylori* infection was assessed with IgG anti *H. pylori* test (ELISA) and gastroduodenoscopy with biopsy in indicated patients.
Results: There were 175 patients included in the study. Male to female ratio was 93:82. The mean age was 45.39+/−12.12 years. The chief complaints reported included burning type of abdominal pain (103; 58.86%), abdominal fullness (153; 87.43%), bloating (141; 80.17%), belching (91; 52%), heartburn (72; 41.14%), regurgitation (54; 30.86%), nausea (46; 26.29%) and vomiting (17; 9.71%). Twenty-three (13.14%) patients had history of significant NSAID intake in recent past. On gastroduodenoscopy, antral gastritis (83; 47.43%) was the most common finding and evidence of ulcer disease was found in only 10 (5.71%) patients. *H. pylori* infection was detected in 31 patients (17.71%) by IgG anti *H. pylori* estimation and in 52 patients (29.70%) on microscopic examination with special stains.
Discussion and Conclusion: The prevalence of *H. pylori* infection has come down significantly over the last few decades. Causes of dyspepsia other than *H. pylori* needs to be studied. Eradication of *H. pylori* as an empirical treatment approach to dyspepsia cannot be recommended in our population group.

STH4

Efficacy of anti-*Helicobacter pylori* therapy and its recurrence after eradication; has it changed over the last decade?

S Srivastava*, B Nandi, P Puri, S Shah*
Department of Gastroenterology, Army Hospital (R&R), New Delhi 110 010, India

Background: Concern remains about efficacy of anti-*Helicobacter* therapy due to antibiotic resistance. The recurrence rate after eradication is reported to be high. The available data from India is limited and about a decade old.
Aims: 1. Study the efficacy of the current therapeutic regimen for eradicating *H pylori*. 2. Assess the recurrence rate of *H. pylori* infection after 1 year of eradication.
Methods: Consecutive patients with dyspepsia detected with *H. pylori* infection by both rapid urease test (RUT) and urea breath test (UBT) were included. Included patients were treated with Clarithromycin 500 mg BD, Amoxicillin 1 g BD, Omeprazole 20 mg BD for 14 days. Patients were re-tested after 4 weeks of completion of therapy with UBT. Patients with eradicated infection were tested (UBT) for recurrence at 1 year.
Results: One hundred patients with dyspepsia were studied. Median age was 43 yrs. There were 53 males and 47 females. Findings on endoscopy were antral gastritis (56%) duodenal ulcer (21%), gastric ulcer (6%), mass in stomach (2%) and normal (15%). Ninety-two patients were positive for *Helicobacter* by both RUT and UBT. *Helicobacter* was eradicated in 83 (90.2%). Recurrence at 12 months was detected in 21/74 (28.38%).
Conclusion: Anti-*helicobacter* therapy is effective in majority of patients. This efficacy has not changed over the last decade.

STH5

Association of *Helicobacter pylori* virulence attributes in gastroduodenal disease

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

Introduction: Helicobacter pylori is considered to be the principal cause of chronic gastritis, peptic ulcer and gastric adenocarcinoma. However the infection is usually asymptomatic and only minority of patient develops serious clinical outcome. In this context the relevance of specific *H. pylori* virulence associated genes has been extensively studied. Genes such as cagA, vacA, iceA and babA2 have been widely used as molecular markers of *H. pylori* virulence.
Aim: To evaluate the presence of *H. pylori* virulence genotypes in patients with different gastroduodenal diseases.
Methods: A prospective study was performed on patients with antral gastritis, peptic ulcer, and gastric carcinoma, diagnosed on endoscopy and histopathology. All the patients were subjected to antral biopsy for ultra rapid urease test (URUT), DNA isolation and histopathology. Isolated DNA were subjected to polymerase chain reaction for *H. pylori* specific 16SrDNA, vacAs1/s2, vacAm1/m2, iceA1, iceA2 and babA2 gene characterization.
Results: There were total of 72 patients (M/F-52/20) with mean age 45.24±17.93. Forty patients (55.55%) were positive for URUT. *H. pylori* infection was confirmed by 16SrDNA amplification. Among them iceA1, iceA2 and babA2 gene were detected in 25/72 (34.72%), 32/72 (44.44%) and 23/72 (31.94%) respectively. Whereas vacA gene was detected in all samples. The most predominant genotype of vacA allele was vacAm1s1 41/72 (56.94%). In gastric cancer vacAm1s1babA2 genotype was most predominant and mostly absent in ulcers.
Conclusion: Genotype vacAm1s1babA2 was mostly associated with gastric carcinoma however overall prevalence of vacAm1s1was high. The frequency of iceA alleles was common in all groups and was found to lack disease specificity.

STH6

Endoscopic rapid urease test for *Helicobacter pylori* in clinical practice: an audit

Sanjib Kumar Kar, [*] *Manas Kumar Panigrahi,* [*] *Bijay Misra,* [*] *Sandeep Kumar Panigrahi,** Chittaranjan Panda,* [*] *Haribhakti Seba Das,* [*] *Shivaram Prasad Singh*[*]#
Departments of [*]Gastroenterology and [**]PSM, S C B Medical College, Cuttack 753 007, India, #Kalinga Gastroenterology Foundation, Bajrakabati Road, Cuttack 753 001, India

Background: Helicobacter pylori infection is ubiquitous. Endoscopic rapid urease test [RUT] is sensitive and specific for diagnosing *H. pylori* organism during endoscopy.
Aim: Retrospective analysis of the pattern of RUT performance by endoscopists in Southeast Bengal region in patients evaluated for upper gastrointestinal disorders.
Methods: The gastroscopy reports of consecutive patients from Southeastern Bengal attending a gastroenterology clinic were studied. The data along with relevant treatment history were entered into a questionnaire, and the data was analysed.
Results: Data of 151 patients were analyzed. 48/151 (31.79%) had duodenal ulcer and 103/151 (68.21%) non ulcer dyspepsia [NUD]. In duodenal ulcer patients, RUT positivity was only 38.5% in patients taking premedication [PPIs or antibiotics prior to endoscopy]; but 56% in those without premedication. In NUD, RUT positivity was 38.5% in patients taking premedication but 56% in those without premedication. Overall, 31% patients (on premedication) were RUT positive, but without premedication, only 63.36% were RUT positive. The difference in RUT results

with/without premedication was significant (p=0.003165). 72% of RUT positive NUD patients who received triple therapy for *H. pylori* did not respond; all [100%] responded to antidepressants.
Conclusions: RUT was performed routinely in all patients undergoing gastroscopy irrespective of diagnosis. The RUT was performed without cognizance of pre-endoscopy treatment. Pre-treatment results in erroneous underestimation of *H. pylori* infection. Antidepressants were superior to triple therapy for NUD even in *H. pylori* infected patients. There is a need for developing a rational guidelines for performing RUT and treating *H. pylori*.

STH7

Prevalence of *Helicobacter pylori* infection in patients with endoscopy negative non ulcer dyspepsia

Mona Dhakal *, O P Dhakal*
Sikkim Manipal Institute of Medical Science, Gangtok

Introduction: Dyspepsia, defined as chronic or recurrent upper abdominal pain or nausea, is a common occurrence. Dyspepsia without an ulcer (non-ulcer dyspepsia) is diagnosed more often as compared to ulcer disease. Multiple factors have been associated with this disease entity. *H. pylori* may be responsible for symptoms in a small proportion of patients with non-ulcer dyspepsia and in some of these cases anti-*H. pylori* therapy may be beneficial.
Method: Retrospective analysis of computer loaded data of 137 case of symptomatic dyspepsia and analysis of *H. pylori* infection by rapid urease kit test.
Analysis: Out of 137 cases 59 (43.1%) were males, 78 (56.9%) were females. Thirty-seven (27%) showed *H. pylori* positivity, 10.21% in males and 16.78% in females. 37.9% cases had dyspeptic symptoms in 21 to 30 years age group, 25.54% was seen in 31 to 40 years age group and 16.05% was seen in 41 to 50 years age group.
Conclusion: Younger individuals were more affected with non ulcer dyspepsia. Females were more affected than males. *H. pylori* infection was seen in 27% of cases.

STH8

Role of microsomal epoxide hydrolase exon 3 and 4 gene polymorphism in susceptibility to gastric cancer endemic for *Helicobacter pylori* infection: a case-control study

Ujjala Ghoshal,[1] ***Sushil Kumar,***[2] *Virendra Jaiswal,*[1] *Shweta Tripathi,*[2] *Balraj Mittal,*[3] *Uday C Ghoshal*[2]
Departments of [1]Microbiology, [2]Gastroenterology and [3]Genetics, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow 226 014, India

Objective: Microsomal epoxide hydrolase (mEH), an important Phase-II xenobiotic enzyme, exhibits polymorphisms exon 3 [Tyr(T)/His(C)] at codon 113 and exon 4 [His(C)/Arg(G)] at codon 139, which reduces the enzyme activity; this may increase susceptibility to cancers.
Methods: Tyr113His were genotyped by PCR-RFLP followed by direct sequencing and His139Arg were genotyped by PCR-RFLP in 85 patients with gastric cancer (GC), 50 patients with peptic ulcer (PU) and 160 healthy controls (HC). *H. pylori* were evaluated by histology (H&E and Giemsa stains), rapid urease test and IgG antibody (positive result in any two diagnostic).
Results: Patients with GC (mean age±SD, gender, [male]= 54.4±11.8 y, 62 [72.9%]), PU (52.3±14.1 y, 36 [72%]) and HC (52.9±11.5 y, 118 [73.8%]) were comparable in age and gender. The frequency of 113His-139His haplotype was higher in *H. pylori* infected than non-infected individuals (60.4% vs. 39.6%, p=0.047, OR=4.34, 95% CI=0.92–20.96). Genotyping of Tyr113His and His139Arg were comparable among patients with GC as compared to HC. Similar results were found in GC vs. PU and PU vs. HC. Genotyping of Tyr113His by PCR-RFLP followed by direct sequencing showed high concordance in wild type Tyr113Tyr (kappa=1.000) and heterozygous Tyr113Arg (kappa=0.878) while homozygous His113His (n=16, kappa=0.658) showed substantial discordance.
Conclusions: 113His-139His was associated with four times higher risk of *H. pylori* infection in disease development. Significant discrepancy was also observed in the genotyping Tyr113His by PCR-RFLP and direct sequencing for His113His allele.

STH9

***Helicobacter pylori* in duodenal ulcer and dyspepsia: histology and molecular correlation in adults**

A K Sharma, *K K Prasad, P Dixit, S K Sinha, R Kochhar, K Singh*
Department of Superspeciality Gastroenterology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background: H. pylori virulence genes cagA and vacA genes are implicated in patients of dyspepsia and duodenal ulcer. The association of the virulence genes in disease state is not known from this region.
Method: Fifty-seven patients of functional dyspepsia (FD), 50 patients of GERD and 30 patients of duodenal ulcer (DU) included in the study. All patients underwent UGIE. Four biopsy taken for RUT, histopathology and genotyping of *H. pylori*. Histology and PCR of biopsy

done to detect cagA, cagE, vacAs1 and vacAs2 genotypes of *H. pylori*.
Results: H. pylori prevalence was 16.8% on histopathology, 25.5% on RUT and 40.8% on PCR analysis. *H. pylori* presence on histopathology was significantly associated with DU. Other histology like chronic inflammation, atrophy, intestinal metaplasia and IELs were not associated significantly with DU. RUT had good correlation (sensitivity 95%, specificity 90%, NPV 99%) with histologic diagnosis of *H. pylori* infection. cagA was positive in 36.8% of FD patients. 34% of GERD patients and 56.67% of DU patients cagA was significantly associated with DU compared to GERD with an odds ratio of 2.53 (95% CI 1.00–6.43) and *p*-value=0.039. vacAs1 was positive in 22.8% patients of FD, 20% patients of GERD and 36.67% patients of DU but not significantly associated with DU. vacAs2 was positive in 9.5% and cagE was positive in 40.8% of total study patients. Both not significantly associated with clinical outcome.
Conclusion: PCR analysis was a better sensitive method of detecting *H. pylori*. cagA genotype of *H. pylori* was significantly associated while vacAs1,vacAs2 and cagE were not significantly associated with duodenal ulcer in our population.

STH10

Sequential therapy vs. standard triple-drug therapy for *Helicobacter pylori* eradication: a randomized study

***M Nasa**, A Choksi, A Kumar, A Phadke, Prabha Sawant*
Department of Gastroenterology, Lokmanya Tilak Municipal Medical College and Lokmanya Tilak Municipal General Hospital, Sion, Mumbai 400 022, India

Background: Helicobacter pylori play a role in the pathogenesis of a number of diseases ranging from asymptomatic gastritis to gastric cancer. Triple eradication protocol of clarithromycin, amoxicillin and proton pump inhibitor combination have been used most frequently in our country. Clarithromycin resistance is reason for failure in one-third of cases in which eradication is not achieved using standard triple treatment. Very successful eradication rates in naive patients and resistant cases have been reported using sequential treatment.
Aim: To determine whether sequential treatment eradicates *H. pylori* infection better than standard triple-drug therapy for adults with dyspepsia or peptic ulcers.
Method: Patients with dyspeptic symptoms underwent endoscopy and rapid urease test was done and gastric mucosal biopsies were taken. Two hundred patients with RUT positive result were included and randomized to receive either triple therapy or sequential therapy. Repeat endoscopy and RUT were done 4 weeks after the end of either treatment.
Intervention: A 10-day sequential regimen (40 mg of pantoprazole, 1 g of amoxicillin, and placebo, each administered twice daily for the first 5 days, followed by 40 mg of pantoprazole, 500 mg of clarithromycin, and 500 mg of tinidazole, each administered twice daily for the remaining 5 days) or standard 14-day therapy (40 mg of pantoprazole, 500 mg of clarithromycin, and 1 g of amoxicillin, each administered twice daily.
Result: Out of 60 patients who received triple therapy *H. pylori* eradication was achieved in 48 (80%) patients while 55 of 60 (91.6%) patients on sequential regime achieved eradication. Patients with failure of eradication on either of the regime received rescue treatment with levofloxacin, amoxicillin and pantoprazole.
Conclusion: The eradication success using the triple therapy has been declining over the years, and clarithromycin resistance is the most common reason for the treatment failure. The success rate of sequential therapy was higher than triple therapy.

STH11

A prospective study of *Helicobacter pylori* associated gastritis with histological grading using updated Sydney classification

***A Choksey**, M Nasa, M Patil, B Patel, A Kumar, A Phadke, Prabha Sawant*
Departments of Gastroenterology and Pathology, Lokmanya Tilak Municipal Medical College and Lokmanya Tilak Municipal General Hospital, Sion, Mumbai 400 022, India

Aims: To study the frequency of *H. pylori* infection in patients with dyspeptic symptoms referred to a tertiary care hospital in Mumbai and to ascertain the histopathological features of the *H. pylori* gastritis.
Method: A prospective study was carried out on patients with dyspeptic symptoms being referred to a tertiary care hospital. One hundred and eighty-three consecutive patients had undergone upper gastrointestinal endoscopy. Multiple endoscopic biopsies were taken for *H. pylori* rapid urease test and histopathology to look for *H. pylori* and to grade gastritis as per the visual analogue scale of the updated Sydney classification.
Results: Out of the183 patients with dyspeptic symptoms 92 were found to be *H. pylori* infected (50.2%). Eighty-two biopsies were found to be satisfactory for histological examination. Majority of patients had chronic gastritis with no activity 67 (81%) and were graded as, mild, moderate, severe in 11 (13.4%), 40 (48%), 16 (19.5%) respectively. Fifteen (19%) patients had chronic active gastritis and were

graded as mild, moderate and severe in 3 (3.6%), 8 (9.7%) and 4 (4.8%) respectively. Gastric atrophy was found in 18 (21%) biopsies and intestinal metaplasia in 4 (4.8%) of the biopsies.
Conclusion: We have found that although *H. pylori* associated chronic gastritis is common in Indians, majority have chronic gastritis with no activity and gastric atrophy was seen in one fourth of the patients and incidence of intestinal metaplasia was low. Visual analogue scale of updated Sydney classification was found to be useful to grade the gastritis.

STH12

Molecular studies for assessing gastric cancer risk in *Helicobacter pylori* patients—a preliminary case-control study

R Boopal,[1] *M V Vasavee,*[1] *B Lakshman Kumar,*[1] *L Venkatakrishnan*[2]
[1]Department of Biotechnology, Kongunadu Arts and Science College, Coimbatore 641 029; [2]Department of Gastroenterology, P S G Institute of Medical Sciences and Research, Off Avanashi Road, Peelamedu, Coimbatore 641 004, India

Objective: Helicobacter pylori infection is accompanied by inflammatory processes leading to peptic ulcer and gastric cancer in infected individuals. One of the host factors involved in the processes of inflammation and carcinogenesis is the peroxisome proliferator-activated receptor-γ (PPAR-γ) molecule. Pro12Ala PPARγ polymorphism in the presence of *H. pylori* infection has been reported as a marker for genetic susceptibility to gastric adenocarcinoma. A significant association of Angiotensin gene polymorphism *AGT*-20 A/C polymorphism with susceptibility to gastric cancer was reported in a study on Asian population. The present case-control study was thus aimed at determining single nucleotide polymorphisms of PPAR-γ and AGT genes namely the Pro12Ala and AGT-20 A/C respectively, their association with *H. pylori* infection and thus assessment of gastric cancer risk in the present population.
Methods: A total of 20 patients and 20 controls were included in the study. A total of 19 *H. pylori* infected patients and one infection cleared patient was included in the study. Polymorphisms were analysed in blood samples of patients and controls. Analysis was also carried out in biopsies in case of patients. By performing a PCR assay for the ureC gene the presence of *H. pylori* in the tissue samples was re-confirmed after the urease test. The other genes namely, PPARγ and AGT were also amplified at their respective annealing temperatures and PCR-RFLP was used to detect the polymorphisms.
Results: The frequency of infection was seen to be more in patients above the age 40 with 65% of the total patients subjected to the study above the age group 40. Also the area of infection where more number of patients had infection was antrum that is 90% of the patients were infected with *H. pylori* in their antrum. With respect to polymorphisms, the homozygous genotypes namely CC genotype in case of PPARγ and AA genotype in case of AGT gene were predominantly observed in the patients and controls followed by heterozygous CG and AC genotypes in PPARγ and AGT genes respectively in the two groups. A similar pattern of genotypes was observed in a comparison of blood and biopsy samples.
Conclusion: Our results suggest a similar pattern of genotype distribution with respect to PPAR γ and AGT genes in patients and controls thus suggesting a lack of association between the gene polymorphisms and cancer risk. But for a more accurate prediction, the study needs to be carried out on a larger sample size.

Small Intestine

SI1

Capsule endoscopy contribution to obscure gastrointestinal bleed diagnosis and management

T M Amruthesh, Mukesh Agarwala, ***Bhavesh Thakkar,*** *J K Pradeep Kumar, P Piramanayagam, M Hariharan, K R Palaniswamy*
Apollo Hospitals, Greams Road, Chennai 600 006, India

Introduction: The studies on obscure gastrointestinal bleed (OGIB) have significantly increased recently with the availability of CE and enteroscopes in many centres across the globe including the developing countries like India. We analysed the wireless capsule endoscopy (WCE) contribution to evaluation and management of OGIB in our centre and reported here.
Aim: To estimate the detection rate and contribution of CE in planning further treatment.
Methods: This is a prospective study done in the Department of Medical Gastroenterology, Apollo Hospitals, Chennai between January 2009 to June 2011. Patients who are under the age of 18 years, those who are unable to swallow capsule endoscope, and those who had small bowel stricturing disease where WCE is contraindicated were excluded. Data was analyzed with due emphasis on WCE findings, diagnosis, detection rate, missing rate and treatment modality.
Results: The study cohort consisted 30 consecutive cases of OGIB. Cases (80%) were overt OGIB and 6 cases (20%)

were occult OGIB. 80% were overt OGIB and 20% were occult OGIB. Mean duration of symptoms were 26.3 months and 7.1 months in overt OGIB and occult OGIB respectively. WCE was done in 19/30 cases. Multiple ulcers over most of the small bowel length were the common findings. Crohn's disease was the most common WCE diagnosis. The final detection rate of WCE is 89.5%. 76.5% patients received medical line of management and 11.2% patients had surgery.
Conclusion: The OGIB detection rate by WCE and contribution in deciding further treatment is high.

SI2

Prevalence of celiac disease in nutritional anemia in tertiary care center

A Kavimandan,[1] ***G K Makharia,***[1] *P Mishra,*[2] *P Das,*[3] *A K Verma*[1]
Departments of Gastroenterology and Human Nutrition,[1] Hematology,[2] and Pathology,[1] All India Institute of Medical Sciences, New Delhi 110 068, India

Introduction: Anemia may be the sole manifestation of celiac disease. Prevalence of celiac disease in Indian patients with anemia is not known.
Methods: IgAtTG was done in adult patients presenting with nutritional anemia to Hematology and Medicine OPD. Patients with positive IgAtTG underwent upper GI endoscopy and duodenal biopsy. Revised ESPGAN criteria 4 were used for diagnosing celiac disease.
Results: Eighty-eight patients (mean age 32 years, median duration of anemia 1 year) were screened, 73 (83%) had iron deficiency anemia, 10 (11.3%) megaloblastic anemia, 5 (5.6%) dimorphic anemia. 73.8% (65/88) patients were on hematinics and 36% (32/88) had received transfusions. Seventeen (19.3%) patients had history of diarrhea and mean duration of diarrhea was 10 months. IgAtTG was positive in 11/88 (12.5%), of which 10 underwent duodenal biopsy. 8/10 (9%) had variable villous atrophy according to modified Marsh criteria 5 (Marsh 3A-3, Marsh 3b-1 and Marsh 3c-4). Two patients did not have villous atrophy (Marsh 0). Five out of 8 had history of chronic diarrhea (median duration 36 months). All 8 patients (9%) diagnosed as celiac disease were put on gluten free diet and supplementation with iron and vitamins. Mean BMI in patients with celiac disease was 18 kg/m2 as compared to 21.5 kg/m2 in patients without celiac disease. Mean hemoglobin was 7.3 mg/dL and 7.9 mg/dL in patients with and without celiac disease respectively.
Conclusion: Around 9% of patients with iron deficiency and megaloblastic anemia have celiac disease. Screening for celiac disease should be included in workup of otherwise unexplained nutritional anemia.

SI3

Evaluation of lactose intolerance in irritable bowel syndrome patients using hydrogen breath test

B Shiva Prasad*, Ismail Siyad, V A Narayanan*
Amrita Institute of Medical Sciences, AIMS Ponekkara P.O., Cochin 682 041, India

Aim: To study the prevalence of lactose intolerance using hydrogen breath test in patients with irritable bowel syndrome (IBS) and to compare with the healthy controls.
Method: Study area Amrita Institute of Medical Sciences between May 2008–May 2010. The study was conducted to compare the prevalence of lactose intolerance among IBS patients and healthy controls to ascertain if lactose intolerance is responsible for symptoms of IBS among South Indians. Study population fifty IBS patients from South India were taken as cases. Fifty medical students of Amrita Institute of Medical Science from South India were taken as controls. Sample size- 50 patients in patients and controls. Data collection technique and tools—lactose hydrogen breath test was performed using EC 60 Gastrolyzer 2 (Bedfont Scientific Ltd) in all the patients.
Results: Out of 100 patients, 16/50 (32%) in the IBS group and 13/50 (26%) in the control group were positive for lactose intolerance by lactose hydrogen breath test (p-ns). Amongst the 50 control subjects, 22 were males and 28 were females. 8/22 (36%) male control and 5/23 (21%) female control were positive for lactose intolerance. Amongst 50 patients with IBS, 30 were males and 20 were females. 9/30 (30%) males had lactose intolerance, compared to 7/20 (35%) females with IBS (p-ns).
Conclusions: Prevalence of lactose intolerance in South India is comparable among IBS patients and healthy controls. Lactose intolerance in South Indians is comparable among both sexes in IBS patients. Prevalence of lactose intolerance in South Indians is lower than previously reported.

SI4

Prevalence of celiac disease among blood donors in Punjab, North India

Vandana Midha*, Nishant Whig, Piyush Kumar, Gagandeep Singh, Ajit Sood*
Departments of Medicine and Gastroenterology, Dayanand Medical College and Hospital, Ludhiana, Punjab 141 001, Punjab

Background: The prevalence of celiac disease is high in north India. The aim of the present study was to determine the prevalence of celiac disease in apparently healthy blood donors of Ludhiana, Punjab.
Methods: Serum samples of 780 consecutive apparently healthy blood donors at Dayanand Medical College and Hospital, Ludhiana, Punjab were assayed for anti-tissue transglutaminase (tTG) antibody. All subjects with positive anti-tTG IgG were offered upper gastrointestinal endoscopy and duodenal mucosal biopsies.
Results: A total of 19 blood donors were positive for anti-tTG IgG antibody (2.4%), the prevalence of celiac disease was found to be 2.4% (19/780) based on tTG positivity. Histopathology was done in 7 cases; was Marsh 111a in 6, Marsh I in 1.
Conclusion: The prevalence of celiac disease among the North Indian population is high in comparison with other parts of the country.

SI5

Prevalence of celiac disease in healthy blood donors: a study from North India

Rakesh Kochhar, Suchet Sachdev, Rashi Kochhar, Aakash Agarwal, ***Vishal Sharma****, Kaushal K Prasad, Gurpreet Singh, Chander K Nain, Kartar Singh, Neelam Marwaha*
Departments of Gastroenterology and Blood Transfusion, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background: Even asymptomatic celiac disease (CD) can affect the quality of life. Blood donor screening can help predict prevalence of disease in general population.
Methods: Between December 2010–June 2011, all healthy blood donors at PGIMER were screened for CD using anti-tissue glutaminase antibodies (tTGAb) by ELISA. Their age, gender, BMI and hemoglobin were recorded. Those with a positive tTGAb underwent duodenoscopy when 3 biopsies were taken. Histological analysis was done as per modified Marsh classification.
Results: A total of 1,610 blood donors were screened of whom 1,581 (91.2%) were males. The mean age of the participants was 31.51±9.66 years and the mean BMI was 22.12±4.24 kg/m2. Nine (0.56%), all males, with a mean age of 35.0±9.86 years tested positive for tTGAb. Two had a positive family history of celiac disease. On endoscopy, all 9 had reduced fold height, 8 had scalloping, 7 had grooving and 3 had mosaic pattern of mucosa. At duodenal histology, 8 individuals had Marsh IIIa changes while one patient had grade IIIb changes. The prevalence of CD was therefore 1:179 (0.56%, 95% condense interval 1/366 1/91, 0.27 1.1%). None of the 9 subjects with CD had any symptoms and their mean hemoglobin was 13.5±1.56 gm/dL which was similar to that of the rest of the cohort (14.2± 1.8 gm/dL)
Conclusion: The prevalence of CD among apparently healthy blood donors was found to be 1:179 (0.56%) which is similar to that reported from the west.

SI6

Correlates of bone demineralization in patients with adult celiac disease

Vikram Singh, B Jahangeer, ***Harpal Singh****, A Khaliq, S K Bhadada, K Vaiphei, K K Prasad, Usha Dutta, N Khandelwal, C K Nain, R Kochhar, K Singh*
Departments of Gastroenterology, Endocrinology and Radiodiagnosis, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Introduction: Celiac disease (CD) can lead to osteoporosis and osteopenia. This can result in spontaneous fractures.
Aim: To study factors related to bone demineralization in patients with CD.
Methods: One hundred and ten patients of adult CD (56% females; mean age 28.52±10.87 years) underwent routine biochemistry, metabolic bone profile and DEXA scan. A complete hormonal profile (T3, T4, TSH, FSH, LH, cortisol) was done in 34 patients. Results of DEXA scan were graded as normal (T-score>−1), osteopenia (T-score −1 to −2.5) and osteoporosis (T-score<−2.5) and these were correlated with clinical profile, biochemical tests and metabolic profile.
Results: 56% of patients presented with diarrhea and the rest 44% with atypical symptoms. On DEXA scan 35% were osteoporotic, 33.3% osteopenic and 31.6% normal. Osteoporosis was seen most frequently in patients with age <25 years compared to patients with age >25 years $r=-0.267$; $p=0.004$. T-score was negatively associated with BMI ($r=-0.371$; $p=0.000$) and positively with duration of illness ($r=0.383$; $p=0.004$). T-score showed a positive correlation with Marsh staging $r=0.384$; $p=0.000$, anti-tTg antibody levels ($r=0.225$; $p=0.015$), serum phosphorus ($r=0.286$; $p=0.007$) and PTH levels ($r=0.389$; $p=0.000$). T-score correlated negatively with FSH levels ($r=-0.392$; $p=0.022$) but not with others.
Conclusion: Adult CD patients are prone to bone demineralization with 35% having osteoporosis and 33.3% osteopenia. Bone demineralization correlated with anti-Ttg titres and duodenal histopathology, suggesting that severe mucosal disease is associated with bone demineralization.

SI7

Can duodenal biopsy be avoided when strongly positive tTG antibody titers are present?

***B Jahangeer**, A Sreekanth, A Khaliq, S K Sinha, K K Prasad, K Vaiphei, U Dutta, C K Nain, R Kochhar, K Singh*
Department of Gastroenterology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background: Data suggest that strongly positive anti tissue transglutaminase antibody (tTGA) titers, >100 U/mL are highly specific for celiac disease (CD) and histopathology may not be required for diagnosis.
Aims: To correlate tTGA titers with Marsh grades on histopathology in patients with adult CD and to determine if duodenal biopsy can be avoided if strongly positive tTGA titers are present.
Methods: One hundred and eighty-eight patients of adult CD (53.7% females, mean age 28±11.28 years, range 13 60) diagnosed on the basis of positive serology, abnormal duodenal histology and response to gluten free diet (GFD) were studied. Patients were divided into 2 groups based on a tTGA cutoff 100U/mL (100U/mL) and correlated with Marsh grades on histopathology.
Results: The clinical presentation was typical in 61.7% and 38.3% presented with atypical symptoms. Of the 188 patients studied, 91 patients had tTGA titers 100 IU/mL. tTGA titers showed a significant correlation with Marsh grades on histopathology (p=0.02). However, at a tTGA cutoff of 100 U/mL to predict villous atrophy (Marsh 3), had a sensitivity of 56.2%, specificity of 60.3% and the positive predictive value was 78.3%.
Conclusion: Strongly positive tTGA titers are not sufficient for diagnosis of CD and duodenal biopsy cannot be avoided because disease presentation and monitoring are different.

SI8

Etiological profile of anemia in adult celiac disease

***B Jahangeer,**[1] A Sreekanth,[1] S K Sinha,[1] K K Prasad,[1] U Dutta,[1] C K Nain,[1] N Varma[3]*
Departments of Gastroenterology,[1] Internal Medicine[2] and Hematology,[3] Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background: The prevalence of celiac disease is high in north India. The aim of the present study was to determine the prevalence of celiac disease in apparently healthy blood donors of Ludhiana, Punjab.
Aims: To prospectively evaluate the etiological profile of anemia in patients with adult celiac disease (CD).
Methods: Serum samples of 780 consecutive apparently healthy blood donors at Dayanand Medical College and Hospital, Ludhiana, Punjab were assayed for anti-tissue transglutaminase (tTG) antibody. All subjects with positive anti-tTG were offered upper gastrointestinal endoscopy and duodenal mucosal biopsies.
Results: A total of 19 blood donors were positive for anti-tTG IgA antibody (2.4%), the prevalence of celiac disease was found to be 2.4% (19/780) based on tTG positivity. Histopathology was done in 7 cases; was Marsh 111a in 6, Marsh I in 1.
Conclusion: The prevalence of celiac disease among the North Indian population is high in comparison with other parts of the country.

SI9

Crohn's disease: is it rare anymore in South India?

M Ganesh

Introduction: Inflammatory bowel disease (IBD) is considered as a rare disorder in India. Due to westernization and stressful life style, IBD is on the raise in South India. In my study I have identified higher incidence of Crohn's disease than ulcerative colitis in South India.
Aim and Methods: Patients attending my outpatient department in a large tertiary care hospital at Coimbatore, Tamil Nadu, South India between march 2009 till April 2011 who were newly detected to be having IBD, confirmed by colonoscopy and biopsy were included in the study. All age groups were included in the study. One hundred and eight patients with IBD were identified. In my study predominant incidence was from Tamilnadu 94 (87%) and (14) 13% from Kerala state. There is a higher incidence of IBD in age group (50–59 years) and (20–49 years), 30% (32/108) and 50% (55/108) respectively. My data showed higher incidence of Crohn's disease 83 (77%) than ulcerative colitis 25 (23%). More males 54 (65%) compared to females 29 (35%) were affected with Crohn's. But ulcerative colitis is distributed more or less in all age groups and sex. (58.6%) presented with abdominal pain, PR bleed and diarrhea. 48% had symptoms more than a month before the diagnosis was established. 54% of Crohn's patients had combined ileal and colonic disease. 26% affecting predominantly small intestine and 24% affecting colon.
Conclusion: Inflammatory bowel disease, especially Crohn's is on the rise in South India. Surprisingly increasing incidence is seen in elderly and males. Its predominantly affecting the ileocolonic segments. Early detection and treatment prevents complications.

SI10

Prevalence of celiac disease in first and second degree relatives of patients with celiac disease

***Asha Mishra**, Anil K Verma, Meenakshi Sharma, Prasenjit Das, S Datta Gupta, Govind K Makharia*
Departments of Gastroenterology and Human Nutrition and Pathology, All India Institute of Medical Sciences, New Delhi 110 068, India

Background: Prevalence of celiac disease in North India varies from 1 in 96 to 1 in 336 in general population. A high prevalence (8% to 20%) of celiac disease has been reported in family members of celiac disease patients.
Methods: Between July 2008-June 2011, 323 family members [311 First degree relatives (FDR) (134 parents, 124 siblings, 53 children) and 12 s degree relatives, SDR) of 127 index patients were screened using a clinical questionnaire and celiac serology (anti-tissue transglutaminase antibody, anti-TTG Ab). Anti-tTG Ab positive individuals were invited for further evaluation. Duodenal mucosal histology was classified according to modified Marsh criteria. Those with both positive serology and duodenal biopsy were diagnosed as celiac disease and were put on gluten free diet.
Results: Of 323, 311 were FDR and 12 were SDR. Of 311 FDR, 102 (32.7%) were symptomatic (pallor 27.3%, chronic diarrhea 8%, short stature 4.5%). Twenty-seven (8.3%) (26/311 FDR, 1/12 SDR) were found to have anti-TTG ab positive. More (11%, 14/124) of siblings were serology positive than parents (7.4%, 10/134) and children (3.7%, 2/53). Of serology positive, 19/27 (70.3%) were symptomatic. Of 27 serologically positives, only 13 underwent further evaluation (3 waiting and 11 refused). The villous atrophy was present in 12 (March 3a 1, 3b 2, and 3c 9), one had Marsh 0.
Conclusions: Most of the seropositive family members were symptomatic. Siblings have the highest risk of developing celiac disease. Prevalence of celiac disease in FDR is higher than that in SDR.

SI11

Computer assisted image morphometric findings in normal duodenal biopsies: setting benchmark for future clinical trials in celiac disease

***Prasenjit Das**, Arvind Ahuja, Asha Mishra, Anil K Verma, Subrat K Panda, Siddhartha Datta Gupta, Govind K Makharia*
Departments of Pathology, Gastroenterology and Human Nutrition, All India Institute of Medical Sciences, New Delhi 110 068, India

Introduction: A definitive improvement in intestinal histology is likely to be end point in celiac disease. Marsh grading is currently the only available method for evaluation of baseline and follow up biopsies, which depends on subjective assessment of crypt/villous ratio. Furthermore, intestinal villous height differs from region to region. Hence development of a more objective reference for crypt/villous ratio is essential.
Methods: Computer assisted image analysis on 41 duodenal biopsies were performed using Image Pro Plus® 6 (Media Cybernetics Inc., USA) software. The distal duodenal biopsies were taken from patients with anti-TTG ab negative functional dyspepsia patients. All of them had Marsh grade 0 on histology. Villous heights, villous areas, crypt depths and heights of mucosal epithelial cells were measured. Crypt/villous ratio were calculated.
Results: The mean villous height was 421.4 μm (range: 917.6–252.1 μms), mean crypt depth 202.5 μm (range: 292.7–139.5 μms), mean villous area 45570.6 μm2 (range: 113781–25631.7 μm2) and mean epithelial mucosal epithelial height 32.2 μm (range: 45.5–26.3 μms). The mean normal crypt/villous ratio were 1:2 (range: 1:1.3–1:4 [0.76–0.25]). Accordingly we could generate a morphometric grading scale for measuring the crypt/villous ratio: Normal crypt/villous ratio 0.25–0.76; mild villous atrophy: 0.77–1.
Conclusions: Average villous height and villous areas were lesser than those described in other parts of world. This proves that normal duodenal villi are stouter in India. We believe that this data is of immense significance in objective assessment of effect of treatment on histological recovery in Indian patients.

SI12

Ultra structural changes in tight junctions and other cellular elements in treatment naive celiac disease and active Crohn's disease (at baseline and 6 months follow up) and their correlation with disease activity or severity

***Pooja Goswami**, Prasenjit Das, T C Nag, T K Das, Vishnubhatla Sreenivas, Siddhartha Datta Gupta, Vineet Ahuja, Govind K Makharia*
Departments of Gastroenterology and Human Nutrition, Pathology, Anatomy and Biostatistics, All India institute of Medical Sciences, New Delhi 110 068, India

Background: Ultrastructural changes in enterocytes and tight junctions (TJ) in patients with treatment naive (Tn) celiac disease and active Crohn's disease (CD) are not well described.
Methods: Both pre- and 6 months post-treatment duodenal biopsies from patients with celiac disease ($n=12$) and active

CD (n=10), along with biopsies from functional dyspepsia patients (n=5) as controls were assessed using transmission electron microscopy (TEM). The image analyses were performed to measure tight junction diameter, TJ length, microvillous (MV) length, inter-MV width and mitochondrial diameter (MD).
Results: There were dilatation of TJs and mitochondria, disarray of microvilli, nuclear blebbing and desmosome multiplications in Tn celiac disease and active CD compared to controls. The alterations were more prominent in active CD. There was no correlation of these changes with disease severity and activity. Six-month post-treatment, Marsh grading came down by >2 grades in >50% of celiacs and CDAI came down to 140.3 from 242.9 in CD. After 6 months of treatment; similar ultrastructural abnormalities were observed, however in reduced frequency and improvement was more marked in CD. The mean TJ diameters improved from 31.1μms to 23.9 μms and from 45.1 μm to 20.3 μms in celiacs and CD, respectively.
Conclusions: Duodenal ultrastructural changes in celiacs and CD are striking in comparison to the controls, while improvement was minor in TJ architecture in celiac disease, marked improvement was noted in CD after 6 months of treatment. Similar to light microscopy, 6 months of treatment is insufficient to demonstrate significant changes even ultrastructurally. This study highlights the anatomical changes at cellular level.

SI13

Subclinical and overt parenchymal liver disease in patients with celiac disease

***Gaurav Jindal**, Minakshi Sharma, Prasenjit Das, Shyam Prakash, S Datta Gupta, Govind K Makharia*
Departments of Gastroenterology and Human Nutrition and Pathology. All India Institute of Medical Sciences, New Delhi 110 068, India

Background: Almost half of patients with celiac disease presents with features other than chronic diarrhea. While asymptomatic transaminitis and autoimmune hepatitis are seen more often, some patients with celiac disease presents with cirrhosis.
Methods: In a retrospective/prospective analysis, we reviewed case records of 243 consecutive adolescents and adult patients with celiac disease. The diagnosis of celiac disease was made on the basis of modified ESPGHAN criteria. Transaminitis was defined as elevated ALT or AST levels of >1.5 times of ULN. Chronic liver disease was diagnosed on the basis of clinical, radiological and endoscopic evidences. Appropriate etiologic work up was done.
Results: Seventy-nine patients (32.5%) had evidence of liver disease. Fifty-nine (24.2%) had asymptomatic transamnitis and 20 had cirrhosis. While 4 patients were found to have concomintant CLD; 16 with cirrhosis presented with liver cell failure; they however were diagnosed having celiac disease based on co-existent symptoms (short stature, disproportionate anemia or chronic diarrhea). On standard etiologic work up of CLD, 1 had evidence of HBV infection (anti-HBC total +, HBV-DNA negative), 1 HCV-RNA positive anti-HCV ab negative, 2 HVOTO, 2 autoimmune hepatitis and 1 PBC. Seventeen patients with cirrhosis showed marked clinical improvement with gluten free diet and standard symptomatic treatment and three died. The ALT/AST normalized in 62.5% (20 of 32) at 6 months with gluten free diet.
Conclusions: One fourth of patients with celiac disease have asymptomatic transamnitis and in many advanced liver disease is the presentation of celiac disease. Normalization of liver abnormalities occurs with GFD.

SI14

To study the short term progression of histological changes in patients with potential celiac disease

***Ameet Kumar Banka**, Amarender Singh Puri, Sanjeev Sachdeva*
Department of Gastroenterology, G B Pant Hospital, J L Nehru Marg, New Delhi 110 002, India

Background and Aims: To study the short term progression of histological changes in patients with potential celiac disease (PCD).
Methods: A prospective cohort study was conducted between October 2009 to June 2011. Patients with positive IgA antibody to endomysium or tissue transglutaminase, or increased intraepithelial lymphocytes (IELs) in the small intestine with duodenal biopsy inconsistent with CD were included.
Results: Total PCD patients were twenty seven. Of the 120 first degree relatives of 35 CD patients screened, 18 had PCD. Four families had 3 PCD members. Nine patients had no family history but were diagnosed as PCD when evaluated for other symptoms. The age varied between 4 to 68 years. Common clinical complaints were anemia and diarrhea. The hemoglobin ranged between 5.3 to 14.8 gm/dL. The initial serology for IgA antiTtg was positive in 19 and negative in 8, and IgA anti AGA was positive in 17 and negative in 9 patients. Follow up after 6 months revealed that 8 patients became negative for IgA antiTtg and 2 patients for IgA antiAGA, who were previously positive. Upper gastrointestinal endoscopy was normal in 17, showed mild scalloping in 7, moderated scalloping in 2

and paucity of mucosal folds in 1 patient. Duodenal biopsy showed normal villous pattern in 11, normal villous pattern with increased IELs in 15 and mild villous abnormality with increased IEL in 1 patient. Follow up biopsies at 6 months and 1 year showed no progression of histological changes in any of the patients.
Conclusions: We conclude that there is no progression of histological changes in patients with PCD on short term follow up.

SI15

Comparison of patency capsule with barium enteroclysis or follow through in predicting capsule endoscope retention

S S Rana, D K Bhasin, ***C Rao****, B Nagi, K Singh*
Department of Gastroenterology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background: Capsule endoscope is non invasive tool for evaluation of small bowel but has risk of capsule retention in patients with small bowel obstruction. Various small bowel radiological investigations or patency capsule have been used to predict the risk of capsule retention.
Aim: To retrospectively compare efficacy of barium studies with patency capsule in predicting capsule retention.
Methods: Eighty-five patients underwent barium studies and twenty patients underwent patency capsule before capsule endoscopy respectively. The demographic data, barium examination results, and capsule endoscopy findings were retrospectively collected.
Results: Barium studies showed tight small bowel stricture in 4 patients and obstructing mass lesion in 3 patients and these patients did not undergo capsule endoscopy. The remaining 78 patients underwent capsule endoscopy and on capsule endoscopy 6 of these patients had small bowel diaphragm and 3 had small bowel strictures. However, capsule retention occurred only in one patient who had multiple small bowel diaphragms. All 3 patients with small bowel strictures had delayed capsule passage. The patency capsule passed in all the twenty patients. In these 20 patients there was no capsule retention and 2 of these patients had small bowel diaphragm and one had small bowel stricture respectively. However, one patient had transient hold up of the capsule endoscope and subsequently done barium enteroclysis revealed multiple small bowel diverticulae.
Conclusion: Patency capsule is an useful tool for predicting the passage of capsule endoscope and radiological findings either on BAMFT or BE may not predict passage of capsule endoscope through small bowel.

SI16

Defining the algorithm for managing isolated terminal ileitis

Saurabh Kedia, ***Rajan Dhingra****, Vikas Singla, Lalit Kurrey, Saurabh Srivastava, Sushil Kumar, Prashant Verama, Bikas Narayan Choudhary, Vineet Ahuja*
Department of Gastroenterology and Human Nutrition, All India Institute of Medical Sciences, New Delhi 110 068, India

Background and Aim: Isolated terminal ileitis may have a varied etiology and the natural course of this entity has not been described. Hence treatment options remain largely empirical. We aimed at long term follow up of a cohort of isolated terminal ileitis to define an algorithm for managing such patients.
Methods: A prospective analysis was done on demographic, clinical, radiological, and histopathological data in 34 patients with endoscopic diagnosis of terminal ileitis from 2007–2011.
Results: Mean age was 35.6+11.6 years, 21 were men. Median duration of presentation was 12 (range: 240) months. Median follow up was 10.5 (range: 36) months. 2/34 patients had deep ulcers and both had ITB. Thirty-two patients had superficial ulcers/nodularity/erosions on ileocolonoscopy. Of these, 27 had non-specific inflammation on biopsy and 17/27 (63%) patients had fever, diarrhea, GI bleed, or weight loss. 12/17 (70%) patients had Crohn's disease (CD) or intestinal tuberculosis (ITB). CT abdomen showed ileal thickening in 9/26 (34.6%) patients. Ten (37%) did not have any fever, diarrhea, GI bleed or weight loss and 8 of these improved on symptomatic treatment. Absence of fever, diarrhea, GI bleed, weight loss in patients with superficial ulcer/nodularity/erosion on endoscopy and non-specific inflammation on biopsy had a negative predictive value of 80% in excluding the possibility of ITB/CD.
Conclusions: Terminal ileitis presenting with superficial ulcers, absence of significant clinical features and non-specific histological findings may be followed up with symptomatic therapy. Superficial or deep ulcers in presence of significant clinical features require imaging studies and a majority of them have either Crohn's disease or intestinal tuberculosis.

SI17

Celiac disease: A disease of protean manifestations

Arun Kumar, Sarandeep Kaur, ***Praveen Kumar****, Pooja Shakuja,* Srikanta Basu, Lokesh Sharma*
Divisions of Pediatric Gastroenterology, Hepatology and Nutrition, Kalawati Saran Children's Hospital, Bangla Sahib Road, Connaught Place, New Delhi H.O., Delhi 110 001, India

Background: Celiac disease (CD) is an immune mediated enteropathy caused by sensitivity to gluten fraction of wheat and other cereals. Apart from causing typical symptoms of malabsorption (diarrhea), other atypical manifestations of CD are increasingly being recognized.
Methods: Case records of 417 cases of celiac disease diagnosed and enrolled in the Pediatric Gastroenterology and Nutrition Clinic of Kalawati Saran Children's Hospital, New Delhi during 1996–2010 were analyzed. All patients of CD diagnosed had a positive celiac serology with partial/total villous atrophy with increased IEL.
Results: Among these 417 cases, 359 children had presented with complaints of diarrhea (group-A: typical CD) while 58 cases presented without any history of diarrhea (group-B: atypical CD). Clinical presentation in group B included abdominal distention (27.6%), pain abdomen (13.7%). Increasing pallor not responding to hematinics (18.96%), short stature (13.7%), constipation (10.3%). Five patients (8.6%) were diagnosed by screening of diabetic cases, 4 were diagnosed during work up for delayed puberty (5%) and 1 case for dilated cardiomyopathy (1.7%).
The mean age at presentation in group A was 69.2 month whereas in group B it was 84.81 months. Patients in group A had lower weight for age (p-value 0.006), height for age (p 0.009) and weight for height (p 0.022) as compared to patients in group B.
Conclusion: Celiac disease in children has wide range of presentation. High degree of suspicion and work up is recommended in these cases.

Large Intestine

LI1

Serotonin reuptake transporter -P gene polymorphism and ulcerative colitis in North Indians

S V Rana, A Sikander, K K Prasad, ***R P Ola****, S K Arora,*[*] *S K Sinha, K Singh*
Departments of Gastroenterology and [*]Immunopathology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background: Serotonin (5-hydroxtryptamine, 5-HT) plays key role in intestinal peristalsis, secretion, and sensory signalling in the brain-gut axis. Removal from its sites of action is mediated by a specific protein called serotonin reuptake transporter (SERT or 5-HTT). Polymorphisms in the promoter region of SERT gene have effects on transcriptional activity, resulting in altered 5-HT reuptake efficiency. It has been speculated that such functional polymorphisms may underlie disturbance in gut function in individuals suffering from disorders such as ulcerative colitis (UC).
Aims: The aim of this study was to assess the association between SERT-P gene polymorphisms and ulcerative colitis in North Indians.
Methods: This case-control study included 125 UC patients and 125 healthy controls. SERT-P gene polymorphisms were studied by polymerase chain reaction.
Results: The genotypic distribution of UC patients were checked for deviation from Hardy-Weinberg equilibrium and no deviation was observed for the SERT-P polymorphisms. No significant difference were found in the SERT-P genotype (X2=1.91 df=2, p=0.38) and allele frequencies (p=0.19) between the UC patients and control group. The frequencies of genotype were similar in both males and females in patients and controls.
Conclusion: There were no association between S/S and non-S genotypes of ulcerative colitis and controls in North Indians.

LI2

Influence of genetic polymorphisms in X-ray repair cross-complementing group-1 and apurinic/apyrimidinic endonuclease-1 on apoptosis and ulcerative colitis

Avinash Bardia*, Santosh K Tiwari, Sivaram Gunisetty, Pratibha Nallari, Md. Aejaz Habeeb, Aleem A Khan*
Centre for Liver Research and Diagnostics, Deccan College of Medical Sciences, Kanchanbagh, Hyderabad 500 058, India

Ulcerative colitis is one of the two major manifestations of inflammatory bowel disease. Base excision repair (BER) is an important DNA repair mechanism which every cell utilizes to repair the damaged DNA. X-ray cross-complementing group 1 (XRCC1) and apurinic/apyrimidinic endonuclease 1 (APE1) are two vital DNA repair proteins that play definitive roles in BER pathway. Genetic polymorphisms in these genes have been reported to increase the susceptibility of various cancers; however their precise role in apoptosis and etiology of ulcerative colitis still remains elusive. Therefore the present study was designed to examine the polymorphisms in XRCC1 and APE1 and investigate their role on the rate of apoptosis and ulcerative colitis risk. Blood samples from 384 unrelated subjects (171- UC, 213- healthy controls) were collected. Genomic DNA was isolated and genotyped for XRCC1 Arg399Gln and APE1 Glu148Asp. Apoptosis and intracellular ROS levels in peripheral blood mononuclear cells

were measured using Annexin-V and H2DCFDA assay respectively. The frequency of genotype Arg/Gln at codon 399 of XRCC1 and APE1 Asp/Glu at 148 codon gene was statistically significantly in patients with UC than the controls. High rate of apoptosis coupled with elevated ROS levels were seen in UC subjects than the controls (p= 0.01). Increased percentage of necrotic and late apoptotic cells were observed among UC subjects with XRCC1 Arg399Gln and those with both XRCC1 Arg399Gln and APE1 Asp148Glu. Polymorphisms in XRCC1 Arg399Gln and APE1 Asp148Glu significantly increased the apoptotic rates and risk of ulcerative colitis in our population.

LI3

Predominant methanogenic gut flora in subtypes of irritable bowel syndrome measured by using lactulose hydrogen breath test

V Singh,* *S V Rana, S Sharma, S K Sinha, K Singh*
Departments of Internal Medicine,* and Gastroenterology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Introduction: Irritable bowel syndrome (IBS) is referred to as a functional bowel disorder. Studies have shown methanogenic gut flora to be associated with pathophysiology of the constipation in IBS-C patients.
Aim: To study the prevalence of predominant methanogenic gut flora in IBS patients and its subtypes by using lactulose hydrogen breath test (LHBT).
Methods: Total 50 IBS patients (25 IBS-D and 25 IBS-C), prospectively enrolled from September 2009 to October 2010. Their diagnosis was made as per Rome III Criteria. Methane concentration was measured in end expiratory breath samples by using SC Microlyzer from Quintron, USA. 15 mL lactulose syrup (10 g lactulose) was given to patients after 12 h fasting. Subjects with fasting methane concentration 10 ppm as predominant methane producers (PMPs).
Results: Age (mean±SD) of IBS cases was 37.74± 14.30 years. 72% were males and 28% females. Mean age of IBS-C cases was 40.36±16.45 years. 84% were males and 16% females. Mean age of IBS-D cases was 35.12± 11.52 years. 60% were males and 40% female. Prevalence of PMPs in IBS patients was found to be 10% (5/50). In IBS-C subgroup prevalence of PMPs was 20% (5/25) but no PMP in IBS-D subgroup (0/25). This difference was statistically significant (p=0.018). PMPs were exclusively present in IBS-C subgroup.
Conclusion: IBS-C subtype is having predominant methanogenic flora whereas no predominant methanogenic flora have been found in IBS-D subtype.

LI4

A 12 years experience of colonic volvulous in a single surgical unit of University hospital

Vikash Singh, *Vaibhav Pandey, Vivek Srivastava, Mumtaz A Ansari, Saroj Gupta, Anand Kumar*
Department of General Surgery, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, India

Introduction: Colonic volvulous is an important cause of bowel obstruction. To define current patterns of colonic volvulous a retrospective review was done between the years 1999 and 2011.
Methods: There were 51 patients treated including 47 patients of sigmoid, 1 with cecal and 3 with compound volvulous.
Results: There were 46 male and 5 female with mean age of 56.7 years. Mean duration of presentation was 3.3 days. Pain, distension and non passage of flatus/stool were present in all patients followed by vomiting and fever in 25.4% and 19.6% patients. Chronic large-bowel motility disturbances were present in 22 of 51 (43.1%). Decompression with flatus tube was successful in 11 out of 29 patients. 37.2% had comorbidities with diabetes mellitus being the commonest. Forty-nine operations were performed including Hartmans procedure in 16, sigmoidopexy in 9, resection and anastomosis in 16 and extraperitonisation 9 patients. Two patients had recurrent volvulous each after sigmodopexy and extraperitonisation. Gangrene was present in 16 (31.3%) patients of which 5 (31.2%) patients died. Overall there were 9 (17.6%) deaths in 51 patients.
Conclusion: Sigmoid volvulous is the commonest cause of volvulous that can be successfully managed with a variety of surgical options though gangrene and associated co-morbidities are the most important predictor of outcome.

LI5

A study of factors contributing to incomplete colonoscopic studies

B Harri Prasad*, Preethi, A R Venkateshwaran, Revathi, S Chitra, R Murali, Manimaran*
Stanley Medical College, Chennai 600 108, India

Introduction: Colonoscopy, though a valuable diagnostic tool, is a tedious procedure. It will be disheartening if the procedure is not completed. In this study we analyzed factors responsible for incomplete studies (failure to reach cecum).
Methods: Colonoscopies performed over a period of 1 year (August 2010 to June 2011) were analyzed. Data was collected

from colonoscopy registry from department of Stanley Medical Hospital. We ensured that all patients were prepared with same agent (polyethylene glycol with dulcolax).
Results: Total of 391 colonoscopies were performed during this study period. Two hundred and seventy (69%) cases of completed colonoscopies were excluded from the study. Remaining 121 cases (30.9%) were analyzed. The causes for incomplete study are as follows: incomplete preparation in 58 cases (15%), obstructive lesion in 40 (10%) cases, poor tolerance in 7 cases (2%) looping in 7 cases (2%) stricture in 5 cases (1.2%) severe IBD in 5 cases (1.2%). Among the poorly prepared patients constipation was the predominant indication for colonoscopy, 32 cases (55%). Most of the poorly prepared patients were outpatients 40 cases (65%).
Discussion: Cecal intubation with ileocolonoscopy is very important for study of large bowel. Preparation for constipation sometimes has to be extended for 2–3 days. Fluoroscopic guidance may be helpful in difficult cases.
Conclusion: Colonoscopic preparation should better be carried out as inpatients. Patients with constipation needs to be prepared for 2–3 days.

LI6

An unusual case of colitis

M Preethi*, B Harri Prasas, R Murali, Manimaran, R Chitra, M S Revathy, A R Venkateswaran*
Department of Medical Gastroenterology, Stanley Medical College, Chennai 600 108, India

Hereditary oculocutaneous albinism, with its associated features, can be a part of a rare and potentially life threatening entitiy- the Hermansky Pudlak syndrome, a multisystem disorder of autosomal recessive inheritance characterized by albinism, qualitative platelet disorder, pulmonary fibrosis, and granulomatous colitis. Here, we present one such case of HPS with colitis as the main symptom.
Case report: 18-year-old Mrs. V, attended our OP in May 2011, with complaints of recurrent episodes of blood and mucous diarrhea for the past 3 years. She was previously evaluated, underwent colonoscopy, and started on regular drugs. The patient had significant improvement, but discontinued drugs after 2 years. She was the first born of a consanguineous marriage, and she and her younger brother both had congenital albinism. On examination: homogenous oculocutaneous albinism, pallor, convergent strabismus, horizontal nystagmus and iris hypopigmentation. Systemic examination normal.
Investigations: CBC- Hb- 3.2 g%, platelets-11,00,035/mm^3, WBC–normal, peripheral smear: microcytic and hypochromic anemia LFT- hypoalbuminemia BT, CT, ECG , CXR - normal. Stool routine- normal. UGI scopy- erosive gastritis. Colonoscopy—normal rectal and sigmoid colonic mucosa, with deep fissuring ulcers throughout the transverse colon, with intervening normal looking mucosa. HPE-consistent with Crohn's disease. Treatment -IV antibiotics, oral steroids, mesalamine, PRC transfusions. Specialist opinions: ophthalmology: horizontal nystagmus present. Fundus normal. Pulmonology: PFT- moderate obstruction. Neurology: congenital nystagmus MRI brain: normal Thromboelastogram: delayed platelet aggregation. Patient is now on regular follow up.

LI7

Ileal intubation at colonoscopy: does appendicular arrow shoot into the ileum?

A K Seth*, S Mazumder, S Khanna*
Department of Gastroenterology, Dr B L Kapur Memorial Hospital, Pusa Road, New Delhi 110 005, India

Aim: To determine accuracy of appendicular arrow in localization of ileo-cecal (I-C) valve at colonoscopy.
Methods: Ileal intubation was attempted in 150 consecutive patients undergoing colonoscopy. In patients with successful ileoscopy, the clock position of I-C valve was noted. Following inflation of cecum, the clock position of an imaginary arrow fired from the bow formed by convexity of appendicular opening was also recorded. The relative clock positions were confirmed and recorded by at least 2 observers.
Results: Ileal intubation was possible in 143 of 150 (95.3%) colonoscopies. Appendicular opening could not be identified in 13 (ulceration 7, blood 2, stool 2, anatomical variation 1, post appendicectomy 1) while in 1 patient the opening was circular and the direction of appendicular arrow could not be ascertained. Of the remaining 129 patients analyzed, there was complete concordance of clock position in 54 (41.8%), variation by 1 h in 64 (49.6%), 2 h in 7 (5.4%), 3 h in 2 and 4 h in 1 patient.
Conclusion: Appendicular arrow localizes I-C valve to within 1 h by clock position in 91% patients. This information may be used for blind intubation of ileum when I-C valve is not visualized.

LI8

Genetic characterization of *Escherichia coli* strains in ulcerative colitis

Manish Kumar Tripathi*, A K Jain, Gopal Nath,* V K Dixit, S K Shukla, J K Choudhary*
Departments of Gastroenterology, and *Microbiology, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, India

Background: Ulcerative colitis (UC) has periods of relapses and remission. Enteric microbiota can contribute to relapse of UC with increased mucosal adherence; invasion and intracellular persistence can activate inflammation.
Aim: To study genetic variations and antimicrobial sensitivity of *E coli* isolates from patients with UC and IBS.
Methods: Isolates of *E coli* from stool and mucosal biopsy samples from 15 patients with UC and 10 patients with IBS were studied. Isolates were identified on the basis of colony morphology, gram staining and biochemical examination. Antibiotic sensitivity was done. DNA was isolated and ERIC-PCR was performed for intra-species variation.
Results: Isolates from mucosal biopsies had shown complete resistance to ampicillin, nalidixic acid and ciprofloxacin/ofloxacin. Stool isolates had high (>80%) resistance in UC and moderate resistance 50% in IBS for these antibiotics. All isolates were sensitive for amikacin and netilmicin and 50% were resistant towards cefotaxime/ceftriazone and furazolidone. Biopsy and stool isolates from patients with UC had 80% and 51% resistance for amoxicillin+clavulanic acid, cefazolin/cephalexin and cefuroxime, and Ë, 30% and Ë, 15% resistance for pipercillin+tazobactum, chloramphenicol and gentamicin. Isolates from subjects in IBS had significantly lower resistance to these antibiotics. Analysis of ERIC-PCR dendogram revealed presence of 3 major clusters at 25% similarity coefficient. Many of the strains were genotypically identical by ERIC-PCR in their clusters.
Conclusion: Sensitivity pattern shows increased resistance towards antibiotics in mucosal biopsy than stool isolates and increased resistance was seen in UC than IBS patients. ERIC-PCR results show evolution from common ancestor but variations might be due to additional virulence factors.

LI9

A double blind randomised controlled trial to study the effect of oral Curcumina longa versus placebo in patients with active ulcerative colitis

V Shivakumar*, K Sharonjeet, U Dutta, K Lallan, C Vaishnavi, K K Prasad, R Kochhar, K Singh*
Department of Gastroenterology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Aim: To study the effect of oral Curcumina longa (CL, refined Turmeric) vs. placebo in active ulcerative colitis (UC) on clinical and endoscopic response and markers of mucosal inflammation.
Methods: A double blind randomised controlled study was done to compare CL vs. placebo in 53 patients of active UC. Patients were randomized to receive either Curcumina longa 10 g powder (n=28) or placebo (n=25, BID) in addition to mesalamine/steroids for 8 weeks. Mayo score, sigmoidcopy with biopsy, GIQOL, and fecal calprotectin (FC) were determined at the baseline and at 8 weeks of treatment.
Results: The two groups were comparable in their baseline parameters. Forty-six patients completed 8 weeks of treatment (23 in each group). The CL group showed a better response in stool frequency (2.14±2.28 vs. 1.87±2.50, p=0.68), stool consistency (1.03±1.77 vs. 0.83±1.37, p=0.65), rectal bleeding (0.71±0.93 vs. 0.68±0.94, p=0.89), Mayo score (0.56±0.71 vs. 0.43±0.78, p=0.56), histological activity score (1 point decrease) (15/18 [62.5%] vs. 10/18 [43.47%] p=0.19), activity score pre-post difference (1.33±3.13 vs. 0.56±2.76, p=0.37), response in FC (15/18 [83.33%] vs. 9/18 [50%] p=0.034), as well as FC levels (175.22±179.56 vs. 65.19±240.57 μg/g, p=0.001) as compared to placebo. FC correlated with pre-treatment activity score (r=0.34, p=0.026) and post-treatment Mayo score (r=0.61, p=<0.0001).
Conclusion: Use of CL in patients with active UC induces remission and improves GIQOL, FC can be used as a surrogate marker for detection of relapse of UC.

LI10

A large-scale multi-centric study reveals low frequency of MLH1/MSH2 inactivation among Indian HNPCC patients

Murali D Bashyam,[1] *Kotapalli Viswakalyan,*[1] [1]*Brijesh Yadav, Raman Ratheesh,*[1] *Ajay K Chaudhary,*[1] *Shoba D'Souza,*[2] *Ashavaid Tester,*[2] *Devendra Desai,*[2] *Jay Bhatt,*[2] *Anita Bhaduri,*[2] *Sudeep Shah,*[2] *Swarnalata Gowrishankar,*[3] *Ravikanth Kongara, Regulagadda A Sas*
[1]Centre for DNA Fingerprinting and Diagnostics, Hyderabad 500 076, India; [2]Hinduja Hospital and Medical Research Centre, Mahim, Mumbai 400 016, India; [3]Department of Pathology, Apollo Hospitals, Hyderabad, India; [4]Departments of Surgical Gastroenterology and Pathology, Nizam's Institue of Medical Sciences, Punjagutta, Hyderabad 500 082, India

Hereditary non-polyposis colorectal cancer (HNPCC) is an autosomal dominant familial syndrome caused mainly due to germline mutational inactivation of any one of two mismatch repair (MMR) genes viz. Mlh1 and Msh2, and rarely due to mutations in additional MMR genes (Msh6 and Pms2) causing microsatellite instability (MSI). The mutations often result in loss of protein expression which can be detected using immunohistochemistry (IHC). IHC and MSI analysis have been suggested as pre-screening methods for selection of patients for mutation analysis of MMR genes. We have carried out the first extensive

analysis of suspected HNPCC patients from India. A total of 143 HNPCC-specific family history positive patients (out of 943 for which family history information was available) were identified and 47 were evaluated using MSI screening and IHC for MLH1, MSH2 and MSH6. As expected, a significant majority of patients (87%) harbored tumors exhibiting high MSI (MSI-H). Surprisingly however, a significantly low proportion (45%) of the patients exhibited loss of MLH1/MSH2/MSH6 expression, perhaps due to mutations not resulting in loss of protein expression or the involvement of other minor DNA mismatch repair genes. Heterozygous germline mutations were detected in either Mlh1 or Msh2 in 12 patients including 9 novel mutations. Loss of heterozygosity appeared to be a major cause of inactivation of the second allele in patients that harbored heterozygous mutations. Our results reveal unique features in Indian HNPCC patients; IHC for MLH1/MSH2 may not be an ideal primary screening tool to identify HNPCC patients in India.

LI11

Comparative study of clinicoepidemiological profile between steroid dependent and nonsteroid dependent ulcerative colitis

Pratap Behera, *V K Dixit, S K Shukla, A K Jain*
Department of Gastroenterology, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, India

Background: Previously considered a disease in Europe and North America is seen not infrequently in India also. A significant proportion of patients becomes steroid dependent and needs special attention.
Aim: To compare the clinical profile, natural history and course between steroid dependent and non steroid dependent ulcerative colitis cases.
Methods: Naïve and relapsed cases of ulcerative colitis from January 2009 and December 2010 were included in study. Patients were followed up regularly to look for response. Steroid dependence was diagnosed as per ECCO criteria.
Results: Out of total 191 cases, 45 (23.6%) cases were steroid dependent. Overall male to female ratio in our cohort was 2.2:1 with a ratio of 3.31:1 in steroid dependant and 1.98:1 in nonsteroid dependent cases. Mean age in our non steroid dependent group was 39.16 (±14.09) years and steroid dependent group was 33.87(±10.32) years. 41.1% cases in non steroid dependent group and 84% of patients in steroid dependent group were clinically severe. In steroid dependent group 37.8% and 57.8% cases were having E2 and E3 disease respectively. But in non steroid dependent group 32.2%, 38.4% and 29.5% cases were having E1, E2 and E3 disease respectively. Majority (93.4%) of patients in steroid dependent group were with endoscopic grade III and IV against 79.5% in non steroid dependent group.
Conclusion: Younger age, male sex, clinically severe disease and extensive involvement, advanced endoscopic grade disease were significantly associated with steroid dependence in comparison to non steroid dependent cases.

LI12

Prospective study of the diagnostic yield of histology, TB PCR and BACTEC in clinical, colonoscopy and abdominal CECT suspicion of intestinal tuberculosis

B Patel*, A K Agasti, A Choksi, R Surude, A Phadke, Prabha Sawant*
Department of Gastroenterology, Lokmanya Tilak Municipal Medical College, Lokmanya Tilak Municipal General Hospital, Sion, Mumbai 400 022, India

Aim: To compare the diagnostic yield of histology, TB PCR, BACTEC in clinical, colonoscopy and abdominal CECT suspicion of intestinal tuberculosis.
Methods: Fifty patients, aged 20–60 years who attended Gastroenterology OPD with clinically suspected intestinal tuberculosis were subjected to colonoscopy and CECT abdomen. Thirty-two patients whose colonoscopy and or CECT abdomen suggested tuberculosis were included in the study and multiple biopsies taken from involved segments were sent for histopathology, TB PCR and BACTEC to confirm the diagnosis. Patients having features of Crohn's disease, malignancy and other colonic pathology were excluded from the study. All patients who had colonoscopic and clinical suspicion of tuberculosis received AKT only if one of the following was positive for TB: histology, TB PCR, BACTEC and followed up for 6 months.
Results: Colonoscopy and CECT abdomen were positive in 32 and 18 patients. Weight loss 21 [65.6%], abdominal pain 20 [62.5%], low grade fever 19 (59.37%), diarrhea 6 (18.75%), sub acute intestinal obstruction 3 (9.37%) and constipation 2 (6.25%). On colonoscopy ileo-cecal region involvement found in 20 (62.5%) patients. IC region with other GI involvement found in 8 (25%) [ascending colon 6, transverse colon1, stomach 1]. Isolated ascending colon in 2 (6.25%) patients. Histology suggestive of TB found in 12 (37.55%) patients, with confluent granuloma 5 (15.6%) and caseation necrosis 2 (6.25%). TB PCR and BACTEC were positive in 21 (65.62%) and 4 (12.5%) patients respectively.

Conclusion: Diagnostic yield of clinically suspected intestinal TB is increased by CECT colonoscopy followed by histology of lesions along with TB PCR, BACTEC.

LI13

Methotrexate therapy for refractory inflammatory bowel disease

***Devanand Mohapatra**, Swarupa Panda*
Department of Gastroenterology, Hi-Tech Medical College and Hospital, Pandara, Rasulgarh, Bhubaneswar 751 010, India

Background: Methotrexate–A folic acid antagonist classified a san anti-metabolic cytotoxic immunosuppressant agent. It can induce and maintain remission in Crohn's disease. Corticosteroids are effective for induction off remission of Crohn's disease. 15% to 20% become steroid dependant, 15% to 20% become steroid refractory and significant adverse effect are noted. Nice guideline suggest methotrexate should be used prior to infliximab.
Aim: To prospectively see the efficacy and safety of methotrexate in induction and maintenance of remission in refractory inflammatory bowel disease (IBD) patients using Harvey Bradshaw Index.
Methods and Selection Criteria: Prospective observation of individuals (>17 years) with steroid depend or refractory Crohn's disease patient's failing or intolerant to purine antimetabolite were considered for 12 week @ 25 mg IM methotrexate as induction treatment. HBI were calculated pre each dose. If the induction phase was tolerated, patients were switched to oral/subcutaneous methotrexate.
Exclusion Criteria: Patients with significant renal or liver disease. Patients with significant alcohol were excluded.
Outcome/Definite Outcome: The proportion of patients entering remission (HBI<5). A significant reduction in steroid dosage, maintenance of remission, cesation of methotrexate therapy due to side effects.
Discussion: Over a 4 year period 20 patients have been treated with methotrexate (60% were females and 40% were male). All patients had tried either azathioprine or mercaptopurine. At start of treatment 60% were taking steroids, post methotrexate induction the steroid requirement was 9%. The median HB score prior to treatment was 9 and at 12 weeks post treatment was 5. Following 12 doses 50% had significantly (HB 5 or <5). Methotrate was generally well tolerated with 80% tolerating induction, 20% stopped methptrexate due to side effects after induction phase, 36% remained in remission a minimum of 12 months after finishing induction.
Conclusion: Methotrexate is generally well tolerated and is safe in the short term. It is effective inducing and maintaining remission in a cohort of refractory patients. It is steroid sparing.

LI14

Psychiatric and somatic comorbidities in Indian patients with irritable bowel syndrome at a tertiary care center

***Prashant Singh**, Abhishek Agnihotri, Manish Pathak, Asef Shirazi, Rajeew P Tiwari, V Sreenivas, Rajesh Sagar, Govind K Makharia*
Departments of Gastroenterology and Human Nutrition, Psychiatry and Biostatistics, All India Institute of Medical Sciences, New Delhi 110 068, India

Introduction: 50% to 90% patients with irritable bowel syndrome (IBS) have psychiatric or somatic comorbidities. There is a lack of data on psychiatric and somatic comorbidities in Asian patients with IBS.
Methods: In this prospective study, 184 IBS patients (IBS-C [57], IBS-D [69], IBS-M [58]) and 198 controls were included. Diagnosis of IBS, its sub-classification and assessment of other functional gastrointestinal disorders (FGID) was made on the basis of Rome III criteria. Severity of IBS was assessed using IBS severity scoring system. Psychiatric evaluation was done using Patient Heath Questionnaire. Quality of life was evaluated using WHO QOL-BREF.
Results: One hundred and forty-eight (80.4%) patients had at least one other FGID (two commonest-postprandial distress syndrome (53.3%), unspecified excessive belching (54.9%). One hundred and fifty-eight (85.9%) patients had at least one somatic comorbidity. Higher number of patients (79.9%) had atleast one psychiatric comorbidity compared to controls (34.3%). Major depression syndrome (47.3% vs. 5.1%), somatoform disorder (50% vs. 14.7%) and panic syndrome (44% vs. 11.6%) were more common in IBS than controls. Only 14 (7.6%) patients were receiving drug treatment for their psychiatric illness. Quality of life of IBS patients was significantly lower in all four domains compared to controls. Severe IBS symptoms were present in significantly higher number of patients with IBS-C compared with those with IBS-D. Those with severe disease had higher prevalence of psychiatric (95.1%) and somatic (96.7%) comorbidities compared with mild disease. Presence of atleast one other FGID was significantly associated with presence of one or more psychiatric comorbidity ($p<0.001$).
Conclusion: Majority of IBS patients presenting to a tertiary care center have associated psychiatric, somatic comorbidities and reduced quality of life. Very few of them have received specific psychiatric treatment.

LI15

Frequency of genetic polymorphism of lactase persistence/non-persistence variants C/T- 13910 and G/A-22018 in patients with irritable bowel syndrome and healthy controls in an endemic area for lactose malabsorption

Sunil Kumar,[1] *Balraj Mittal,*[2] *Uday C Ghoshal*[1]
[1]Departments of Gastroenterology and [2]Medical Genetics, Sanjay Gandhi Postgraduate Institute of Medical Science, Raebareli Road, Lucknow 226 014, India

Background: Lactase non-persistence is common in India. We evaluated: (a) relationship of lactase gene (C/T-13910 and G/A-22018) polymorphisms in IBS and controls (b) association of these polymorphisms with IBS-subtypes and symptoms.
Methods: One hundred and fifty irritable bowel syndrome (IBS) and 252 controls were subjected to lactase gene (C/T-13910 and G/A-22018) genotyping using PCR-RFLP.
Results: Of 240 screened patients 150 (62.5%) fulfilled Rome-III criteria for IBS. Patients and controls were age and sex matched. Patients were classified into D-IBS 79 (52%), C-IBS 52 (35%) and A-IBS 19 (13%) using Rome-III criteria. Frequency of C/T-13910 [genotypes: "CC" 102 (68%), "CT" 43 (29%), "TT" 5 (3%) vs. "CC" 155 (61%), "CT" 83 (33%), "TT" 14 (6%), $p>0.05$] and G/A-22018 ["GG" 97 (65%), "GA" 41 (27%), "AA" 12 (8%) vs. "GG" 154 (61%), "GA" 78 (31%), "AA" 20 (8%), $p>0.05$] were similar in IBS and controls. Frequency of C/T-13910 and G/A-22018 genotypes were different in D-IBS ["CC" 71 (90%), "CT" 6 (8%), "TT" 2 (2%)] than C-IBS [24 (46%), 25 (48%), 3 (6%)], A-IBS [7 (39%), 12 (63%), 0, (0%)] and controls [155 (61%), 83 (33%), 14 (6%)], $p<0.0001$ and ["GG" 69 (87%), "GA" 6 (8%), "AA" 4 (5%)] vs. [22 (42%), 24 (46%), 6 (12%)] vs. [6 (32%), 11 (58%), 2 (10%)], $p<0.0001$, respectively. IBS with "CC" and "GG" genotypes more often had symptoms following lactose than non-"CC" ($p<0.0001$) and abdominal pain ($p=0.005$), distension ($p=0.031$) and higher stool frequency ($p=0.003$).
Conclusion: C/T-13910 and G/A-22018 polymorphisms were associated with symptoms of IBS, particularly with diarrheal type.

LI16

Celiac disease in adolescents and adults at a tertiary care center

Minakshi Sharma,[1] *Amit Kavimandan,*[1] *Asha Mishra,*[1] *Anil K Verma,*[1] *Pooja Goswami,*[1] *Prasenjit Das,*[2] *Arvind Ahuja,*[2] *Vishnubhatla Sreenivas,*[3] *Rajesh Khadgawat, Siddhartha Datta Gupta, Siddharth,*[2] *Govind K Makharia*[1]
[1]Departments of Gastroenterology and Human Nutrition, [2]Pathology, Endocrinology and [3]Biostatisticscs, All India Institute of Medical Sciences, New Delhi 110 068, India

Background: The prevalence of celiac disease in Northern India varies from 1 in 96 to 1 in 310 in general population. Celiac disease is now seen more often in clinical practice and the spectrum of its presentation is quite wide.
Methods: In a retrospective/prospective analysis, we reviewed the case records of 243 consecutive adolescent and adult patients with celiac disease. The diagnosis of celiac disease was made on the basis of the modified ESPGHAN criteria.
Results: The mean age of at diagnosis was 27±13.7 years (males −43.2%). The median duration of symptoms before the diagnosis was 4 years (range: 6 months–40 years). Chronic/recurrent diarrhea was presenting feature in only 57.2%, while 42.8% had atypical presentations. Sixty (24.7%) patients were referred to us by hematologists, endocrinologists or gynecologists various other specialities [for evaluation of short stature 39, refractory anemia in 6 (2.46%), short stature in 39 (16%), secondary infertility or delayed menarche in 15 (11%)] of them. Easy fatiguability, weakness was seen in 143 (58.9%) and oral ulcers were present in 98 (40.3%). One hundred and ninety-nine (82%) were anemic (Hb <12 mg/dL) with mean Hb of 9.4 mg/dL. Thirty-nine (16%) patients had low albumin (<3.5 mg/dL) where as 24.2% (54) had abnormal AST/ALT. Stool examination revealed 10 (4%) had *Giardia* in stools. Celiac serology (IgA-tTG ab or Anti-endomysial antibody) was positive in 236 patient (97.1%). Seven patients had negative serology but had abnormal villous atrophy on biopsy. Duodenal histology (Marsh 3a). Upper GI endoscopy revealed abnormality scalloped intestinal mucosal folds in 84 (34.6%), attenuated in folds 71 (29.2%) and normal looking in 88 (36.2%). of them. All patients had villous abnormalities according to modified Marsh criteria on intestinal mucosal biopsies were present in 243 patients [(Marsh 3a- in 33 (13.6%), 3b in—67 (27.5%), 3c- in 143 (58.9%)]) respectively. All patients were put on gluten free diet along with vitamins and mineral supplementation. One year follow up data was available in 155 patients and majority patients had improvement in clinical and biochemical parameters.
Conclusions: More than half of adolescent/adult patients with celiac disease had non-diarrheal presentation and many presents to clinicians other than pediatrician or gastroenterologists to a clinician other than a gastroenterologist or an internist with atypical manifestations. A high index of suspicion is required for diagnosing variant forms of celiac disease in adults.

LI17

Innate immune responses of peripheral blood mononuclear cells in patients with inflammatory bowel disease

Kalpana Premkumar, *B S Ramakrishna*
Department of Gastrointestinal Sciences, Christian Medical College, Vellore 632 004, India

Background: Toll like receptors (TLR) on circulating immune cells regulate innate immune responses by sensing microbial molecules. These responses are important in inflammatory bowel diseases (IBD).
Aim: To quantify the immune responses to different TLR ligands in peripheral blood mononuclear cells (PBMC) isolated from patients with IBD.
Method: PBMC were obtained from 39 patients with Crohn's disease, 45 with ulcerative colitis (UC), 18 with intestinal tuberculosis (TB) and 48 healthy adult volunteers (HV). They were tested for production of pro-inflammatory cytokines in response to exposure to different TLR ligands—NOD2 muramyl dipeptide (MDP) 500 ng/mL, TLR5 flagellin (FLA-ST) 1 μg/mL, TLR4 lipopolysaccharide (LPS) 1 ng/mL, TLR2 Pamc3k4 (PAM) 100 ng/mL, and TLR9 CpG ODN (CpG) 10 μg and cultured for 24 h with appropriate controls. Interleukin-8 (IL-8) and TNF-α level was measured in the culture supernatant by ELISA.
Result: Basal levels of IL8 were very high in all groups and all groups (disease and control) showed IL-8 secretion in response to all the TLR ligands studied. Basal TNFα output was significantly higher in CD, UC, and TB patients compared with HV. The TNFα output in response to stimulation with TLR ligands showed significant differences between disease groups. Responses to TLR5 stimulation were higher in CD and UC compared to controls (p= 0.0166 and 0.0089 respectively). Response to NOD2 ligands was significantly increased in CD, UC and TB compared to controls (p=0.0306, 0.0312 and 0.0159 respectively). TLR2 ligands induced increased cytokine secretion in TB (p=0.0011) compared to HV. Responses to TLR4 and TLR9 ligand did not alter in any of the three diseases.
Conclusion: The innate immune response patterns of PBMC may help to differentiate CD, UC and TB, and may be useful in evaluating drug therapies for IBD.

LI18

Clinical presentation, causes and outcome of ulcers in ileo-cecal region: a prospective study from a tertiary care centre in India

Jay Toshniwal, *Ashish Kumar, Romesh Chawlani, Hardik Kotecha, Piyush Ranjan, Mandhir Kumar, Sunita Bhalla, Anil Arora*
Sir Ganga Ram Hospital, Rajinder Nagar, New Delhi 110 060, India

Background: Ulcerations in the ileo-cecal (IC) region may have various causes and outcome, depending on the geographical location of the patients; however, Indian data does not exist. We prospectively studied these patients presenting at a tertiary care centre of India.
Methods: Consecutive admitted patients, diagnosed having ulcerations in the IC region by colonoscopy, were enrolled. Biopsy was obtained and their clinical outcome was recorded.
Results: Sixty-eight patients were included (median-age 43-yrs [range 13–85]; 68% males). The predominant presentation was lower GI bleed (33, 48%), pain abdomen +/−diarrhea (25, 37%), diarrhea alone (6, 9%), or miscellaneous (4, 6%). On colonoscopy, ulcers were seen in both ileum and cecum in 27 (40%), in cecum alone 22 (32%), and in ileum alone 19 (28%). The ulcers were multiple in 97% and in 40% there additional ulcers elsewhere in colon. Biopsy was able to characterize the lesion in only 41% patients and in rest the histopathological report was non-specific. Based on clinical presentation and investigations, following diagnosis could be reached: non-specific IC ulcers (20, 30%), amebic (10,15%), Crohn's (8, 12%), tuberculosis (6, 9%), acute infective (5, 7%), malignant (5, 7%), NSAID-induced (4, 6%), enteric (3, 4%), ulcerative colitis (2, 3%), and others (5, 7%). Two patients (3%) died (both had presented with bleed and had non-specific ulcers), and 6 patients (9%) required surgical treatment (malignant-3, amebic-2, ischemic-1). Rest 60 patients (88%) had uneventful recovery.
Conclusions: Among etiology of ulcerations in the IC region, upto one-third remain uncharacterized (labeled as non-specifc). Their outcome may not be entirely innocuous as upto 10% of them may die. Among the other causes, infections (amebic, tubercular, enteric or other) account for one-third; and Crohn's disease accounts for 12% of cases.

LI19

Diarrhea-predominant irritable bowel syndrome patients: cytokine profile

S Sharma, *S V Rana, J Kaur, D K Bhasin, S S Rana, K Singh*
Department of Superspeciality of Gastroenterology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Introduction: Irritable bowel syndrome (IBS) is referred to as a functional bowel disorder which is diagnosed by a

number of characteristic symptoms (Rome II criteria) in the absence of detectable structural abnormalities. Low-grade inflammation of the intestine may be one of the reason for development of diarrhoea predominant IBS (d-IBS).
Aim: To estimate serum levels of pro-inflammatory (IL-6, TNF-α) and anti-inflammatory (IL-10) cytokines in d-IBS patients.
Methods: Total 122 patients were screened. Out of these, only 63 adult d-IBS patients fulfilled the inclusion criteria. Age and sex matched 62 apparently healthy controls with no GI symptoms were also recruited. Out of 63 d-IBS patients, 37 were males while in controls out of 62 subjects, 32 were males. The patients with d-IBS were diagnosed according to Rome II criteria. Levels of serum IL-6, TNF-α and IL-10 were measured in all subjects by using ELISA.
Results: Mean age of d-IBS patients was 42.6 years (range 26–65 years) while in controls 43.5 years (range 25–64 years). The mean±SD of IL-6 in d-IBS patients (32.2± 12.01 pg/mL) was significantly higher ($p<0.05$) as compared to controls (7.48±2.55 pg/mL). The levels of TNF-α in d-IBS patients (16.3±5.2 pg/mL) were also significantly higher ($p<0.05$) than controls (7.94±2.19 pg/mL). There was no significant change in serum levels of IL-10 in d-IBS patients (5.75±2.1 pg/mL) as compared to controls (5.84± 1.9 pg/mL).
Conclusion: This study indicates that mild inflammation is involved in d-IBS patients as pro-inflammatory cytokines were increased and no change in anti-inflammatory cytokine observed.

LI20

A prospective study of pulmonary manifestations in inflammatory bowel disease

Devendra Desai,[1] Samir Patil,[1] Zarir Udwadia,[2] Shailendra Maheshwari,[3] Philip Abraham,[1] Anand Joshi[1]
Divisions of Gastroenterology,[1] Chest Medicine,[2] and Radiology,[3] P D Hinduja National Hospital, Mumbai 400 016, India

Background: Although pulmonary abnormalities have been recognized in patients with inflammatory bowel disorders (IBD), their prevalence and clinical significance is not known.
Aim: To study the prevalence and clinical significance of pulmonary abnormalities in patients with IBD.
Methods: Ninety-five non-consecutive patients with IBD (12 Crohn's disease, 83 ulcerative colitis; age mean 41.9 (SD 13) years; 47 women) were prospectively studied from January 2007 to March 2010. Pulmonary function tests (PFT) and high-resolution CT (HRCT) chest were performed in them. PFT were compared to those in 270 healthy (control) subjects matched for age, sex and smoking status.
Results: Twenty-seven (28.5%) patients and 11 (4%) control subjects had abnormal PFT ($p<0.0001$). Small airway obstruction was seen in 18 patients, restrictive defect in six and mixed defect in three. Twenty-one (22%) patients had abnormal HRCT findings: bronchiectasis and nodules (9 patients each, including one with nodules who later developed active tuberculosis after infliximab therapy), parenchymal bands (8), mediastinal lymphadenopathy (5, including two with tuberculosis on histology and culture), emphysema (5), brochiolitis (2), pleural effusion or thickening (2), pericardial effusion (2), patchy consolidation (1), ground-glass opacities (1) and lung metastasis (1). Three patients had symptoms (1 asthma, 2 cough).
Conclusion: PFT and HRCT chest showed abnormality in about one-quarter of patients with IBD. Majority of patients with these abnormalities were asymptomatic. Incidental detection of tuberculous lymphadenopathy may suggest a role for HRCT in patients with IBD who are planned for biological therapy in areas endemic for tuberculosis.

LI21

Colorectal neoplasms in longstanding ulcerative colitis—outcomes of prospective surveillance using magnification chromo colonoscopy

C Ganesh Pai,[1] *B M Shiva Kumar,[1,3] Laxmi Rao,[2] Ganesh Bhat,[1] Deepak Suvarna,[1] K Satyamoorthy[3]*
Departments of [1]Gastroenterology, and [2]Pathology; Kasturba Medical College; [3]Manipal Life Sciences Centre; Manipal University, Manipal 576 104, India

Background: Despite increasing recognition of ulcerative colitis (UC) in India in recent decades, there is scarce data on the occurrence of colorectal neoplasia (CRN) in this disease and surveillance for this complication is not routinely practiced.
Aim: To assess the outcomes of a surveillance program for CRN in patients with UC.
Methods: UC patients at high risk of CRN prospectively underwent magnification chromo colonoscopy. Biopsies were done from flat mucosa—targeted according to abnormal pit pattern or randomly—as well as from gross lesions.
Results: Only 24 (18%) of 133 eligible patients underwent 34 surveillance examinations over 33 months. They were aged 27–75 (median 44) years; 16 (66.7%) were male. The duration of UC ranged 7–20 (median 9.5) years. Fourteen (58.3%) had extensive colitis. Neoplastic lesions were detected in seven (29.2%) on initial screening—low grade dysplasia (LGD) in 4 (16.7%, flat 3, adenoma-like polyp 1),

high grade dysplasia (HGD) in 3 (12.5%, sessile polyp 2, ulcer 1). Ten follow up surveillance colonoscopies in 8 patients revealed 3 (12.5%) new LGD and 1 (4.2%) adenocarcinoma (progressing from previous HGD). Of the three with HGD on initial screening, one accepted proctocolectomy immediately, one underwent the surgery after developing adenocarcinoma, and one refused surgery, later dying of intestinal perforation.
Conclusions: Pre-malignant lesions are common in Indian patients with UC but acceptance of surveillance and of directed therapy for detected neoplasia are suboptimal. Screening for neoplasia combined with health education should be standard of care in longstanding UC.

GI Motility

GIM1

Urinary bladder dysfunction in patients with irritable bowel syndrome

Nitesh Pratap, *Manu Tandan, D Nageshwar Reddy*
Asian Institute of Gastroenterology, 6-3-661, Somajiguda, Hyderabad 500 082, India

Background: Irritable bowel syndrome (IBS) and urological disorder (interstitial cystitis [IC]) have been observed to occur concomitantly in clinical studies. IC is a clinical syndrome of urinary urgency, frequency, pelvic pain or a combination of all these without an obvious identifiable cause.
Aim: The aim of the present study was to investigate the prevalence of bladder symptoms in patients with IBS and to look for difference in distribution in the three subtypes of IBS.
Methods: The 70 patients diagnosed as IBS based on Rome III criteria at Asian Institute of Gastroenterology between January 2011- July 2011 were included. They did not have any urological disease. The patients were given IBS questionnaire and Oleary and Sants interstitial cystitis symptoms and problem questionnaire which has a IC symptom index [SI] and IC problem index [PS].
Results: Thirty-eight patients had IBS diarrhea, 26 had IBS constipation and 6 had IBS mixed type. Of these patients bladder symptoms were present in 48 patients (68%). Fourteen patients had increased daytime frequency of urination, 36 patients had nocturia, 10 patients had urgency and 24 had bladder pain. The prevalence of urinary symptoms in different subtypes of IBS 84% in IBS- C, 63% in IBS- D and 33% in IBS M. The patients who scored more than 10 in SI were 4 and 8 on PS were 4. IBS patients are more likely to experience urinary symptoms like daytime frequency, nocturia and bladder pain which might be due to a common underlying pathophysiology.

GIM2

Extra digestive manifestation of irritable bowel syndrome

Nitesh Pratap*, Rajesh Gupta, Manu Tandan, D Nageshwar Reddy*
Asian Institute of Gastroenterology, 6-3-661, Somajiguda, Hyderabad 500 082, India

Introduction: Irritable Bowel Syndrome (IBS) is a condition that is widely prevalent and affects patients physically, psychologically, economically and socially. IBS is associated with other condition like somatic pain syndrome, organic disease and psychiatric disorder. These non gastrointestinal symptoms are associated with higher rates of anxiety and depression in IBS patients and reduced quality of life. The aim of the study was to study the prevalence of extra digestive disorders in patients with IBS.
Methods: Seventy patients (M:F=60:10) who presented to Asian Institute of Gastroenterology, Hyderabad between June 2010 and July 2011 and were diagnosed as IBS based on Rome III criteria were enrolled in the study. They completed a questionnaire on symptoms of IBS and comorbidities. The comorbidities that were studied included pain outside gastrointestinal tract (headache, backache, generalized body ache, chronic fatigue) dysmenorrhea and psychiatric disorders.
Results: Musculoskeletal complaints were seen in 44 out of 70 IBS patients. Of these 22% had headache, 37% had low backache, 57% had generalized bodyache and 63% had chronic fatigue. Four out of 10 female patients had pain during menstrual cycle. Psychiatric disorders were seen in around 50% of patients. Depression was present in 57%, anxiety in 65% and binge eating in 37%. The distribution of the comorbidities in the three subgroups of IBS constipation, IBS diarrhea and IBS-mixed was similar.
Conclusion: IBS patients are characterized by frequent somatic and psychiatric comorbidities.

GIM3

Defecation frequency and stool form in the general population in coastal eastern India: a prospective study

Manas Kumar Panigrahi,[*] Sanjib Kar,[*] Bijay Misra,[*] Sandeep Kumar Panigrahi,[**] Chittaranjan Panda,[*] Haribhakti Seba Das,[*] ***Shivaram Prasad Singh***[***]
[*]Departments of Gastroenterology,[**] P S M, S C B Medical College, Cuttack 753 007, India, [***]Kalinga Gastroenterology Foundation, Bajrakabati Road, Cuttack 753 001, India

Background: There is no published data on the defecation frequency and stool form in the general population from India.
Objective: The study was undertaken to establish the defecation frequency and the form of the stools in the general adult population in coastal Eastern India.
Methods: The study population consisted of apparently healthy attendants of patients attending a gastroenterology clinic in Cuttack, Orissa from January 2011 to July 2011. After obtaining consent, a fixed questionnaire was filled up. Bristol stool scale form was used to determine the type of stool.
Results: The study subjects consisted of 800 attendants who consented to participate in the survey. The mean age was 42 years and 62.5% were males. 80% of the participants had average stool frequency of 2 times/day and majority (73%) of them had soft and firm stool consistency. Bristol stool scale score 4 was found in 80% males and 48% females. 60% of the non-vegetarians had Bristol score of 2 and 3. Bristol score of 5 and 6 were seen in 94% of study population who were having stressful lifestyles. Lactose intolerance was observed in 38% of the study population.
Conclusions: Most people in coastal eastern India have soft and formed stool consistency and stool frequency of 2 times/day. There is significant association between sex of subject, exercise, dietary pattern and stress and the consistency/frequency of stools. The conventional norm of a regular once daily bowel habit is actually a minority practice.

GIM4

Colonic transit in patients with irritable bowel syndrome and its correlation with Bristol stool score

Anumeet Singh, Anupam Mahapatra, ***Hardik Parikh****, Prashant Dhore, Akash Shukla, Shobna Bhatia*
Seth G S Medical College, K E M Hospital, Mumbai 400 012, India

Background: The accuracy of stool form and frequency in predicting whole-gut transit in patients with irritable bowel syndrome is not well established. Symptom profile of irritable bowel syndrome (IBS) and stool frequency in India are different from those in developed countries. We recorded stool consistency (using Bristol Stool Form Score [BSFS]), colonic transit time (CTT) (using barium pellets) in patients with IBS, and correlated these with symptoms of IBS.
Methods: Institutional ethics committee permission was taken and written informed consent obtained from patients. We studied 26 (mean age 35.19, male 23) patients with IBS diagnosed by Rome III criteria. Patients were classified as constipation or diarrhea predominant IBS. After recording BSFS for 7 days, patients underwent CTT. Twenty barium pellets were given in 2 capsules at 0, 9 and 18 h. X-ray abdomen and pelvis were done at 27 h. Total CTT was calculated by the sum of three segmental CTT values (right-sided, left-sided and recto-sigmoid) at 27 h. Analysis was done by chi square test and Pearson's coefficient on SPSS 16.0 software.
Results: Seventeen patients had C-IBS. Mean CTT of all patients based on X-rays at 27 h X-rays was 9.1 (5.5) h. BSFS significantly correlated with the type of IBS (p= 0.000), but not with CTT. There was no correlation of type of IBS with CTT. Stool frequency per day showed negative correlation with CTT (p=0.012, R=−0.484).
Conclusions: BSFS correlates with the sub-type of IBS but not with CTT. Stool frequency correlates with CTT.

Liver—Portal Hypertension

LP1

Non-cirrhotic portal hypertension: a long term follow up study

Arunkumar Krishnan, *V Arul Selvan, Siva Subramanian, V Jayanthi*
Department of Gastroenterology and Hepatology, Stanley Medical College Hospital, Chennai 600 108, India

Background: Non-cirrhotic portal hypertension (NCPH) includes extra hepatic portal vein obstruction (EHPVO) and non-cirrhotic portal fibrosis (NCPF). The natural history of NCPH is not clear. Aim of the study to determine prospectively the changes in the portal venous system in patients with NCPH.
Method: Patients with a diagnosis of NCPF and EHPVO registered since 2001 were serially followed at an yearly interval for changes in liver size, its echotexture, and in the intra and extrahepatic portal venous system. Baseline demographic details, LFT, and comorbid illness including virological profile were noted. Patients with comorbid illness and those with known etiology of cirrhosis were excluded from the study.
Results: There were 34 patients with NCPF (M:F 1:1.8) and 30 patients with EHPVO (M:F ratio 1.6:1). The mean age was 24.9 yrs and 41.2 yrs respectively. During follow up, 20 out of 34 and 16 out of 30 patients with NCPF and EHPVO respectively had no progression of disease. Fourteen patients with NCPF progressed to cirrhosis over a mean period of 5.21 years. Eight patients developed

ascites and required diuretics. Fourteen patients with EHPVO progressed to NCPF over the mean period of 8.6 years, 12 patients further progressed to cirrhosis over a mean period of 5.1 years. Overall 40% of patients with EHPVO progressed to cirrhosis over a mean period of 13.7 years.
Conclusion: NCPH is a spectrum wherein EHPVO progresses to NCPF and further to cirrhosis over a period of 13.7 years at least in a proportion of patients.

LP2

A prospective study of patients with spontaneous bacterial peritonitis for 18 months

R Baijal, H R Praveenkumar, Mayank Jain, ***Deepak Gupta****, Nimish Shah*
Department of Gastroenterology, Jagjivanram Hospital, Maratha Mandir Marg, Mumbai Central, Mumbai 400 008, India

Aim: To assess the morbidity and mortality in patients with spontaneous bacterial peritonitis.
Methods: Patient with first episode of documented spontaneous bacterial peritonitis were included and followed up for 18 months. Baseline demographic details recorded, followed up for every 3 months and details regarding investigations and hospital admission were recorded.
Results: Forty-seven patients with spontaneous bacterial peritonitis (both culture positive and culture negative) were included in the study (44 male and 3 female) and 10 patients expired at the time of admission with hospital stay of 18+/−7 days. The cause of cirrhosis was 40 alcoholic, 6 viral, 1 autoimmune cirrhosis. Mean MELD score was 16+/−4. In remaining 37 patients 19 (17 alcoholic and 2 hepatitis B) required readmission for GI bleed −11 (within 7+/−2 months), hepatic encephalopathy-6 (4 within 3 months and 1 after 15 months), refractory ascites −4 (within 10+/−2 months), repeat SBP 4 (within next 6 months) in next 18 months follow up. At 3 months 3 patients (alcoholic) expired all due to hepatic encephalopathy and renal dysfunction 3 (alcoholic) more expired in next 6 months (2 -repeat SBP with renal dysfunction and 1 - GI bleed), in next 12 months no further mortality and 1 expired at 15 month (due to hepatic encephalopathy). Mortality at first hospital admission was 10 (21.2%), at 3 months was 13 (27.6%), at 6 months was 16 (34.0%) and at 15 months was 17 (36%). All mortality in alcoholics group and in severe liver disease group (9 patients CTP>9).
Conclusion: Mortality of SBP patients on follow up was 34% in next 6 months and 36% at 15 months.

LP3

Cirrhosis in young vs. old comparative analysis of clinical profile

V S Hemamala*, M A Aravind, Prem Kumar, Caroline Selvi, Ratnakar Gini, P Padmanabhan, Mohammed Ali*
Medical Gastroenterology,

Background: Cirrhosis is a generally a disease of middle and old age. Incidence of cirrhosis in young patients (less than 35 years) is less than 5% in west and around 35% in India. This study aims to find the etiology and clinical presentation of young cirrhotics in south Indian population.
Methods: Retrospective analysis of 130 cirrhotic patient's charts were analysed and clinical profile of young and adult cirrhotics were compared.
Results: A total of 130 patients were admitted with cirrhosis out of which 21 patients (16%) were less than 35 years. The male to female ratio was higher in adults (3.54:1) compared to young (1.62:1). Etiology was similar in both groups but alcohol was more common in older patients (66.9%) compared to younger patients (38%). Hepatitis B was similar in both groups (11.9% vs. 9.5%). There were more number of cryptogenic cirrhosis in young (47.6%) than in older patients (19.2%). There were 2 patients with hepatitis C in older group and one patient with autoimmune etiology in the young. Most common clinical presentation in both groups were ascites and hematemesis. But gastrointestinal bleed was more common in young (66%) compared to older patients (33%). Grade 4 varices were more common in the young (19% vs. 2.7%). Child C category was more common in older age group.
Conclusion: Cirrhosis is not uncommon in the young. Gastrointestinal bleeding is more common in the young. Alcoholic etiology is less common in the young and there are significant number of cryptogenic cases.

LP4

Role of ammonia in hepatic encephalopathy

Kapil Sharma*, Manisha Dwivedi, Sri Prakash Misra, Alok Mishra, Sanjay Pant, Sushil Narang, Sameer Gupta, Ajay Kumar*
Department of Gastroenterology, Moti Lal Nehru Medical College, University of Allahabad, Allahabad 211 001, India

Background: Minimal hepatic encephalopathy (MHE) is common in cirrhosis but it's pathophysiologic basis remain undefined. We evaluated whether the presence of MHE was associated with ammonia level.

Methods: In this study 273 patients of chronic liver disease with hepatic encephalopathy (HE) were included. A neuropsychological test battery was performed and blood taken for ammonia. Ammonia level was estimated by an enzymatic method (Randox Lab Ltd. UK) in heparinised plasma.
Result: There were 11 patients (4.03%) in HE grade 1, 45 patients (12.06%) were in HE grade 2, 103 (33.77%) patients presented with HE grade 3 and 114 (41.87%) patients presented with HE grade 4. Total 35 patients of HE were evaluated for ammonia level in arterial blood within 24 h of hospital admission. The average serum ammonia levels in the four stages of HE in our study were 50.48, 108.5, 113.85 and 86.58 respectively.
Conclusion: There was no correlation between arterial ammonia level and severity of hepatic encephalopathy in present study.

LP5

Evaluation of treatment with carvedilol in comparison to propranolol in primary/secondary prophylaxis of gastroesophageal variceal bleeding

***Vivek Agarwala**, G Prakash, R Singh, P Paliwal, S Tiwari, S Juber, Vivudh P Singh, B P Priyadarshi, A C Gupta, Arati Lalchandani, Navneet Kumar*
K P S Postgraduate Institute of Medicine, G S V M Medical College, Swaroop Nagar, Kanpur, India

Background: Carvedilol, a newer nonselective β-blocker with additional anti-α1 adrenergic and antioxidant activity can be used as an effective alternative to propranolol in portal hypertension to prevent variceal bleeding.
Methods: It was a prospective RCT in which 148 patients of chronic liver disease with portal hypertension with gastroesophageal varices, with or without variceal bleeding, with or without EBL, were enrolled. Patients were randomized to receive either carvedilol or propranolol. Patients were reassessed at or after 6 months to evaluate for incidence of primary variceal bleed or rebleed, changes in UGI endoscopy and ultrasonographic features of portal hypertension.
Results: Among the total of 102 patients selected for intention to treat and safety analysis, 54 (36 for 1y/18 for 2y) received carvedilol and 48 (32 for 1y/16 for 2y) received propranolol. Out of 36 in carvedilol group, 3 patients had a first variceal bleed in a follow up period of 6 months compared to 10 out of 32 in propranolol group (8.33% vs. 31.25%; *p*-0.0284). Among 21 patients in carvedilol group, 3 had rebleeding compared to 10 out 22 in propranolol (14.28% vs. 45.45%; *p*-0.0452). The incidence of adverse events during the study was similar in the two groups except a little higher but statistically insignificant ($p>0.05$) incidence of hypotension in the carvedilol group.
Conclusion: Carvedilol can safely be used as a significantly better alternative to propranolol in primary/secondary prophylaxis of gastroesophageal variceal bleeding.

LP6

Acoustic radiation force impulse imaging as noninvasive marker of hepatic fibrosis

***Daksh Khurana**, Varadaraj P Gokak, M A Mateen, Anuradha Sekran, Rajesh Gupta, P N Rao, Manu Tandan, D Nageshwar Reddy*
Asian Institute of Gastroenterology, 6-3-661, Somajiguda, Hyderabad 500 082, India

Background: Acoustic radiation force impulse imaging (ARFI) is a novel non invasive technique studying the localized mechanical properties of tissue by utilizing short, high intensity acoustic pulses (shear wave pulses) to assess the mechanical response (tissue displacement), providing a measure of tissue elasticity.
Aims: The aim of this study is to investigate the feasibility of ARFI imaging as a non-invasive method for the assessment of liver fibrosis compared to liver biopsy scores.
Method: A prospective comparison study of ARFI elastography (Virtual Touch Imaging, ACUSON S2000 Ultrasound Unit, Siemens) in a consecutive series of patients who underwent liver biopsy for assessment of liver stiffness was measured in meters per second. Mean ARFI velocities were compared with Modified Ishak scores and Brunt score for fibrosis in liver biopsy findings.
Results: Twenty patients with suspected chronic liver disease hepatitis C (HCV)=3, hepatitis B (HBV)=5, chronic hepatitis=6 and NASH=6 underwent ARFI and liver biopsy. Median age among hepatitis patients is 32 and 38 among NASH. There were 13 males among hepatitis group and 6 among NASH. The Pearson correlation coefficient between ARFI mean and stage of fibrosis among hepatitis group is 0.67 ($p<0.05$). The median ARFI ranged from 1.1 to 2.05. Area under the receiver operating characteristic curve is 52.9%.
Conclusion: ARFI has a strong correlation with the fibrosis stage of Modified Ishaks score in chronic liver disease.

LP7

Correlation between Child's score and liver stiffness measurement by acoustic radiation

***Zaheer**, Daksh Khurana, Varadaraj P Gokak, M A Mateen, Rajesh Gupta, P N Rao, D Nageshwar Reddy*
Asian Institute of Gastroenterology, 6-3-661, Somajiguda, Hyderabad 500 082, India

Background and Introduction: Liver biopsy is the gold standard for assessment of liver fibrosis; however it is invasive and has drawbacks. Among various non invasive imaging methods, acoustic force impuse imaging technology (ARFI) is newer non invasive way of assessing liver fibrosis. More the fibrosis, more is the severity of disease.
Aim: To correlate ARFI with severity of liver disease by Child-Pugh Turcott Score.
Methods: One hundred patients of cirrhosis of liver were assessed by ARFI imaging. Values were expressed in mt/sec. All the patients were assigned Child's class and MELD score was calculated as well.
Results: Of Hundred patients 78 were male. Mean age was 47.5 years. Most common etiology for cirrhosis was alcohol (52), HBV (30). Thirty-two patients were in Child's A and mean ARFI value was 1.70 mt/sec. Thirty-seven patients were in Child's B, mean ARFI value was 2.5 mt/sec. Thirty-one were in Child's C, mean ARFI was 3.6 mt/sec. MELD was less than 20 in 81 patients and the mean ARFI value was 2.1 mt/sec.
Conclusion: ARFI imaging is a non-invasive way of assessing liver fibrosis and correlates well with Child's status.

LP8

JAK2 V617F mutation is not associated with hepatic venous outflow tract obstruction and extrahepatic portal venous obstruction in Indian patients

Pankaj Kumar*, Swapnil Mishra, Praveer Rai, Rakesh Aggarwal*
Department of Gastroenterology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow 226 014, India

Background: Hepatic venous outflow tract obstruction (HVOTO) and extrahepatic portal venous obstruction (EHPVO) are more frequent cause of portal hypertension in India than in other parts of world. These conditions result from chronic splanchnic venous thrombosis. In western countries, overt or occult myeloproliferative disorders have been detected in 40% to 50% and 30% to 35% in patients with hepatic and portal venous thrombosis, respectively. V617F mutation in the JAK2 gene is a sensitive and specific marker for chronic myeloproliferative disorders. We therefore looked for the frequency of this mutation in Indian patients with HVOTO and EHPVO.
Method: Blood specimens were collected from patient of HVOTO and EHPVO (diagnosed using Doppler USG findings of hepatic and/or IVC stenosis/thrombosis for HVOTO and portal cavernoma for EHPVO) in EDTA. DNA was extracted using commercial columns. For identification of JAK2 V617F mutation, two separate PCR technique based on the use of allele specific primers were used. PCR products were analyzed by gel electrophoresis. Specimen from two patients with myeloproliferative disorder acted as positive controls.
Result: A total of 34 patients with HVOTO (median [range] age=32 [21–44] years; 15 male) and 47 with EHPVO (23 [17–70] years; 21 male) were studied. None of the 81 patients was found to have V617F JAK2 mutation using either of the two detection methods.
Conclusion: JAK2 mutation is not found in Indian patients with HVOTO or EHPVO. This indicates that hypercoagulability associated with chronic myeloproliferative disorders is unlikely to be etiological factor for these diseases in our population.

LP9

Incidence of vascular liver disorders with a special emphasis on idiopathic non cirrhotic intrahepatic portal hypertension: a hospital based prospective study

Ashish Goel,[1] *Kadiyala Madhu,*[1] *Uday Zachariah,*[1] *R Jeyamani,*[1] *B Ramakrishna,*[2] *N K Shyam Kumar,*[3] *John Jude,*[4] *C E Eapen*[1]
[1]Departments of Hepatology, [2]Pathology, [3]Radiology and [4]Microbiology, Christian Medical College, Vellore 632 004, India

Introduction: Idiopathic non-cirrhotic intrahepatic portal hypertension (NCIPH) and extrahepatic portal venous obstruction (EHPVO) are vascular disorders especially seen in India. The aim of this study was to evaluate the contribution of vascular etiology in patients with portal hypertension.
Methods: Consecutive new patients with portal hypertension (presence of varices or high gradient ascites) seen in our department, from July 2009-July 2010, were prospectively enrolled. While NCIPH was diagnosed as per described diagnostic criteria, Budd-Chiari syndrome (BCS) and EHPVO were diagnosed by Doppler scan.
Results: Six hundred and ten patients (age: 45±13.5 years; males: 81%; 22 with age <15 years) with portal hypertension were enrolled. Socioeconomic categories of study patients (n= 473) were- upper class (11%), upper middle (51%), lower middle (20%), upper lower (18%) and lower (0.4%). Most common etiology after non-invasive tests was cryptogenic chronic liver disease (204/588 adult patients). 16/40 patients of cryptogenic chronic liver disease who underwent liver biopsy were diagnosed to have NCIPH. 4/6 pediatric patients with cryptogenic liver disease underwent liver biopsy and NCIPH was diagnosed in 1 patient. 10 NCIPH patients had hepatic venous pressure gradient measured (median 6.5, range:1–12 mmHg; 3 patients had <5 mmHg). Of 21 adult BCS

patients- 11 had blocked hepatic veins, 4 had inferior vena cava block and 6 had combined block. EHPVO was seen in 10 pediatric and 20 adult patients.
Conclusion: 11% patients with portal hypertension were secondary to vascular disorders. In a year, 17 new patients with NCIPH were diagnosed.

LP10

Endoscopic ligation versus medical management to prevent rebleeding in esophageal varices

B P Priyadarshi, ***G Prakash****, J S Kushwaha, R Giri, V Agarwala, R K Singh, P Paliwal, R Rohini, A Srivastav, R Sharma, M P Singh, S Tiwari*
L L R Hospital, G S V M Medical College, Swaroop Nagar, Kanpur, India

Objective: To compare endoscopic ligation with combined treatment with propranolol plus isosorbide mononitrate to prevent recurrent esophageal variceal bleeding.
Methods: It was a prospective randomized controlled study conducted at L L R Hospital, G S V M Medical College, Kanpur. Eighty-six patients between the age group 16–75 yrs who had endoscopically diagnosed variceal hemorrhage within the past 24 h and who gave informed consent for the study were included in the trial. Patients with Child-Pugh score greater than 12, advance HCC, bleeding from fundal varices, earlier TIPS, bradycardia or AV block and a known hypersensitivity to drug were excluded from the trial. Restratified randomization was done according to the severity of liver failure and whether there was a history of previous variceal bleeding.
Results: Out of 86 patients randomized, 63 underwent EVL and 23 received medical treatment. In period of 2.5 years, 39 out of the 63 (61.90%) patients undergoing EVL and 7 out of 23 (30.43%) undergoing medical treatment had rebleeding. Twenty-two out of 63 (34.92%) patients undergoing EVL and 3 out of 23 (13.04%) undergoing medical treatment died due to variceal bleeding.
Conclusion: The combination therapy with propranolol plus isosorbide mononitrate has been found to be better treatment modality compared to endoscopic variceal ligation in prevention of recurrent esophageal variceal bleeding, with fewer treatment failure and mortality.

LP11

Effect of VSL#3 (probiotic) on endotoxin induced portal hypertension

Nidhi Chaudhary*, Rashmi Babbar, M Fahim, Shiv Kumar Sarin*

Background and Aims: Probiotics are beneficial and helpful in enhancing host immunity to infections. They have also been suggested to influence splanchnic vasodilatation and portal hypertension through modulation of cytokine release. Endotoxin is specific stimulant and agonists to interact with extra cellular proteins: LPS binding protein (LBP), CD14 and, myeloid differentiation protein 2 (MD-2) to induce a signalling cascade leading to the activation of NF-kB and production of proinflammatory cytokines. May be it leads to cause induced portal hypertension in endotoxin induced portal hypertension (EIPHT) rabbit but it is less clear. We compared the efficacy of VSL#3 and probiotics on portal hemodynamics and of the probiotic-induced TLR4 modulation and cytokine response in a previously described rabbit model of endotoxemia induced PHT.
Methods: Sixty one rabbits (1.5–2 kg) were included in the study and were divided into sham (n=27) and experimental (n=34) groups. To induce PHT, the rabbits were given chronic injection of lipopolysaccharide (LPS) 4 mg/mL/1 kg body weight by an indwelling cannula into the gastrosplenic vein. The sham group was divided in to sham (n=10), sham probiotic (n=9) and sham norflox (n=8) and saline was injected in place of LPS. The experimental groups were treated with endotoxin LPS for one month (n=12), oral probiotics (VSL#3,250 billion bacteria, oral gavage) for 2 months (n=11) and antibiotic (norflox 60 mg) for 1 week (n=11). The animals were scarified at 1 and 6 month time period. The development of EIPHT model was characterized by measurement of portal pressure and mean arterial pressure. Besides liver histopathology, the tissue level RNA of CD14, TLR4 and various cytokines including tumor necrosis factor (TNF)-α, interleukin (IL)-6, and TGFβ ribonucleic acid were measured by Realtime PCR.
Results: The mean portal pressures in the EIPHT experimental group was significantly higher as compared to sham operated group at one (16.9±1.37 vs. 9.6±1.096 mmHg, $p<0.05$) and 6 months (18.38±1.05 vs. 9.79±2.33 mmHg, $p<0.05$) respectively.
There was a reduction in mean portal pressure of probiotic experimental group (12.04±1.16 vs. 9.18±1.20 mmHg) as compared to EIPHT group (16.9±1.37 vs. 9.6±1.096 mmHg) at one month. Same pattern was found in 6 months probiotic (14.8±1.80 vs. 9.9±1.42 mmHg) as compare to EIPHT (18.38±1.05 vs. 9.79±2.33 mmHg).
Significantly slight reduction in mean portal pressure of norflox group (13.2±2.6 vs. 9.01±1.09 mmHg) as compare to EIPHT (16.9±1.37 vs. 9.6±1.096 mmHg) was seen at one month. Same patter was seen in 6 month norflox (15.95±1.39 vs. 9.065±1.25 mmHg) as compare to EIPHT (18.38±1.05 vs. 9.79±2.33 mmHg) six month.
Expressions of TLR4 (0.605±0.41 vs. 0.041±0.04) and CD14 (1.148±0.55 vs. 0.004±.003) in 6 month EIPHT was significantly higher than 6 month sham group ($p<0.05$).

Significantly in probiotic low expressions of TLR4 (0.816± 0.122 vs. 0.002±.003) and CD14 (0.097±0.03 vs. 0.030± 0.04) were seen as compared to 6 month EIPHT ($p<0.05$). This may be due to modulation of TLR4 by probiotic. But, expressions of TLR4 (0.352±0.37 vs. 0.399±0.45) and CD14 (0.491±0.24 vs. 0.588±0.68) in norflox 6 month group was low but not significant (0.097±0.03 vs. 0.030±0.04).

The expressions of the cytokines TNF-α (1.142±1.38 vs. 0.16±0.26) and TGFβ (1.111±1.24 vs. 0.11±0.08) were remarkably higher in the 6 months EIPHT as compared to TNF- α (0.50±0.9 vs. 0.023±0.016), TGFβ (0.72±1.05 vs. 0.003±0.002) of probiotic and TNF-α (1.685±1.5 vs. 1.254±1.27), TGFβ (0.197±0.24 vs. 0.013±0.01) of norflox 6 month group respectively. In probiotic the expressions of TNF-α and TGFβ decreases as compared to EIPHT but not significant.

Conclusion: The expression of TLR4/CD14 and proinflammatory cytokine in EIPHT was significantly increased and this may be associated with the raised portal pressure. Orally administered probiotic prevent liver and reduction in the portal pressure. Thus, it is possible that probiotic is regulating the TLR4/CD14 pathway and the consequent lower levels of cytokine expression are due to probiotic therapy.

LP12

An interesting case of hepatopulmonary syndrome–case report

Malarvizhi, *Shafique, Anand, Arvind, Hemamala, Senthilkumar, Radha, Biggs Saravanan, R Vinodh, Kani Sheikh, Premkumar, Caroline Selvi, Ratnagar Kini, P Padmanabhan, Mohammed Ali*
Department of Medical Gastroenterology, Madras Medical college Hospital, Chennai 600 003, India

Introduction: Hepatopulmonary syndrome is an important complication of chronic liver disease occurring in 16.24% of patients. It is characterised by increase in alveolar- capillary gradient, with or without hypoxemia, due to intrapulmonary vasodilation. The course of the disease is progressive and associated with increased mortality and morbidity. There is no effective medical treatment and liver transplantation may offer a way of hope. Here we report a young boy who developed hepatopulmonary syndrome following cirrhosis

Case summary: Fifteen year old boy presented with breathlessness for 5 yrs which worsened on upright posture. There was history of recurrent UGI bleed for 3 months. There was also history of jaundice 2 yrs ago. On examination patient had central cyanosis, pandigital clubbing. P/A shows liver span of 10 cms and moderate splenomegaly. Chest X-ray—normal, no evidence of chamber hypertrophy and P F T shows moderate restrictive pattern. UGI scopy revealed esophageal varices Gr1-11. USG abdomen revealed evidence of cirrhosis with portal hypertension. CECT abdomen shows splenomegaly, dilated splenic and portal vein. Splenorenal and gastric collaterals+. ECHO revealed Normal AV/VA concordance septum intact. mPAP17 mmHg, PHT LV function—normal. Hence contrast ECHO done using peripheral IV injection of agitated saline to produce microbubbles {10–15micron} which revealed delayed appearance of microbubbles [3–6 beats]in left side of heart suggestive of intrapulmonary shunting which was characteristic of hepatopulmonary syndrome. Patient was treated symptomaticaly and prepared for liver transplantation.

Conclusion: This case is presented because of its rarity and for its florid documented findings in contrast ECHO.

LP13

To compare the accuracy of leucocyte esterase reagent strip test and ascitic fluid lactoferrin level for the rapid diagnosis of spontaneous bacterial peritonitis

A D Galle,* *S K Sinha,** *C K Nain,** *Pallab Ray,*** *K K Prasad,** *K Singh**
*Departments of Gastroenterology and **Microbiology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Objective: To assess the accuracy of leucocyte esterase rapid (LER) reagent strip test for the rapid diagnosis of spontaneous bacterial peritonitis (SBP) in cirrhotic patients and to compare the accuracy of LER strip test with ascitic fluid lactoferrin assay (AFLAC) for the rapid diagnosis of spontaneous bacterial peritonitis.

Methods: We prospectively studied patients with liver cirrhosis and ascites (between July 2009–December 2010) for rapid bedside diagnosis of SBP. All patients underwent abdominal paracentesis, and the ascitic fluid was processed for cell count, LER strip (QDX urine Test 10) test, AFLAC and culture. The diagnostic accuracy of LER strip test and AFLAC was compared using manual cell count as gold standard. Statistical analysis was done with SPSS version 16.

Results: Of the 100 patients, mean age 47.40±9.95 (range 21 to 78), 89 males; alcohol was the most common (79 of 100; 79%) cause of liver cirrhosis. LER strip test on ascitic fluid showed a high sensitivity and specificity for the diagnosis of SBP. Of the two cut-offs used, the grade 3 color cut-off (>125 polymorphonuclear leucocytes (PMNL)/μL) had a greater sensitivity (83.3%) but slightly lower specificity (98.7%) than the grade 4 color change cut-off (>500 PMNL/μL) (sensitivity: 33.3%, specificity: 100%). AFLAC cut-off value of 239.60 ng/mL provided a high sensitivity and specificity of for the diagnosis of SBP.

The comparative performances of both these tests showed that quantitative assay of AFLAC has higher sensitivity (100%) and NPV (100%) with respect to LER strip test for the diagnosis of SBP.
Conclusion: Both AFLAC and LER strip test could differentiate between SBP and the non-SBP patients with a high sensitivity and specificity. However LER strip testing of ascitic fluid is a rapid, cheap and sensitive bed side tool for the diagnosis of SBP.

LP14

Inhibitory control test, critical flicker frequency and psychometry tests in propofol sedation in upper gastrointestinal endoscopy in patients with cirrhosis

Praveen Sharma*, Shweta Singh,[*] Ajay Kumar, Manoj Kumar, Pankaj Tyagi, Hitendra Garg, Ramesh Kumar, Ashish Kumar, Shiv Kumar Sarin*
Departments of Hepatology and Anesthesia,[*] Institute of Liver and Biliary Sciences (ILBS), Vasant Kunj Marg, New Delhi 110 070, India

Background: Patients with cirrhosis who undergo endoscopy under sedation could be at risk of complications.
Objective: We assessed utility of inhibitory control test (ICT), critical flicker frequency (CFF) and psychometry in recovery of cognitive functions after endoscopy.
Methods: Consecutive patient with cirrhosis that underwent endoscopy under propofol underwent number connection test-A and B (NCT-A, B); digit symbol test (DST), line tracing test (LTT) and serial dotting test (SDT), CFF and ICT before and 2 h after endoscopy.
Results: Eighty patients enrolled, 50 with cirrhosis (43.4±10.2 yr, M:F 42:8) and 30 as control (43±10 yr, M:F 23:7). Of 50 patients with cirrhosis psychometric tests before and after endoscopy were [NCT-A (48.3±17.7 vs. 42.6±17.3 sec, p=0.001), NCT-B (85.7±40.1 vs. 90.2±37.0 s, p=0.18), DST (23.5±9.3 vs. 23.0±8.7, p=0.45), LTT (96.6±48.2 vs. 96.8±46.8 s, p=0.92), SDT (88.0±39.5 vs. 83.4±37.2 s, p=0.02)]. ICT target accuracy was lower in patients with cirrhosis compared with controls (88.4±5.6 vs. 95.6±2.1, p=0.01), whereas ICT lures were higher (18.3±4.2 vs. 10.2±2.8, p=0.01). Patients with cirrhosis showed a reduction of lures in the second evaluation after endoscopy compared with the first (18.3±4.2 vs. 17.1±4.3, p=0.003) but not of target accuracy (88.4±5.6 vs. 88.4±5.3, p=0.97). Control subjects did not show any change either in lures (10.2±2.8 vs. 10.3±2.1, p=0.65) or target accuracy (95.6±2.1 vs. 95.5±2.2, p=0.82). CFF in patients with MHE (38.4±1.8 vs. 38.6±1.5, p=0.3) and non MHE (40.6±2.2 vs. 40.8±2.2, p=0.6) did not show any difference after 2 h of endoscopy as in controls (41.9±2.4 vs. 42.1±2.0, p=0.3). Seventy patients (88%) preferred CFF, 40 (50%) preferred psychometry tests and only 30 (38%) preferred ICT.
Conclusions: ICT, CFF and psychometry test are useful tool to assess cognitive function recovery after propofol sedation in UGIE and CFF was preferred method for assessment.

LP15

Aspartate aminotransferase/platelet ratio index correlates with hepatic venous pressure gradient in patients of cirrhosis

Vipin Verma,[1] *Ashish Kumar,[3] Shiv Kumar Sarin[2]*
[1]Maulana Azad Medical College, Maulana Azad Medical College, Bahadur Shah Zafar Marg, Delhi Gate, Delhi 110 002, India; [2]Institute of Liver and Biliary Sciences (ILBS), Vasant Kunj Marg, New Delhi 110 070, India; [3]Sir Ganga Ram Hospital, Rajinder Nagar, New Delhi 110 060, India

Background: Hepatic venous pressure gradient (HVPG) is a prognostic marker in patients with cirrhosis. Complications of cirrhosis generally parallel with increase in HVPG. Because HVPG is expensive and invasive, a non-invasive marker to measure portal hypertension would be useful. Aspartate aminotransferase/platelet ratio index (APRI) is a good non-invasive estimator of hepatic fibrosis. Whether APRI could be used as non-invasive tool to measure portal hypertension has not been studied.
Aim: To assess the correlation between APRI and HVPG and to investigate the performance of APRI for the prediction of various complications of portal hypertension.
Methods: APRI was prospectively estimated in consecutive patients of cirrhosis. Patients with serum bilirubin ≥5 mg/dL, CTP >12, or with clinical diagnosis of acute-on-chronic liver failure were excluded. HVPG was measured the same day.
Results: Seventy-five patients were included in the study (median age 46 [range 20–70] yrs; 58 [77%] males). The etiology of cirrhosis was: viral 33 (44%), alcohol 11 (15%), and cryptogenic and others 31 (41%). Ascites was present in 22 (29%) patients. The median CTP score was 8 (range 5–12). Large esophageal varices were present in 38 (51%), small in 31 (41%), and none in 6 (8%). Nineteen (25%) patients were bleeders. The median HVPG was 16 (range 2–28) mmHg. The median APRI was 0.48 (range 0.07 to 3.17). There was significant correlation between HVPG and APRI (correlation coefficient [Spearman's rho] 0.350; p-value 0.002). The best cut-off of APRI, obtained by ROC curve to predict HVPG ≥12 mmHg (the threshold for variceal bleeding) was ≥0.406. APRI of ≥0.406 had a sensitivity of 73%, specificity of 70%, PPV of 87%, NPV of 48%, and diagnostic accuracy of 72% for predicting HVPG ≥12 mmHg.

Conclusion: APRI measurement correlates well with HVPG and it is a good non-invasive tool to predict risk of variceal bleeding.

LP16

Minimal hepatic encephalopathy: effect of rifaximin, probiotics and L-ornithine L-aspartate

***Sanjay Pant**, Manisha Dwivedi, S P Misra, Sushil Narang, Kapil Sharma*
Department of Gastroenterology, Moti Lal Nehru Medical College, University of Allahabad, Allahabad 211 001, India

Background and Aims: Minimal hepatic encephalopathy (MHE) is widely recognized entity in liver cirrhosis patients which significantly interferes with the normal functioning of daily routine activity and also impairs health related quality of life. We aimed at studying the effect of rifaximin, probiotics and LOLA individually in reversal of MHE by comparing it with no treatment group.
Methods: Two hundred and six cirrhotics were screened for MHE using neuropsychometric tests (NPTs) and/or critical flicker frequency (CFF). Of these 124 patients with MHE were randomized to receive rifaximin, probiotics, LOLA for two months and were compared to patients who were not given any treatment for MHE.
Results: Of the 206 cirrhotics, 124 (60.19%) had MHE. Intention to treat analysis showed patients who improved after giving treatment was 21/31, 22/31, 16/32 and 9/30 for LOLA, rifaximin, probiotic and no treatment groups respectively. CFF scores were statistically significant (p-value<0.05, CI=95%) for LOLA, rifaximin and probiotic as against no treatment. ANOVA showed LOLA to be most effective of the three drugs. MANOVA was used to compare multiple dependents (scores on different tests) and drug type. Multiple comparisons indicated that LOLA and rIfaximin are significantly different from probiotic and no treatment groups. Rifaximin was best in improving the results of abnormal NPTs.
Conclusion: Rifaximin, LOLA and probiotics are better than giving none of these in patients with MHE.

LP17

Comparitive randomized study on efficacy of losartan versus propranolol in lowering portal pressure in decompensated chronic liver disease

***A K Agasti,** A U Mahajan, P Jignesh, A Y Phadke, P J Nathani, Prabha Sawant*
Departments of Gastroenterology, and Cardiology, Lokmanya Tilak Muncipal Medical College and Hospital, Sion, Mumbai 400 022, India

Background and Aims: The role of losartan an angiotensin II receptor antagonist is promising in the medical management of portal hypertension. A randomized controlled trial to compare the efficacy of 4 weeks losartan versus propranolol on portal pressure measurement was carried out.
Methods: Thirty patients of Child B cirrhosis with large varices without any prior therapy for portal hypertension were randomized to either losartan (n-15) or propranolol (n-15) therapy for 4 weeks. Pre- treatment and post treatment HVPG measurement was carried out. Patients whose HVPG was reduced to <12 mm of Hg was taken as responders as per the standard definition.
Results: The reduction of WHVP and HVPG was more in losartan group (5.46±3.80 and 5.40±3.64 mm of Hg respectively) than propranolol group (3.26±1.43 and 3.33± 1.45 mm of Hg respectively) but difference was statistically not significant. A greater decrease in heart rate in propranolol arm as compared to losartan ($p<0.01$) however no correlation between decrease in heart rate and reduction of HVPG seen. The response in both treatment arms was similar [40%]. One patient although a responder in the losartan group bled after 2 months of follow up, the varices were small on endoscopy and did not require definitive therapy. The fall of MABP was more with losartan, however statistically insignificant. The response was better in alcohol related liver disease compared to other etiologies.
Conclusion: The effect of losartan was comparable to propranolol in reducing portal pressure in Child B chronic liver disease.

LP18

To study arterial ammonia, inflammatory mediators, S. endotoxins and magnetic resonance spectroscopy before and after treatment in minimal hepatic encephalopathy

***Lokesh Jain**, Barjesh Chander Sharma, Praveen Sharma,[±] Sunil Kumar Puri,[*] Shiv Kumar Sarin[±]*
Departments of Gastroenterology, and Radiology,[*] G B Pant Hospital, J L Nehru Marg, New Delhi 110 002, India, Institute of Liver and Biliary Sciences (ILBS),[±] Vasant Kunj Marg, New Delhi 110 070, India

Background: Minimal hepatic encephalopathy (MHE) represents the mildest form of hepatic encephalopathy (HE), with abnormal neuropsychologic findings. Inflammatory response may be important in the pathogenesis of MHE. On magnetic resonance spectroscopy (MRS),

improvement of metabolic ratios after liver transplantation suggests an important role of mI and choline in the development of MHE.
Aims: To study arterial ammonia, inflammatory mediators, S. endotoxins and MRS before and after treatment in MHE.
Methods: Sixty patients of MHE, were randomly assigned to two groups each of 30 patients. Gr. MHE-L was treated with lactulose for 3 months while Gr. MHE-NL did not receive any treatment. A. ammonia, TNF α, IL-6, IL-18, S. endotoxins and MRS was performed in all patients at baseline and at 3 months.
Results: After three months, (1) median A. ammonia, TNF α, IL-6, IL-18 and S. endotoxins levels significantly decreased (2) mI and cho increased and Glx decreased significantly in Gr. MHE-L ($p<.001$) compared to baseline, while no significant changes observed in Gr. MHE-NL patients.
Conclusion: A. ammonia, inflammatory mediators and S. endotoxins reduced and metabolic parameters improved significantly after treatment with lactulose in MHE patients. A. ammonia, inflammatory mediators and S. endotoxins correlated with higher grades of encephalopathy.

Liver—Viral Hepatitis

LV1

Efficacy of entecavir in chronic hepatitis B patients

***Gautam Ray**, Santanu Mondal*
B R Singh Hospital, Eastern Railway, Sealdah, Kolkata 700 014, India

Background: Entecavir is widely acclaimed as the future oral panacea drug for chronic hepatitis B [CHB] therapy. Indian data on its efficacy is scarce.
Methods: Twenty-five CHB patients [mean age 47 years, 18 males, 17 HbeAg+cases, 24 with compensated liver function] were treated with 0.5 mg or 1 mg entecavir [in previous lamivudine treated cases] in an open label trial from inception till end of study period [January 2009 to June 2011]. Eighteen patients were naíve, 3 and 4 were pre-treated respectively with peginterferon and nucleoside analogues. SGPT >1X ULN and HBVDNA level $>10^5$ in e+ve cases and $>10^4$ in e naíve cases were essential for treatment. DNA and SGPT levels were done at baseline, 6 months and 1 year of therapy [if present at 6 month] or 1 year after DNA negativity. Primary and secondary efficacy measures were DNA negativity and e seroconversion respectively.
Results: Median HBV DNA level at baseline was 5.6×10^6 [range 6700-5×10^8] copies/mL and SGPT 76.4+12.8 [range 50 to 102] IU/mL. After 6 months of therapy 24 [96%] patients were DNA negative which was sustained till the end of follow up [0.5 to 2.5 years, mean 1.7 years]. No patient had e seroconversion or HbsAg negativity. One patient was primary non responder, and SGPT normalised in all except this patient. There was significant improvement in the CTP score of the decompensated patient.
Conclusion: Entecavir shows good response in Indian CHB patients.

LV2

A study to analyse the awareness regarding hepatitis B in nursing staff

R Baijal,[1] H R Praveen Kumar,[1] Mayank Jain,[1] ***Deepak Gupta,**[1] Kamna Jain,[2] Jenisha Jain[2]*
[1]Department of Gastroenterology, Jagjivanram Hospital, Maratha Mandir Marg, Mumbai Central, Mumbai 400 008, India, [2]Department of Pediatrics, Choithram Hospital, Manik Bagh Road, Indore 452 014, India

Introduction: Hepatitis B is a major health problem all over the world and health care workers are at increased risk of contracting it. This questionnaire based study was conducted among nurses at two tertiary care centres in India to assess the awareness regarding hepatitis B.
Result: The awareness regarding the infectivity and diseases caused by the virus was low. Significant number of nurses believed blood and blood products alone transmitted hepatitis B. Only three fifths of the respondents knew that both vaccine and immunoglobulin should be administered to prevent vertical transmission. Nearly one quarter of the respondents did not know the correct vaccination schedule for hepatitis B and 30% had not received three doses of the vaccine. Sixty-one percent had never been tested or did not remember when they were last tested.
Conclusion: The awareness regarding hepatitis B was low. We would like to recommend vaccination for all new entrants in health care field and seminars and CME to promote hepatitis B awareness.

LV3

Clinical profile of HBV infection in antenatal women

***M Preethi**, B Harri Prasas, R Murali, Manimaran, R Chitra, M S Revathy, A R Venkateswaran*
Department of Medical Gastroenterology, Stanley Medical College, Chennai 600 108, India

Background: HBV infection is a global issue in developing countries. India is in the intermediate zone

(2% to 7% prevalence). Up to 90% of infants born to HBV infected mothers may develop chronic long term infection if untreated. The controversies and possible hazards of anti virals during pregnancy is also an issue of concern.
Methods: Retrospective study. Sample population: Antenatal women attending the liver clinic at the Department of Medical Gastroenterology, Stanley Medical College Hospital, from August 2010 to August 2011.
Results: Total patients; 35, 22—detected in 1st trimester 13—2nd trimester 10—3rd trimester 26 patients—primigravida 9 multigravida 4 patients known HBsAg positive in the first pregnancy. One patient—diagnosed with acute hepatitis B in the 12th week of pregnancy, was managed conservatively and seroconverted in the 36th week. The average value of ALT in the 35 patients was 17.5. In 24 patients, HBV DNA was less than 20 IU/mL. Among the remaining 11, two HBeAg positive patients had viral loads of 2,23,200 IU/mL and 88,000 IU/mL. They were advised lamivudine in the last trimester of pregnancy. Post partum follow up: 6 patients 5 patients- FTND; 1 patient—emergency LSCS average birth weight was 2.65 kgs, 1 LBW. No documented gestational diabetes or hypertension. All newborns vaccinated with HBsAg vaccine and two neonates were given HBIg.
Conclusion: Antenatal HBV infection—generally benign course, with no significant maternal or fetal events.

LV4

Hepatocellular cancer in India: how does it differ from the west?

Mohammad Asim,[1] *Manash Pratim Sarma,*[1] *Premashis Kar*[1]
[1]Department of Medicine, Maulana Azad Medical College, Bahadur Shah Zafar Marg, Delhi Gate, New Delhi, Delhi 110 002, India

Objective: The aim of the study was to investigate the etiologic factors of hepatocellular cancer (HCC) in India and to compare it with the risk factors prevailing in the west.
Method: The study included 348 HCC and 375 chronic liver disease cases without HCC as controls. All samples were screened for serological markers of HBV/HCV infections. Qualitative/quantitative PCR was performed for HBV and HCV. Samples positive for HBV-DNA and HCV-RNA were genotyped using PCR-RFLP. All cases were also assessed for other possible risk factors of HCC.
Results: The male-to-female ratio was 3.8:1 for HBsAg positive patients, which was significantly higher than that in anti-HCV positive patients: 2.8:1 ($p>0.019$). Amongst HBV patients 105 had HBV/D, 25 had HBV/A and 21 had mixed (A+D) genotypes. With reference to HBV genotype A, HBV genotype D (OR=1.76) and mixed genotype (A+D; OR=6.86) had higher risk of developing HCC. The hazard ratio for HCC of the high HBV DNA was 2.26. HCV genotype 3 was detected in 67.8% whereas 32.9% represents genotype 1. With reference to HCV genotype 3, HCV genotype 1 had a hazard ratio of 1.48. The Odd ratio for HCC having high HCV RNA levels was 1.21, showed non-significant risk.
Conclusion: HBV and HCV are the major risk factors for HCC development in our population. Alcohol, cigarette smoking and diabetes per se are uncommonly associated. High HBV-DNA levels and HBV/D increased the risk of HCC. However neither genotype nor virus load of HCV affected prognosis of HCC patients in our population.

LV5

Early response to Telbivudine in treatment naive patients with chronic hepatitis B infection

B Sivasubramanian*, Arul Selvan, S Raja, Venkateswaran, V Jayanthi*
Stanley Medical College Hospital, Chennai, 600 108, India

Background: Telbivudine (LdT) is approved for the treatment of chronic HBV infection.
Aim: To assess the early response of Telbivudine to HBsAg and HBV DNA levels in CHB infection.
Methods: Forty patients with CHB were treated with telbivudine 600 mg OD. HBsAg levels were obtained at baseline, 4 weeks and 12 weeks and HBV DNA levels at baseline and 4 weeks. Statistics: paired sample t-test.
Results: Group I (HBeAg positive: 17), the HBsAg levels showed a reduction from 4.24+1.32 log10 IU/mL, to (0.47 log IU/mL) and (0.57 log IU/mL) at 4 and 12 weeks respectively. The baseline HBV DNA levels (7.93±1.16 log 10 copies/mL) dropped to 2.38 log copies/mL at 4 weeks. None showed PCR negativity. Group II (HBeAg negative: 14), baseline HBsAg (3.93+0.61 log10 IU/mL), increased by 0.05 log IU/mL at 4 weeks with a subsequent decline of 0.03 log IU/mL at 12 weeks. The HBV DNA levels (5.43± 1.01 log10 copies/mL) reduced to 2.23 log copies/mL at 4 weeks. 43% showed PCR negativity. Group III (cirrhosis liver: 9), baseline HBsAg levels showed a reduction from 3.06+0.62 log10 IU/mL to 0.13 log IU/mL at 4 weeks and further to 0.09 log IU/mL at 12 weeks. HBV DNA levels (4.2±2.62 log10 copies/mL) reduced to 1.21 log copies/mL. 34% achieved PCR negativity.
Conclusions: Telbivudine achieved a decline in mean HBsAg levels at week 4 in HBeAg positive as well as in

cirrhotic patients. HBV DNA levels showed a rapid and statistically significant reduction at week 4.

LV6

Role of glutathione S-transferase M1 and T1 gene polymorphism in patients with HBV- related liver cirrhosis, chronic hepatitis and asymptomatic HBV carriers

Siddharth Kapahtia,[1] *Md Asim,*[1] *Suresh Kumar,*[1] *B C Das,*[2] *Premashis Kar*[1]
[1]PCR Hepatitis Laboratory, [2]Dr B R Ambedkar Institute of Biomedical Research, University of Delhi, North Campus, Delhi 110 007, India

Objectives: Hepatitis B virus (HBV) infection often leads to the development of chronic hepatitis and cirrhosis. Host genetic factors might influence the progression of HBV related liver disease. Glutathione S-transferase (GST) enzymes are involved in detoxification reactions in the liver. We studied the influence of GSTM1 and T1 gene polymorphisms in patients with different stages of HBV infections.
Methods: The sample population included 11 HBV asymptomatic carriers, 14 patients with chronic hepatitis B, and 10 patients with HBV related cirrhosis compared to a healthy control group ($n=10$). Conventional multiplex polymerase chain reaction was performed in the studied populations to confirm the genotypes of GSTM1 and T1. Odds ratio analysis tests were used for statistical evaluation.
Results: Patients with cirrhosis had a higher frequency of the GSTM1 null genotype (60%) than HBV asymptomatic carriers (27.3%; OR 4.0, 95% CI 0.47–39.6) and the GSTM1 null genotype was more frequent in patients with chronic hepatitis (50.0%) than HBV asymptomatic carriers (27.3% OR 2.67, 95% CI 0.38–20.6). The frequency of GSTT1 genotype was similar in all groups.
Conclusion: These results suggest that in HBV infection, inheritance of the null GSTM1 genotype involves a host genetic factor that is relevant to disease progression.

LV7

Association of interleukin-18 gene promoter polymorphism with outcome of HBV infection

V K Karra,[1] *P K Gumma,*[1] *R Ruttala,*[1] *S J Chowdhury,*[1] *S K Polipalli,*[1] *Anita Chakravarti,*[2] *P Kar*[1]
[1]PCR Hepatitis Lab, Department of Medicine, Maulana Azad Medical College, Bahadur Shah Zafar Marg, Delhi Gate, New Delhi, Delhi 110 002, India, University of Delhi, New Delhi 110 002.

Background and Aim: Hepatitis B virus (HBV) is one of the major global public health problems. Interleukin-18 (IL-18) was originally discovered as aninterferon-gamma-inducing factor and plays a critical role in immune response. In this study, we aimed to explore whether IL-18 gene-promoter polymorphisms are associated with the outcome of HBV infection.
Methods: Ninety-seven HBV-infected patients were recruited in this study 48 healthy controls, polymorphisms were analysed by using PCR-SSP, at the position −607 and −137 in the promoter region of IL-18 gene.
Results: Of 97 patients, 6 (5 male, 1 female: mean age± standard deviation [SD], 20±18 years) were acute HBV cases, 23 (20 male, 3 female; mean age±standard deviation [SD], 29±14 years) were inactive HBV carriers, out of 68 chronic cases 39 males and 13 females (mean age±SD, 33±12 years) were chronic hepatitis, 14 males and 1 female (mean age±SD, 41± 15 years) cirrhosis and 1 male (mean age 57) for HCC. The frequencies of -607A/A, A/C, C/C genotypes were 6.19%, 47.42% and 46.39% in HBV cases and 3.09%, 59.57%, 37.34% in healthy controls. Whereas the -137 G/G, G/C, C/C, genotypes were 43.30%, 49.48%, 7.22% and in HBV cases when compared with healthy controls were (45.93%, 50.36%, 3.71% and respectively).
Conclusion: The polymorphisms of the promoter region of IL-18 gene at position −607 and −137 are closely associated with susceptibility to chronic hepatitis B; moreover AA genotype at position −607 may be closely linked to inhibit HBV-DNA replication.

LV8

Association of serum MBL levels in patients with hepatitis B virus infection from India

R Ruttala,[1] *V K Karra,*[1] *P K Gumma,*[1] *S K Polipalli,*[1] *A Rai,*[2] *P Kar*[1]
[1]PCR Hepatitis Lab, Dept. of Medicine, Maulana Azad Medical College, Bahadur Shah Zafar Marg, Delhi Gate, New Delhi, Delhi 110 002, India, University of Delhi, New Delhi 110 002, [2]Division of Biochemistry/Biotechnology, NCDC, 22 Shyam Nath Marg, Delhi 110 054, India

Background/Aims: Mannose binding lectin (MBL) is a pattern recognition molecule of the innate immune system that binds to sugars on the surface of invading micro-organisms. Previous studies have reported an association between MBL deficiency and chronic hepatitis B (CHB) infection in adults. Our aim was to study the association of serum MBL levels in patients with chronic hepatitis B, hepatitis B related cirrhosis and asymptomatic hepatitis B carriers.

Methods: The study included 29 patients of chronic hepatitis B, 20 liver cirrhosis, 20 asymptomatic hepatitis B carriers, and 18 healthy controls without any hepatitis marker positivity. Serum MBL levels were measured using commercially available ELISA kits. The associations between clinical, biochemical and virological parameters HBV were also assessed with respect to MBL levels.
Result: The calculated mean (±SD; Pg/mL) MBL levels were in cirrhosis (380.353±175.10), CHB (671.7022± 535.37) asymptomatic HBsAg carrier (1205.25±1942.37), and healthy controls (1388.7393±2697.57), respectively. MBL levels were decreased in patients with liver cirrhosis and CHB compared to asymptomatic carriers and controls. MBL levels were not correlated with age, duration of the disease, values of AST, ALT, and HBV DNA levels.
Conclusions: Significant difference was observed in MBL levels in patients of chronic hepatitis B and cirrhosis compared to controls. However no significant association was observed amongst asymptomatic HBV carriers compared to healthy controls. The MBL deficiency increases the higher risk for the development of liver cirrhosis and chronic hepatitis B as compared to asymptomatic hepatitis B carriers and healthy controls.

LV9

Does antibodies against hepatitis E virus are protective in nature? A region based study in New Delhi

Jayanta Borkakoti*, Rajib Kishore Hazam, Manash Pratim Sharma, Dipu Bharali, Premashis Kar*
PCR Hepatitis Laboratory, Department of Medicine, Maulana Azad Medical College, Bahadur Shah Zafar Marg, Delhi Gate, New Delhi, Delhi 110 002, India, University of Delhi, New Delhi 110 002, India

Background: Hepatitis E virus has turned out to be a major concern in the developing as well as the other countries of the world. The immunoprotective nature of the hepatitis E virus antibodies has only been studied in few of the epidemics leaving some questions still unanswered.
Aim: To determine the long lasting nature of the HEV IgG antibodies in the human population and whether they provide protection against hepatitis E virus?
Methods: The sporadic cases included 50 patients of non-A, E, B, C hepatitis (healthy controls) and 50 cases of serologically HEV IgM positive ones admitted to the L N J P Hospital, New Delhi in the years 2007–2011. They were tested for all the virological markers using ELISA kits. Both the categories were followed up in the subsequent years and were again tested for the duration of HEV IgG antibodies.
Results: The HEV IgG antibodies were found to be positive in 47 (94%) of those cases reported earlier to be positive for HEV IgM antibody and had no history of re-infection later and were also detected in 25 (50%) of the healthy controls having no infection of HEV. The presence of IgG anti-HEV in healthy controls appeared to protect against clinical hepatitis or development of serologic evidence of new infection with HEV.
Conclusions: HEV IgG antibodies can be protective in nature since the healthy group had pre existing antibodies as well as the HEV IgM positive group. Evidence that pre-existing antibody as measured by this ELISA protects against disease is important for assessment of vaccine development.

LV10

Maternal Th1 and Th2 cytokines levels in hepatitis E related pregnant women

Ashok Kumar,[1] ***Salam Gyaneshwori Devi,***[1,2] *R K Gupta,*[1] *Premashis Kar* [2]
[1]Departments of Obstetrics and Gynecology and [2]Medicine, Maulana Azad Medical College and Lok Nayak Hospital, New Delhi 110 002, India

Background: The mechanisms responsible for the pathogeneses of HEV related liver disease of pregnant women is unclear.
Aims: The purpose of the present study was to examine the profile of cytokines in maternal serum of HEV related acute viral hepatitis (AVH) and fulminant hepatic failure (FHF) and its relevance to obstetric outcome.
Methods: Serum levels of Th1cytokines tumor necrosis factor alpha (TNF-α), Interferon gamma (IFN-γ) and Th2 cytokines interleukin 6 (IL-6), tumor growth factor beta (TGF-β) were measured, by ELISA, in 40 AVH and 14 FHF HEV related cases; 63 AVH and 3 FHF Non-HEV related cases and 110 uncomplicated pregnancy as controls.
Results: Elevated maternal Th1 (TNF-α and INF-γ) and Th2 (IL-6 and TGF-β) cytokines was observed in HEV and non-HEV group compared with controls. AVH cases of HEV infection have significantly higher levels of TNF-α, IL-6, TGF-β and INF-γ than controls. FHF cases of HEV infection have significantly higher levels of TNF-α and INF-γ than controls. TNF-α level was significant increase in HEV infected AVH group compared with non-HEV. There was no significant difference in the levels of cytokines in women with preterm delivery and with newborn of low birth weight between HEV and non-HEV group. Only the level of TNF-α was significantly higher in preterm delivery and low birth weight cases of HEV group compared with controls.
Conclusion: Increase serum concentration of Th1 and Th2 cytokines observed in HEV infected FHF and AVH shows that pregnancy with HEV infection increases cytokines secretion. Cytokines might play an important role in different outcomes of HEV infection during pregnancy.

LV11

Hepatitis B seroprevelance in liver disease patients of Delhi: correlation between HBeAg status, viral load and genotypes

***Dipu Bharali**, Manash P Sarma, Premashis Kar*
Department of Medicine, Maulana Azad Medical College, Bahadur Shah Zafar Marg, Delhi Gate, New Delhi, Delhi 110 002, India, University of Delhi, New Delhi 110 002, India

Aim: The aim of the study was to evaluate HbsAg and HBeAg seroprevelance, viral load in HBeAg positive and HBeAg negative patients with DNA positivity and the genotypes associated.
Method: Retrospectively records were reviewed for 414 patients who visited PCR-Hepatitis Laboratory, L N J P Hospital during January 2011 to June 2011 with liver related complains. Molecular, serological, demographic, etiological and clinical data were collected of these patients. HBV-DNA, HBV viral load and HBV genotyping was done with PCR, Real Time PCR and PCR-RFLP respectively.
Results: Out of the total 414 people tested for viral markers, 81 were positive for HbsAg (19.5%), of whom HBV-DNA was detected by PCR in 26 (32.0%) patients. Out of them 15 patients (18.0%) were HBeAg positive with HBV DNA $>10^5$ copies/mL, with an elevated ALT level and 11 (13.0%) were HBeAg negative, with HBV DNA $>10^4$ copies/mL also with an elevated ALT level. Among HBeAg+patients 60.0% (9/15 cases) and 30.0% (4/13) of HBeAg-ve patients had both HBV DNA and ALT levels raised. Genotype D was seen in 19 cases (73.0%) and A in 7 cases (26.9%). There was no significant difference in the viral load with respect to genotypes.
Conclusion: The HbsAg seroprevelance was very high (19.5%) in patients with liver diseases. A majority of (81.5%) of HbsAg positive patients were HBeAg negative possibly due to the length of time of infection. Genotype A and D of HBV were present in patients from New Delhi, India and genotype D is the most predominant genotype.

LV12

HBeAg negative chronic hepatitis B virus infection prevalence, clinical characteristics and treatment outcome

***Sumit Rungta**, A K Jain, V K Dixit, S K Shukla, P Kaushik*
Department of Gastroenterology, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, India

Background: Hepatitis B virus infection is the major cause of chronic hepatitis, cirrhosis and hepatocellular carcinoma of which about 35% to 50% infection are HBeAg negative. Objective of the study was to detect prevalence, clinical, biochemical profile and 1 year treatment outcome in HBeAg negative chronic hepatitis B (CHB) patients and to compare it with that of HBeAg positive CHB and chronic inactive carrier.
Methods: Subjects with CHB, HBV related cirrhosis and inactive carrier were evaluated for HBeAg status and their clinical and biochemical profile. Their ALT (IU/mL) level, DNA level (log copies/mL) at baseline and after 1 year therapy was studied.
Results: A total of 182 patients (76 HBeAg negative) with median age of 35 years (range 10–75) were enrolled. HBeAg positive and negative cases respectively in different groups were CHB 40 (21.97%) and 31 (17.03%), compensated cirrhosis 11 (6.04%) and 10 (5.49%), decompensated cirrhosis 45 (24.72%) and 21 (11.53%) and inactive carrier 10 (5.49%) and 14 (7.69%). Baseline ALT and DNA level for HBeAg positive/negative respectively were CHB 97.5 and 6.00/85.0 and 5.00, compensated cirrhosis 67 and 5.65/80.50 and 5.22 decompensated cirrhosis 57 and 6.60/68 and 5.65 and inactive carrier 23 and 4.22/18.5 and 1.6. After 1 year therapy ALT and DNA level for HBeAg positive/negative were CHB 51 and 4.53/45.0 and 3.74, compensated cirrhosis 44 and 3.88/39.50 and 3.30, decompensated cirrhosis 46.5 and 3.69/47.5 and 4.26 respectively.
Conclusion: Both HBeAg positive and HBeAg negative subjects shows significant change in ALT and HBV DNA after 1 year therapy and e antigen positivity did not change 1 year treatment response.

LV13

Prevalence of hepatitis B infection in Northeast India

***Bhabadev Goswami**, Bikash Narayan Choudhury, Mallika Bhattacharrya*
Department of Gastroenterology, Guwahati Medical College, Bhangagarh, Guwahati 781 005, India

Background: India falls in the intermediate zone for hepatitis B infection. A recent meta-analysis of 54 studies on 61 different Indian population groups reported a point prevalence of HBV infection as 2.4% in non-tribal population and 15.8% in tribal populations. There are no prevalence data of HBV infection from Northeast India, which constitutes of 8 states. The aim of this study was to evaluate the prevalence of HBV infection in Northeast India.
Methods: HBsAg screening was performed in 22,924 individuals from 6 North eastern states of India (Assam, Meghalaya, Arunachal Pradesh, Mizoram, Manipur, Nagaland and Tripura) who attended healthcare facilities for various illnesses. Screening was done using the

detection kit from the same provider over a period of 1 year. Individuals who were found to be positive from Assam were further evaluated for etiology.
Results: Out of the 22,924 screened individuals, 551 (2.4%) were positive for HBsAg. The statewise distribution of prevalence was Assam 2.05%, Meghalaya 1.75%, Tripura 2.9%, Arunachal Pradesh 5.06%, Nagaland 3.9%, Manipur 3.4% and Mizoram 2.8%. 74% of HBsAg positive individuals from Assam were males; 8.43% were between 5 and 20 yrs of age, 77.2% between 21 and 50 yrs and 14.3% above 50 yrs. 34% of these patients were positive for HBeAg.
Conclusions: The overall prevalence of HBsAg in Northeast India is 2.4% and Arunachal Pradesh ranks first in the list of individual states with a prevalence of 5.06%.

LV14

Profile of incidentally detected hepatitis B surface antigen positive blood donors

***Sushil Narang**, Manisha Dwivedi, Sri Prakash Misra, Alok Mishra, Sanjay Pant, Kapil Sharma, Ajay Kumar*
Department of Gastroenterology, Moti Lal Nehru Medical College, University of Allahabad, Allahabad 211 001, India

Introduction: Hepatitis B has a very wide spectrum of presentation ranging from being totally asymptomatic to cirrhosis and HCC. Detection of HBsAg positive asymptomatic donors and there follow up will help them to take early treatment if the need arises and to prevent the transmission of hepatitis B to others as well as to study the natural history
Aims: Know the prevalence of HBsAg among the voluntary blood donors and to study their clinical, biochemical and virological profile.
Methods: All IDAHS blood donors were evaluated prospectively by history, clinical examination and investigations (HBV viral load, HBeAg, ALT, USG and liver biopsy (if needed). Patients were followed up for 1 year with ALT every 3 months.
Results: Of 75 IDAHS (73 males; mean age 38.2 years), 15 (20%) were HBeAg positive. Twenty (26%) had abnormal baseline ALT and eighteen (24%) developed abnormal ALT during 1 year follow up. High baseline HBV DNA (>20000 IU/mL) was found in 11 (14.6%). Biopsy was indicated in 18 (24%) patients of which 9 gave the consent and 7 (9.33%) had HAI>3. Abnormal ALT was more frequent in patients with high HBV DNA (p=0.001). Abnormal histology had positive correlation with high baseline HBV DNA (p=0.002). Seven (9.33%) were put on treatment.
Conclusions: One half of IDAHS had abnormal ALT or developed during follow up. Liver biopsy was indicated in about one forth of patients. Ten percent of patients benefitted by getting treatment. Abnormal histology correlated positively with HBV viral load only.

LV15

Comparative evaluation sensitivity and specificity of two rapid kits and ELISA for detection of HBsAg and HCV in blood donors and chronic liver disease

***Nayana Joshi**, Swapna Kulkarni, Vineela Rajarika, Ajit Kumar, Akash Chaudhary, Manoj Kumar, Yogesh Harwani, R Padmavathi Choudeshwari*
Department of Gastroenterology, Nizam's Institue of Medical Sciences, Punjagutta, Hyderabad 500 082, India

Introduction: Enzyme Linked Immunoassay (EIA) is recommended and preferred test for HBV HCV screening yet, rapid screening tests are still being used in many blood banks and laboratories. The present study was aimed at evaluation of these kits in comparison with standard EIA tests.
Methods: ELISA tested samples for HBV and HCV were tested using two rapid one step test, Virucheck HBsAg and Flaviscreen HCV and SD Bioline.
Results: HBV ELISA (n=92) HCV ELISA (n=74). Reactive non reactive sensitivity reactive non reactive sensitivity 52 40 23 51 SD Bio Line 52 40 100% 119 55 82.6% Viruchek 49 43 94.1% 18 56 78.2%. The specificity for HBsAg and HCV was 100% for both kits. This study shows that different rapid tests have different and inadequate sensitivity for HbsAg and HCV, more so for HCV, this may be due to inadequate coating of the antigens on the surface of the immunofilter or the nature of the antigens especially in case of HCV.
Conclusion: In conclusion although rapid tests are quick, easy to perform have limited accuracy, hence must be backed by higher sensitivity tests. Different kits have different sensitivity so one has to be cautious while reporting the negative results.

LV16

Hepatitis B surface antigen quantification by Architect HBsAg assay is better than Elecsys HBsAg test in patients of chronic hepatitis B

***Ekta Gupta,**[1] Ashish Kumar,[2] Aashish Choudhary,[1] Shiv Kumar Sarin[2]*
[1]Departments of Virology, and [2]Hepatology, Institute of Liver and Biliary Sciences (ILBS), Vasant Kunj Marg, New Delhi 110 070, India

Background: Hepatitis B surface antigen (HBsAg) levels has shown to be very helpful in predicting the treatment

response in chronic hepatitis B (CHB) patients on antivirals. Currently there is only one established quantitative assay for HBsAg while there are many qualitative assays.
Objectives: Performance comparison of a qualitative Elecsys HBsAg (Roche Diagnostics) with quantitative Architect HBsAg (Abbott Diagnostics) and compare them with HBV DNA.
Study Design: Fifty plasma samples from CHB patients were included. HBsAg was quantitated by both Architect and Elecsys HBsAg assay. For Elecsys HBsAg samples were tested at a dilution of 1:400 in diluents provided by the manufacturer. Samples were diluted in a two step manner and cut off index (COI) were calculated. Conversion factor for estimation of HBsAg units was 1 IU/L=18.21 COI as provided by the manufacturer. HBV DNA was measured on COBAS TaqMan HBV (Roche Diagnostics). Non-parametric two-tailed Spearman's test was used to compare the assays.
Results: There was a significant overall correlation between Elecsys and Architect assays (correlation coefficient=0.86; $p<0.001$). When these assays were correlated with HBV DNA Architect assay showed very good overall correlation (correlation coefficient=0.49; $p<0.001$). However correlation of Elecsys assay with HBV DNA was not significant (correlation coefficient=0.27; $p=0.068$).
Conclusions: This study shows that Architect is better than Elecsys assay for HBsAg quantification and its correlation with HBV DNA. Further refinement is needed in Elecsys assay for it to be useful for HBsAg quantification in clinical samples.

LV17

A prospective study of natural history of HBsAg carrier state

V K Gupta*, A A Jha, S Thareja, A C Anand, R Shukla, P K Sharma*
Command Hospital (Southern Command), (AFMC Hospital), Pune 411 040, Command Hospital (WC), Chandimandir, Base Hospital, Delhi Cantt.

Background: The natural history of the infection in patients of AVH differs from the ones with IDAHB. This prospective cross sectional study evaluated the natural history of benign HBsAg positivity.
Methods: All cases of acute HBV viral hepatitis and incidentally detected HBV infection were followed up to evaluate for the development of chronic hepatitis and to see the evidence of Inactine carriers.
Results: A total of 202 patients of HBV infection were detected to be HBsAg positive and 83% of them were followed up for a mean period of 38.2 months. 39.6% patients had presented with persistence of HBsAg following the recovery of acute HBV viral hepatitis and 60.4% were incidentally detected. Ninety-seven (58%) patients continued to have benign HBsAg positivity and did not develop any feature of chronic hepatitis. However on excluding the patients who spontaneously seroconverted (8 in IDAHB and 4 in AVH), the rate of benign persistance of HBsAg was similar in both groups (62% in IDAHB and 63.5% in AVH). Forty-seven patients (28.3%) developed significant transaminitis during the follow up period. Chronicity on biopsy was demonstrable in more cases of IDAHB 59 cases. In total 35.5% of the patients had histological changes on biopsy. On treatment, 85% of the patients with transaminitis showed improvement.
Conclusion: HBsAg carrier state either following an incidental detection or acute viral hepatitis, progresses to chronicity in app 38% cases only, whereas 62% continue to be in carrier state when followed over a period of 3 years or more.

LV18

A etiological study of sporadic AVH in Orissa

Umesh Chandra Patra,[1] *Manjushree Nayak*[2]
[1]Departments of Hepatology, and [2]Pathology, S C B Medical College and Hospital, Cuttack 753007, Orissa, India

The present study was prospectively conducted to detect the etiology of sporadic AVH amongst adults in a tertiary care referral center in Orissa during January 2010 to January 2011 at S C B Medical College and Hospital, Cuttack.
Two hundred and fifty-four consecutive adults sporadic AVH patients were included in the study. Isolated viral infection was documented in 102 (40.1%) patients where as more than one hepatotropic viruses caused AVH in 27 (10.6%) patients. Non A-E virus was the major cause of sporadic AVH (40.1%). HBV and HEV were the etiological agent in 23.6% and 25.1% respectively. HAV was detected in 16.5% of the patients and HCV was incriminated rarely as the cause of sporadic AVH. The demographic, clinical and biochemical profile amongst isolated and mixed viral infection were found to be similar. However, HBV-AVH had significant prolonged course ($p<0.001$) and HAV-AVH was found to have significantly higher number of patients pursuing a course of relapsing hepatitis. However HAV infection amongst adults in the present study was not found to cause severe liver disease.

LV19

Levels of serum interleukin-10: predictor of poor outcome in acute liver failure

***Gaurav Maurya**, Rajib K Hazam, Premashis Kar*
PCR Hepatitis Laboratory, Department of Medicine, Maulana Azad Medical College, Bahadur Shah Zafar Marg, Delhi Gate, New Delhi, Delhi 110 002, India

Background and Aim: Interleukin-10 (IL-10), a potent anti-inflammatory cytokine, has been shown to modulate hepatocyte proliferation and liver fibrosis in chronic liver injury. Little is known about the role of IL-10 in acute liver failure (ALF). We investigated the prognostic value of admission IL-10 levels and their evolution during the early phase of treatment in intensive care and outcome.
Methods: We measured the IL-10 levels at the time of admission, during treatment and final outcome in 30 ALF and 33 AVH patients and 25 healthy controls using commercially available ELISA kit.
Results: Serum IL-10 at admission was elevated in patients with ALF 38.4 pg/mL, compared with levels in patients with AVH 16.7 pg/mL and controls 8.3 pg/mL; $p<.05$). Serum IL-10 levels in patients with ALF who died 41.2 pg/mL were significantly higher than in patients with ALF who survived 13.1 pg/mL; $p<.05$. In the AVH group the levels of IL 10 during treatment and outcome i.e., recovery was almost similar (9.8 pg/mL and 8.9 pg/mL). The IL 10 levels at recovery of AVH was similar to that of controls (8.9 pg/mL and 8.3 pg/mL).
Conclusion: IL-10 levels were found to be higher in cases with a poor outcome. The levels of IL 10 at admission, and its levels during the early phase of treatment, predicts outcome and supports a vital role for this immunological phenomenon in the outcome of these patients.

LV20

Heat shock protein polymorphism in chronic liver disease patients and the risk of development of hepatocellular carcinoma in Indian population

***Manash Pratim Sarma**, Subhash Medhi, Premashis Kar*
Department of Medicine, Maulana Azad Medical College, Bahadur Shah Zafar Marg, Delhi Gate, New Delhi, Delhi 110 002, India, University of Delhi, New Delhi

Introduction: Genetic variation has been suspected to influence the variable risk of hepatocellular carcinoma (HCC) in which numerous familial HCC clusters has been reported. Functionally significant polymorphisms have been noted in the HSP70-Hom and HSP70-2 genes. HSP70 have been shown to mediate tumorigenesis through inhibition of apoptosis and replicative senescence.
Objective: The aim of this study is to investigate the potential role of HSP70-Hom and HSP70-2 polymorphisms and the subsequent risk of HCC.
Methods: Patient's diagnosed as HCC with HBV and/or HCV as the main etiology were included in the study. The EASL diagnostic criteria for the diagnosis of HCC were followed (Bruix et al. 2001). Seventy-five cases of HCC of which 35 were positive for HBV and 40 positive for HCV were included in this study. An equal number of HBV and HCV related chronic hepatitis were also included as controls in which 32 were positive for HBV and 43 were positive for HCV. HSP70-Hom and HSP70-2 polymorphisms were analysed by PCR-RFLP method. The statistical program "EPIINFO" (version 5.0; USD Incorporated 1990, Stone Mountain, Georgia) was used for analysis.
Results: HSP70-Hom gene polymorphism is a risk factor for HCC compared to chronic hepatitis irrespective of the etiology of liver disease OR 15.17 (3.35–95.35); $p=0.001$. HSP70-2 gene polymorphism is a risk factor for HCC compared to chronic hepatitis irrespective of the etiology of liver disease OR 2.36 (1.29–4.36); $p=0.002$.
Conclusion: Our findings indicate that patients with chronic hepatitis B/C virus infection who harbor these SNPs represent a high-risk group for HCC and need intensive surveillance for early detection of HCC.

LV21

Histological predictors of discordance between liver fibrosis staging and fibroscan results in chronic hepatitis B

***Archana Rastogi**, Chhagan Bihari, Manoj Kumar, Ashish Kumar, Tarandeep Singh, Arvind Ahuja, Shiv Kumar Sarin*
Institute of Liver and Biliary Sciences (ILBS), Vasant Kunj Marg, New Delhi 110 070, India

Background: Liver biopsy is gold standard for assessing liver fibrosis. Liver stiffness measurement (LSM) by transient elastography (TE) is a non-invasive and reproducible method for assessment of liver fibrosis; however discordance has been reported in around one-third of cases for predicting significant fibrosis. Several other histological features can be the cause of discrepancy.
Aim: To evaluate histological features as predictors of discrepancy between liver biopsy semiquantative fibrosis scoring and TE.
Methods: One hundred and eighty-two cases of CHB were assessed for TE, semiquantatively; METAVIR fibrosis staging (0–4), Ishak's activity grading (0–18), steatosis (0–3) and Congestion (0–2) were done. Cholestasis

analysed as cellular and canalicular with/without ductular bile plugs. For prediction of significant fibrosis (≥F 2) cut off value of LSM was taken 7.05 kPa and for cirrhosis (F4) 10.85 kPa. Mann Whitney and chi squared tests applied and $p<0.05$ taken as significant.
Results: There was discrepancy in TE for prediction of F≥2 in 63 (34.6%) and in 43 (23.6%) for predicting F4. TE was false positive in (56/63) and (39/43) for predicting ≥F2 and F4. AST, ALT, HAI, congestion and cholestasis were significant in discordant groups in comparison to non-discordant group for F≥2. ALT, AST, HAI, steatosis and cholestasis were significant in discordant group as compared to non-discordant for F4.
Conclusion: Discrepancy in TE for prediction of F≥2 is more than for F4. Histological presence of significant activity, steatosis, congestion and cholestasis are found to be associated with discordant results of TE in both ≥F 2 and F4.

LV22

Development of tuberculosis on Interferon treatment in patients with HCV/HBV related CLD

***Vinit Shah**, Pankaj Tyagi, Shiv Kumar Sarin*
Institute of Liver and Biliary Sciences (ILBS), Vasant Kunj Marg, New Delhi 110 070, India

Introduction: Interferon treatment in HBV/HCV CLD induces immunomodulation. There is paucity of data about TB on IFN treatment in CLD.
Aims: To study the profile of patients with tuberculosis on Interferon treatment in HBV/HCV CLD.
Methods: A retrospective analysis of data involving IFN treatment in HBV and HCV infection (from January 2009 and June 2011) was done.
Results: Nine patients developed Tb on interferon treatment for HBV/HCV CLD. Mean age was 55.6 years (49–66) (male:female 5:4). Out of 9 patients, 1 was on IFN treatment for HBV related CLD. Mean CTP, MELD; MELD Na scores were 7.3, 12.5 and 15.7 during starting treatment. Seven patients developed tuberculosis on IFN; 1 at 1½ month, 3 at 5 months, 2 at 6 months and 1 at 12 months. Two patients developed after stopping IFN at 1 and 2 months respectively. Two had diabetes and 1 HIV infection. Two patients had prior Koch's. Focus was pulmonary in 5 patients. Two had mediastinal nodes confirmed with EUS FNA. One had pericardial TB and one had sacroiliac joint involvement. AKT was offered to all patients, 6 were declared cured, 2 were on treatment and 1 patient died.
Conclusion: Interferon treatment in HBV/HCV CLD possibly increases susceptibility to tuberculosis.

LV23

Genotyping of hepatitis E virus isolates in acute hepatitis cases with liver failure

***Nidhi S Chandra**, Ramesh Roop Rai, Ramdas, Bharti Malhotra*
S M S Medical College and Hospital, Jaipur, Rajasthan

Background: Hepatitis E is an endemic disease for Indian subcontinent. HEV has been divided into 4 different genotypes according to phylogenetic analysis. Recent study showed that genotype 1a and 1c is prevalent in fulminant hepatic failure (FHF) patients. However, more data will be needed to confirm the HEV genotype in FHF cases along with subtype. This study investigated HEV genotype in FHF cases from Jaipur, Rajasthan.
Methods: One hundred and two liver failure cases with HEV were collected from Rajasthan during the period March 2009 to December 2010 and tested for the presence of HEV RNA by the polymerase chain reaction (PCR). A phylogenetic tree was constructed using the neighbor-joining method and evaluated using the interior branch test method with MEGA 4 software.
Results: Our results showed that 58.82% (60/102) liver failure cases were positive for HEV RNA. The amplification product of RdRp region (RNA dependent RNA polymerase) from 19 liver failure cases were sequenced and sequence analysis indicated that genotype 1 is prevalent. Phylogenetic analysis showed that 2 isolates belonged to genotype 1a, 11 isolates to 1c and remaining were belonged to 1d.
Conclusion: These results suggested that subtype 1c is predominant in liver failure cases in Jaipur, Rajasthan.

LV24

Comparing three oral regimens for the treatment of chronic hepatitis B infection: Tenofovir, Entecavir and combination of Lamivudine and Adefovir

***Rajeswari Jayakumar**, Y K Joshi, Sarman Singh*
Division of Clinical Microbiology, and Department of Laboratory Medicine, All India Institute of Medical Sciences, New Delhi 110 068, India

Background: Chronic hepatitis B is a disease of concern due to its life threatening complications. Oral antivirals like lamivudine, adefovir, entecavir and tenofovir are commonly used to treat chronic hepatitis B to decrease the replication (HBV DNA) and prevent the complications.
Objective: The primary objective of this study was to compare the efficacy of the antivirals, lamivudine and

adefovir combination vs. entecavir vs. tenofovir in reducing HBV DNA to undetectable levels (<400 copies/mL). The efficacy of these drugs in normalizing the serological and biochemical markers was also compared.
Methods: Chronic hepatitis B patients with HBV DNA more than 10^4copies/mL irrespective of their HBeAg status (n=60) were enrolled. Twenty-one, 20 and 19 patients were treated with lamivudine and adefovir combination entecavir monotherapy and tenofovir monotherapy respectively and followed up for 24 weeks with their virological, serological and biochemical markers measured at 12 and 24 weeks.
Results: After 24 weeks of treatment, there was no significant difference between the three groups in suppressing HBV DNA to undetectable levels. The median decrease in HBV DNA levels from baseline was better with tenofovir and entecavir monotherapies than lamivudine and adefovir combination which was statistically significant. There was no significant difference between the three groups in HBsAg and HBeAg seroconversion and normalization of biochemical parameters.
Conclusion: Though entecavir and tenofovir monotherapies were found to be better than lamivudine and adefovir combination in reducing the HBV DNA levels, it can still be a good option for patients who could not afford entecavir and tenofovir.

LV25

Polymorphism and expression of HSP70 gene in acute viral hepatitis and fulminant hepatic failure and its clinical relevance

Ujjwal Sonika*, Premashis Kar*
PCR Hepatitis Laboratory, Department of Medicine, Maulana Azad Medical College, Bahadur Shah Zafar Marg, Delhi Gate, New Delhi, Delhi 110 002, India

Background and Aim: To study the polymorphism and expression of HSP70 gene in patients of fulminant hepatic failure (FHF) and acute viral hepatitis (AVH); and to evaluate whether quantification of HSP70 protein at admission could predict the outcome of disease.
Methods: Forty-three patients with FHF and 45 patients with AVH were included in the study. HSP70 expression was measured at admission by quantification of HSP70 protein using ELISA and gene polymorphism was studied by PCR RFLP method.
Results: The mean HSP70 protein levels were significantly higher (47.17±26.34) in FHF as compared to AVH (19.74±8.50) and controls (8.31±5.30) $p<0.05$). Genotype b2b2 was decreased in FHF as compared to AVH ($p<0.05$). The b2 allele of HSP70-1 was found significantly increased in AVH ($p<0.05$). Genotype AA and BB of HSP70-2 were found respectively less and more commonly in AVH group ($p<0.05$). AB genotype was increased in FHF as compared to AVH group. Allele B of HSP70-2 was associated with increased risk of AVH.AA, AB and BB genotypes of HSP70-hom gene did not show significant difference among various groups. Allele B of HSP70-hom gene was associated with less severe liver injury in patients with hepatitis (OR 0.2, 95% CL 0.04–0.77).
Conclusion: HSP70 gene expression and polymorphism may play an important role in susceptibility to AVH and FHF and may also predict the severity of disease.

LV26

Decline in immunosuppressive transitional B cells along with enhanced memory response following vaccination in HBV infected newborns are beneficial

Shikha Shrivastava,[1] Nirupma TrehanPati,[1] Shiv Kumar Sarin[2]
[1]Departments of Research, and [2]Hepatology, Institute of Liver and Biliary Sciences (ILBS), D-1, Vasant Kunj, 110 070, India

Background: Immunological basis of high rate of viral persistence in vertically acquired HBV infections in newborns is obscure. B lymphocytes represent an important arm of adaptive immune response, besides their main function of providing antibodies protecting against pathogens, they also exert some regulatory functions. Transitional B cells (CD19+ CD24hiCD38hi) a functionally immature subset has been shown to suppress immune responses in situations of chronic inflammation including chronic HBV infection.
Aim: To characterize the B cell profile in HBV infected and non-infected newborns and to investigate B cell functions in the immunopathogenesis of HBV persistence.
Methods: We compared B cell phenotypes in HBV infected (group I: HBV DNA+, n=10) and non-infected newborns (group II HBV DNA-, n=11) born to HBV positive mothers at baseline and at 12 months post-vaccination. B cell phenotypic distribution was assessed by flow cytometry using monoclonal antibodies specific for CD19, CD24, CD38, CD27, and phenotypes evaluated using CD69 activation marker and CCR5, TALL-1 (TNF- and ApoL-related leukocyte expressed ligand-1) which regulates B cell survival, expansion and PD-1, an inhibitory molecule.
Results: At birth before vaccination group I showed significantly higher levels of transitional B cells and lower memory B cells (CD19+CD24hi) compared to group II (transitional 2.7% vs. 0.06%, p=0.0002; memory 4.9% vs. 7.4%, p=0.005), whereas at 12 months post vaccination, a

decline in transitional B cell population and an increase in memory B cells were observed in comparison to the non-infected newborns. Group I vs. group II: (transitional 1.09% vs. 2.13%, memory 9.73% vs. 6.18% p=ns); group I at birth vs. 12 months : (transitional 3.2% vs. 1.09% p= 0.04, memory 5.1% vs. 9.73% p=0.03). Interestingly, HBV infected newborns displayed increased expression of activated CD69+/ CCR5+(CD19+CD27+) memory B cells compared to non-infected newborns, while both the groups expressed comparable levels of TALL-1 and PD-1 on memory B cells. (group I vs. group II: CD69+: 5.7% vs. 0.67% p=0.02 p=0.03, CCR5+: 6.3% vs. 0.78% p=0.002, TALL-1+:32% vs. 29% p=ns, PD1+ 0.97% vs. 0.94% p=ns).

Conclusions: Decline in immunosuppressive transitional B cells along with elevated memory B cell response in infected newborns gives an insight into the beneficial role of vaccine in modulating B cell immunity against HBV. After complete vaccination, expansion of CD69+ and CCR5+ activated memory B cells in infected newborns, is associated with development of protective B cell response against the virus. Further larger cohort and long–term population based detailed analysis are recommended.

LV27

Tim3 expression on HC-specific CD8+ T cells after pegylated interferon-α and ribavirin therapy correlates with outcome in chronic hepatitis C genotype 3a infected patients

Manish Chandra Choudhary,[1] *Banishree Saha,*[2] *Syed Hissar,*[3] *Shiv Kumar Sarin*[4]
[1,2,3]Departments of Research, and [4]Hepatology, Institute of Liver and Biliary Sciences (ILBS), Vasant Kunj Marg, New Delhi 110 070, India

Background: The association between hepatitis C virus-specific T cell responses during pegylated interferon-a and ribavirin therapy and viral clearance is still an unresolved issue. The differential response to antiviral therapy may be attributed to the ligation of inhibitory receptors to HCV-specific CD8+ T cells in these individuals.

Hypothesis: We hypothesised that increased expression of Tim3 (a negative regulator of T cell responses), on HCV-specific CD8+ T cell might explain the association of distinctive T cell characteristics (degranulation, Interferon (IFN) γ production and proliferation) with the outcome in chronic hepatitis (genotype 3a) patients.

Methods: T cell characteristics were studied in chronic HCV patients (n=10) undergoing therapy with samples collected at baseline and during antiviral therapy using 462 overlapping peptides in 10 antigenic pools spanned HCV genome.

Results: The expression of inhibitory receptors, PD1 and Tim3 were higher on T cells in chronic HCV patients (n=20) as compared to controls (n=27), however, only the level of CD8 +Tim3+ T cell population was found to be significant (p= 0.0004). In baseline samples, HCV-specific CD4+ and CD8+ T cell responses existed but no definitive pattern was observed with the treatment outcome. However, when T cell functional responses studied in context with Tim3 expression, we observed that frequency of Tim3+ HCV-specific CD8+ T cell decreased after therapy and had increased degranulating potential, IFNg production and proliferative capacity.

Conclusion: Tim3+ HCV-specific CD8+ T cell not HCV-specific CD8+ T cell shows better association with the outcome in chronic HCV infected patients after pegylated interferon-a and ribavirin therapy.

LV28

Prevalence and trends of Hepatitis Bvirus immunity among vaccinated healthcare workers in a tertiary care center, South Kerala

P Pradeep Kumar, Y Praveen Kumar, S Anil Kumar, M Mukunda, K R Vinayakumar
Department of Medical Gastroenterology, Medical College Hospital, Thiruvananthapuram 695 011, India

Introduction: Healthcare workers (HCWs) are at higher risk for hepatitis B (HBV) infection than general population. Introduction of vaccination reduced this risk. Anti-HBs titers do decline with time and may become undetectable after several years of immunization in some vaccines. There is no standardized post-vaccination protocol to confirm, monitor and maintain immunity.

Objectives: To study the prevalence and trends of immunity against HBV among HCWs who were vaccinated with 3 doses of HBV vaccine.

Methods: This is a retrospective study done in a tertiary care center, South Kerala. HCWs who completed 3 doses of vaccination were included and those who had incomplete vaccination or booster dose were excluded. Data were collected from those who had tested for anti-HBs titer with ELISA, from May 2001-August 2011. Candidates were subdivided according to the time interval since last vaccination.

Results: Total 1,420 cases were included (males-467, females-953). Cases were divided into 4 groups (A-D) according to the duration since last vaccination, 0-4,5-9, 10-14, ≥15 years respectively. Cases were taken as immune if the titer is ≥10 IU and nonimmune if <10 IU.1247 (87.8%) were immune and 173 (12.2%) were nonimmune. Number of cases in each group and their immunity was: group A-604 (89.2%), B-491 (92.3%), C-258 (82.2%), and

D-67(64.2%). Titer among cases who had vaccinated ≥15 years was significantly low (p value < 0.001). 35.8% in this group had undetectable antibodies.
Conclusions: Prevalence of HBV immunity among HCWs who were vaccinated with 3 doses of vaccine is 87.8%. Immunity level significantly drops after 15 years of vaccination.

Liver—Others

L1

Acute fulminant Wilson's disease in children: need for speed

Naresh P Shanmugam,[1] *Vivek Shanmugam,*[2] *Mohammed Rela*[2]
[1]Departments of Pediatric Gastroenterology, Hepatology and Nutrition, [2]Department of HBP and Liver Transplant surgery, Global Hospitals and Health City, #439, Cheran Nagar, Perumbakkam, Off OMR, Near Sholinganallur, Chennai 600 100, India

Aim: To report India's first successful in-situ right/left lobe split liver transplantation, where the whole left lobe was successfully transplanted to a 13-year-old child. This is to emphasis the physicians, the clues and pitfalls in diagnosis of acute fulminate Wilson's disease and the availability of prognostic scoring system that aids in patient selection for liver transplantation.
Case: Thirteen-year-boy, who weighs 53 kg presented with acute liver failure, with progressively increasing jaundice in preceding 3 weeks. He had raised liver enzymes and synthetic failure with an INR of 3.3. HEV IgM and liver kidney microsomal antibody positivity confused the picture. Liver biopsy could not be done due to coagulopathy. KF ring was negative. His Wilson score on arrival was 9 and so he was managed medically. Diagnosis was confirmed by positive urinary pencillamine test. He readmitted with a Wilson score was 18 in a month's time and so urgently underwent successful in-situ split liver transplantation.
Discussion: Wilson's disease presenting as fulminant liver failure has high mortality. Absence of classical signs and presence of autoantibodies could confuse the clinical picture. Appropriate patient selection is crucial as some of these children could be successfully managed medical. Wilson's score helps in differentiating high risk patients without transplantation. Need for speed for liver transplantation is essential in children with Wilson's score more than 11. In this case timely use of whole left lobe, has favored successful outcome.

L2

Non alcoholic fatty liver disease and metabolic syndrome

S Giridharan, ***Abdoul Hamide****, Zachariah Bobby*
Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry 605 006. India

Background: Non alcoholic fatty liver disease (NAFLD), most common cause of liver disease in developed world is now considered to be the hepatic manifestation of metabolic syndrome.
Methods: Patients satisfying the International Diabetic Foundation criteria for Metabolic Syndrome (MS) were screened for NAFLD by ultrasonography (USG). The components of MS, serum ALT, AST, hsCRP values and insulin resistance (HOMA_IR) were correlated with sonographic severity of fatty liver.
Results: Out of the 140 patients with MS recruited initially, 41 patients had another etiology for fatty liver and were excluded. Ninety-two out of 99 patients (92.9%) had NAFLD of which 28 (30.4%), 40 (43.5%), 24 (26.1%) had mild, moderate, severe fatty liver respectively. Seventeen of the 46 patients (36.9%) who had all four components of MS, had severe fatty liver by USG. Elevated ALT (>40 IU/mL) was found in 26.1% of patients and 23.9% had elevated AST level (>40 IU/mL). Waist circumference ($p<0.001$ by kruskall wallis), AST ($p=0.001$) and ALT ($p=0.003$) values correlated significantly with the severity of fatty liver. Similarly (HOMA_IR) and hsCRP (mean 6829.16 ng/mL) showed significant rise with severity of fatty liver ($p=0.000$ and $p=0.000$ respectively).
Conclusion: NAFLD was found commonly associated with metabolic syndrome. Central obesity, elevated liver enzymes, insulin resistance and hsCRP correlated well with sonographic severity of NAFLD.

L3

Metabolomic profiling of amoebic and pyogenic liver abscesses: an in-vitro NMR study

Ujjala Ghoshal,[*] ***Virendra Jaiswal,***[*] *Santosh Bharti,*[**] *Raja Roy,*[**] *C L Khetrapal,*[**] *Uday C Ghoshal*[***]
[*]Departments of Microbiology, [**]Centre of Biomedical Magnetic Resonance, and [***]Gastroenterology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow 226 014, India

Background: Differentiation amebic (ALA) between pyogenic liver abscesses (PLA) is necessary as management and outcome of two conditions may differ.

Objective: Utility of NMR spectroscopy for metabolomic profiling of these two conditions has not been reported.
Methods: Pus samples obtained from 109 patients with liver abscess were examined by NMR spectroscopy. Classification of liver abscess as ALA (n=85), PLA (n=10) and mixed (n=9) was based on *Entamoeba histolytica* specific PCR and bacterial culture. Mixed cases were excluded on analysis.
Result: Fifty metabolites were identified by combination of one and two-dimensional NMR spectra. Metabolic derangements were evaluated for differentiation between amebic and pyogenic liver abscess. The NMR results indicate that aspartate, asparagine and galactose, integral components of lipoproteophophoglycans (LPG) of the cell wall of *Entamoeba histolytica* are metabolic biomarkers of amebic liver abscess (ALA). On the other hand, acetate, proprionate, butyrate, succinate and formate, the fermentation products the facultative anaerobes are significantly prevalent in pyogenic liver abscess (PLA). The NMR based metabolic profile of ALA and PLA are evaluated taking PCR and bacterial culture as gold standard method. NMR results were comparable with culture and PCR methods, a correct diagnosis of 94.11% in ALA (n=80/85) and 100% in PLA (n=10) cases were observed.
Conclusion: NMR spectroscopy in conjunction with PCR and culture can expedite in differentiating ALA from PLA.

L4

Randomized controlled trial comparing effects of sedation for upper gastrointestinal endoscopy with propofol vs. midazolam on psychometric tests and critical Flicker frequency in cirrhotics

***Amit Agrawal**, Barjesh Chander Sharma, Praveen Sharma, Rajeev Uppal,* Shiv Kumar Sarin*
Departments of Gastroenterology and Anesthesia* G B Pant Hospital, J L Nehru Marg, New Delhi 110 002, India

Background: Cirrhotics are at increased risk of complications related to sedation.
Aim: To compare effects of sedation for upper gastrointestinal endoscopy with propofol and midazolam on psychometric tests and critical flicker frequency (CFF) in cirrhotics.
Methods: Patients randomized into 3 groups, propofol (group-P, n=40), midazolam (group-M, n=42) and no sedation (group-N, n=45). Patients underwent CFF and psychometry tests (number connection test-A and B (NCT-A, B); digit symbol test (DST), line tracing test (LTT) and serial dotting test (SDT) at baseline and at 2 h. CFF also done at 30 min and repeated every 30 mins for 2 h.
Results: Group-P showed no significant change in [NCT-A (55.6±18.7 vs. 56.4±19.0 s), NCT-B (98.2±35.1 vs. 97.8±34.6 s), DST (26.7±5.7 vs. 26.3±5.3), LTT (112.9±35.7 vs. 113.7±36.6 s), SDT (94.6±34.1 vs. 95.2±34.5 s)] p=ns. Baseline CFF in group-P (39.8±2.9.Hz), significant deterioration seen in CFF at 30 min (38.8±2.3 Hz, p=0.001)) and 1 h (39.2±2.4 Hz, p=0.001) but no difference thereafter. In group-M deterioration observed in psychometry [NCT-A (56.0±18.5 vs. 60.4±19.8 s, p=0.001), NCT-B (99.9±29.1 vs. 105.9.6±30.3 s, p=0.001), DST (26.1±4.7 vs. 25.2±4.3, p=0.001), LTT (129.1±34.5 vs 132.9±35.4se, p=0.002,), SDT (95.6±34.2 vs. 98.3±32.1 s, p=0.001)]. Similarly CFF showed significant deteriotaion. No patient developed overt HE after sedation. No deterioration observed in psychometry and CFF in cirrhotics without sedation
Conclusion: Propofol sedation for upper gastrointestinal endoscopy is safe and associated with improved recovery in cirrhotics compared to midazolam.

L5

Role of bromocriptin therapy in severe hepatic encephalopathy

*B P Priyadarshi, **G Prakash**, J S Kushwaha, R Giri, V Agarwala, R K Singh, P Paliwal, R Rohini, S Gupta, P Kumar, R Sharma, M Chaudhary*
L L R Hospital, G S V M Medical College, Swaroop Nagar, Kanpur, India

Aims: Hepatic encephalopathy is a dangerous complication of liver dysfunction. Dopaminergic pathway is supposed to be involved in hepatic encephalopathy and hence role of bromocriptin seems to be beneficial.
Method: It was a prospective randomized trial. Sixty-four patients of hepatic encephalopathy (grade 4) were included in study, who were admitted in L L R Hospital, Kanpur. Forty-two patients were managed as standard protocol (gut sterilizer with lactulose) and 22 patients were treated with bromocriptin (15 mg/day) with other treatment (gut sterilizer with lactulose). During the study the following parameters were assessed: mental state, EEG and serum ammonia.
Result: Thirty-six patients were male and 28 patients were female. Average ages of male patient were 48.6 years and of female were 36.4 years. Average S. ammonia level was 48.6 mg/dL in bromocriptin group and 46.8 mg/dL in non-bromocriptin group. Eight out of 22 (36.36%) expired in bromocriptin group and 22 out of 42 (52.38%) expired in non-bromocriptin group. Among survivor, at 1 week, S. ammonia in bromocriptin group is 18.6 mg/dL and in non-bromocriptin group was 23.4 mg/dL. At 1 week, 11 out of 14 (78.57%) in bromocriptin group and 15 out of 20 (75%) among non-bromocriptin group gain consciousness. At 1 week, 10 (71.43%) in bromocriptin group and 13 (65%) in non-bromocriptin group has normal EEG. All are significant.
Conclusion: Bromocriptin has role in severe hepatic encephalopathy in reducing both mortality and morbidity.

L6

Diffuse hepatocellular carcinoma

M Preethi, *B Harri Prasas, R Murali, Manimaran, R Chitra, M S Revathy, V R Venkateswaran*
Department of Medical Gastroenterology, Stanley Medical College, Chennai 600 108, India

Diffuse HCC is an unusual variant of hepatocellular carcinoma, associated with a poor prognosis, and no definite medical or surgical treatment. In many cases, the lesion is missed on routine imaging modalities like USG and CECT abdomen, and the MRI of the abdomen is the recommended modality of imaging. According to literature, all cases are associated with portal vein thrombosis, and most patients are HBsAg positive. Here we proceed to discuss two cases of diffuse HCC seen at our hospital, their differences and striking similarities. The 1st patient had HBV related DCLD, with no identifiable SOL on USG and CECT abdomen, and equivocal AFP. MRI abdomen revealed diffuse HCC, and FNAC from portal vein thrombus was positive for malignancy. The 2nd patient had HBV related CLD/PHT with diffuse mixed echogenic lesion in the right lobe seen in USG and triple phase CECT abdomen, with portal vein thrombosis. FNAC of the lesion was consistent with HCC and portal vein thrombus positive for malignancy. We wish to emphasise the importance of imaging modalities in HCC, and the need for a high index of suspicion with regard to this entity, when patients present with portal vein thrombosis, indeterminate liver lesion and alpha fetoprotein levels.

L7

Liver biopsy : two years audit

P Jagadesan*, B Prakash Shankar, G Ram Kumar, K Muthukumaran, T Pugazhendhi, S Jeevan Kumar*
Department of Digestive Health and Diseases, Kilpauk Medical College and Hospital, Chennai 600 010, India

Aim: To study the diagnostic yield and safety profile of percutaneous liver biopsy in our institution.
Methods: Retrospective analysis of patients who have undergone liver biopsy from June 2009 to May 2011 was done. Diagnostic yield and complications during the procedure if any were analysed.
Observation: Twenty liver biopsies were done during this period. Among them 10 were males and 10 were females. The mean age was 35 years. Indications for liver biopsies among them were unexplained cirrhosis (8) asymptomatic HBsAg positive cases (8), suspected secondaries liver (2) cholestatic jaundice (1) and essential thrombocytosis (1). No post-procedural complications encountered. Biopsy reported normal in 8 cases. Six cases had chronic hepatitis grade 3 stage 2 and 6 cases had grade 1 stage 1 fibrosis.
Conclusion: Liver biopsy still remains as a useful tool for diagnosis and management of various liver disorders. It is absolutely safe when done judiciously with utmost precautions.

L8

Study of patients with acute-on-chronic liver failure

Amol Khot, ***Piyush Somani****, R T Narendran, Amit Gharat, Pravin Rathi*
Department of Gastroenterology, B Y L Nair Hospital, Mumbai Central, Mumbai 400 008, India

Introduction: Acute-on-chronic liver failure (ACLF) is an acute hepatic insult manifesting as jaundice and coagulopathy, complicated within 4 weeks by ascites and/or encephalopathy in patients with previously diagnosed or undiagnosed chronic liver disease.
Aims: This study aims 1. To determine etiology, course and outcome of patients with ACLF, 2. To assess correlation of biochemical parameters, liver biopsy and MELD score with mortality/morbidity.
Methods: Eight patients presenting with ACLF were studied prospectively. They were investigated for the etiology of liver disease. Liver biopsy was performed by transjugular route whenever necessary.
Results: Average age of study group (5 males and 3 females) was 38.5 years. Cause of underlying chronic liver disease was related to alcohol in two cases, chronic hepatitis B in two cases, Wilson disease and autoimmune hepatitis in one each and two cases were cryptogenic. Cause of acute insult was acute hepatitis E in two patients, reactivation of hepatitis B in two, hematemesis in one and sepsis in three patients. Though all patients presented with jaundice and ascites, only one had hematemesis and encephalopathy. A:G reversal was present in all patients. Average MELD score was 22 and six patients had Child's status C, out of which two died. Evidence of fibrosis was seen in 3 out of 5 biopsies.

L9

Liver transplantation in a Government hospital : a single centre experience

B Nandi, P Puri, A Saha, S Naidu, ***S Srivastava****, G Ramesh, A Seth, A C Anand*
Liver Transplant Centre, Army Hospital (R&R), New Delhi 110 010, India

Background: Liver transplantation is performed at very few government hospitals in India due to various resource constraints.
Aim: Study the clinical outcome of liver transplantations performed at this hospital since inception of liver transplant program in March 2007.
Methods: Retrospective analysis of clinical records of patients who underwent liver transplantation at this centre.
Results: Fifty-five liver transplantations, LDLT 17 and DDLT 38, were performed. Median age was 33 years (5 months to 61 yrs). Males 46, females 9. Median CTP and MELD score were 9 and 15.69 respectively. HBV cirrhosis (34.5%), cryptogenic cirrhosis (27.2%), Budd-Chiari syndrome (7.2%), autoimmune cirrhosis (7.2%), HCV cirrhosis (5.4%), Wilson's disease (3.6%), HCC (1.8%) were the indications for transplant in adults. There were seven pediatric cases (six EHBA, one PFIC). One and four year survival post-transplant was 73.3% and 67.2% respectively. Complications encountered were HAT 4 (7.2%), biliary strictures 5 (9.0%), bile leak 4 (7.2%), acute allograft rejection 10 (18%), PTDM 20 (36%), and pneumonia 4 (7.2%). 14/20 PTDM resolved over 3–6 months. Sepsis was seen in 23/55 recipients. Commonest site of infection was blood (12/23). Commonest organism isolated *E. coli* and acenatobacter. Recurrence of HCV was detected in all four HCV cirrhosis cases.
Conclusion: A successful liver transplantation and organ donation program is feasible in a government hospital despite resource constraints.

L10

Liver dysfunction and HBV and HCV co-infection in HIV- infected patients

P Puri, *P K Sharma, A Lolusare, S Srivastava, B Nandi, N Kapoor, A C Anand*
Army Hospital (R&R), New Delhi 110 010, India

Background: Increasing use of HAART has improved survival of HIV- infected patients. There is increasing occurrence of liver dysfunction and progressive HBV and HCV related liver disease.
Aims: To study the liver dysfunction and HBV and HCV co-infection in HIV-infected patients.
Methods: All HIV-positive patients presenting to a tertiary level hospital from April 2009-April 2011 were evaluated. The following investigations were done in all: LFT (baseline, three-monthly on HAART), CD4/CD8 counts, ultrasound abdomen, HBsAg, IgG anti-HBc, HBVDNA, anti-HCV and HCVRNA. Further tests including liver biopsy were done as indicated.
Results: Abnormal LFT were seen in 150/320 (47%) HIV-infected patients (n=320; M-282, F-38; mean age-34.39 years). Baseline LFT was abnormal in 47(15%) ([hepatotrophic viruses-19, alcohol-16, NAFLD-1, opportunistic infection-1, no obvious cause −11). Subsequent LFT derangement developed in 103/273(37.72%). In the majority, the LFT abnormality was mild and multi-factorial [HAART 96 (93%), alcohol 50 (49%), ATT 21 (20%), HBV 10, HCV 9, miscellaneous-4, no cause-3]. LFT abnormalities were seen in 132/245 (52%) with HAART; and 31/48 (64.58%) with ATT (+ HAART in 46). Significant hepatotoxicity requiring drug modification was seen in only 7 cases. HBV, HCV and HBV+HCV co-infection was seen in 37 (11.59%), 28 (8.75%) and 2 (0.6%) respectively. Liver biopsy showed fibrosis in 11/28 of HBV and 8/15 HCV co-infection. Occult co-infections were rare (HBV-1, HCV-3).
Conclusion: While LFT abnormalities in HIV due to multiple factors are seen in approximately half the patients, they are usually mild. HBV and HCV co-infections were seen in 11.59% and 8.75% respectively. Occult infections were rare.

L11

Comparison of various scoring system in predicting in hospital mortality in alcoholic liver disease

P K Mohapatra, *V K Dixit, S C Lamtha, S K Shukla, A K Jain*
Department of Gastroenterology, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, India

Background and Aims: The prognosis of patients with alcoholic liver disease is associated with a high risk of short term mortality. The aim of present study is to examine and compare the ability of MELD Score, DF score and CTP score to predict in hospital mortality in patients with alcoholic liver disease presented with jaundice.
Methods: Fifty-two male patients, mean age 45 diagnosed as alcoholic hepatitis with or without cirrhosis between April 2010 and July 2011 were evaluated. All patients were initially presented with jaundice (S bilirubin >2 mg/dL). The patients who died within 24 h after hospital visit were excluded. The MELD score, DF score, CTP score were calculated at presentation, and 3, 7, and 14 days after respectively.
Results: The area under the receiver operating characteristic curve in predicting in hospital mortality was 0.627, 0.523, 0.472 for MELD, CTP, and DF on day 1; 0.762, 0.637, 0.595 on day 3; 0.594, 0.542, 0.496 on day 7 respectively. MELD score >11 had the maximum AUC. By using univariate analysis creatinine was found to be statistically significant at baseline and at all points of time. However sodium was statistically significant at baseline but not at other points of time. Parameters like MELD, serum albumin was found statistically significant at day 3 and 7 but not at baseline.

Conclusion: MELD score which was derived from the laboratory findings of 3 days after presentation was significant objective predictor of in hospital mortality for patients of alcoholic liver disease.

L12

Complications of anticoagulation therapy in patients with Budd-Chiari syndrome

Chirag Shah, ***Hardik Parikh****, Akash Shukla, Shobna Bhatia*
Seth G S Medical College, K E M Hospital, Mumbai 400 012, India

Background/Aims: Anticoagulation is recommended in patients with Budd-Chiari syndrome as primary treatment and after intervention. This study evaluated frequency, severity and risk factors of bleeding complications.
Methods: We evaluated 61 patients of Budd-Chiari syndrome who were receiving long-term anticoagulation (median follow up: 18 months). Baseline characteristics, liver function, Child score and MELD score were evaluated. Major bleeding was considered as bleeding episode requiring hospitalisation, more than 2 unit blood transfusion, and intervention to stop bleeding or death.
Results: Twenty-three patients had 41 episodes of bleeding. Ten episodes were major (variceal 4, peritoneal 4, epistaxis 1, pulmonary hemorrhage 1). Thirty-one minor episodes included menorrhagia (n=11), gum bleeding (10), hematuria (5), epistaxis (4), and musculoskeletal (1). There was 1 death related to uncontrolled variceal bleed. All patients were managed by discontinuing anticoagulation therapy. Eight patients with major bleeding required plasma transfusion. Forty-three patients had esophageal varices on admission; 38 patients had variceal eradication prior to anticoagulation. Four of 5 patients, in whom variceal eradication was not achieved prior to anticoagulation, had variceal bleed (p=0.004). Two patients developed GI bleed after failed attempt at vascular intervention.
Conclusion: Anticoagulation related bleeding complications are common. Up to 25% of these bleeding episodes may be major bleeding episodes. Eradication of varices should be achieved prior to starting anticoagulation.

L13

Clinical profile of patients with amebic liver abscess in a northern Indian hospital

Murali Rangan, ***Mahesh Gupta****, Gourdas Choudhuri*
Department of Gastroenterology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow 226 014, India

Introduction: Amebic liver abscess (ALA) is a frequently encountered disease in developing countries like India and there is limited data about the profile of these patients from India.
Methods: The records of all the patients admitted with liver abscess (LA) in the last 5 years to our hospital were retrospectively analysed. ALA was diagnosed based on the combination of clinical features, ultrasound findings and amebic serology.
Results: ALA accounted for 76% of 315 patients with LA. The median age of them was 45 (range: 17 to 83); majority of them were male (89.1%). Most common symptom was fever (95.4%) followed by abdominal pain (93.7%); 16.7% had jaundice. Median duration of fever and abdominal pain was 15 days. Commonest sign was hepatomegaly (72.8%). Alcoholism and diabetes were present in 32.6% and 17.2% patients respectively. Multiple abscess and left lobe abscess were seen in 36.8% and 13.8% patients respectively. Both lobes were involved in 18% patients. Biliary communication was seen in 18 patients (7.5%). Acute renal failure and encephalopathy were seen in 25 and 3 patients respectively. Only 29 patients (12.1%) were managed conservatively. Rest required either needle aspiration (12.1%) or percutaneous drain(s) (69.5%) or both (10%). The mortality rate was 0.8%. Median duration of hospital stay was 10 days.
Conclusions: ALA is the commonest cause of LA in India. Vast majority of them required imaging guided interventions. Even though the mortality due to ALA was low, it contributed to considerable morbidity.

L14

Comparison of psychometric tests abnormalities in patient with liver cirrhosis and extra hepatic portal vein obstruction

Vikas S Sengar*, Vivek A Saraswat*
Department of Gastroenterology, Sanjay Gandhi Postgraduate Institute of medical Sciences, Lucknow 226 014, India

Introduction: Minimal hepatic encephalopathy (MHE) is common in liver cirrhosis and impairs the quality of life (QoL). Recently, MHE has been reported in patients with extrahepatic portal vein obstruction (EHPVO) but has not been characterized fully.
Aim: To compare the prevalence of MHE and profile of various psychometric tests in patients with liver cirrhosis (LC) and EHPVO.
Methods: Healthy subjects and patients with cirrhosis and EHPVO were enrolled. MMSE and West Haven criteria were used to exclude overt hepatic encephalopathy. Eleven neuropsychological tests were applied in most of the patients. (NCT-A, NCT-B, FCT-A, FCT-B, SDT, LTT, PC, DS, BD, PA and OA). MHE was diagnosed on the basis of PHES score 4.

Results: Total 99 patients (LC=59, EHPVO=40) were enrolled. MHE was presents in 22 (37.2%) patients with liver cirrhosis and 14 (35%) patients with EHPVO. Mean age in cirrhotic patients was higher than patient with EHPVO (44.2 years vs. 31.5 years, p=0.007). There was no significant difference in any test score among these two group except NCT-A (LC=70.2 s vs. EHPVO=55.5 s, p=0.03). Mean Z score was similar in both groups (LC=−7.04 vs. EHPVO=−7.54, p=0.4).
Conclusion: Prevalence of MHE is similar in liver cirrhosis and extra hepatic portal vein obstruction. Cirrhotic patients with MHE were older in age. There was no significant difference in overall psychometric test performance in both groups.

L15

Efficacy of various psychometric tests batteries in detection of minimal hepatic encephalopathy

Vikas S Sengar, *Vivek A Saraswat*
Department of Gastroenterology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow 226 014, India

Introduction: Many psychometric tests alone or in combination have been used for diagnosis of minimal hepatic encephalopathy (MHE).
Aim: To look for the profile of psychometric tests in subjects, cirrhotic and extra hepatic portal vein obstruction (EHPVO) patients and efficacy of these tests in detection of MHE.
Methods: Subjects and patients with cirrhosis and EHPVO were enrolled. MMSE and West Haven criteria were used to exclude overt hepatic encephalopathy in liver cirrhotic (LC) patients. Eleven tests were applied in subjects and in most patients (NCT-A/B, FCT-A/B, SDT, LTT, PC, DS, BD, PA and OA). MHE was diagnosed on the basis of PHES score >4.
Results: Among 170 volunteers, age and education years influenced the scores of all tests. Ninety-nine patients with cirrhosis and EHPVO were examined. MHE was diagnosed in 36 patients. Z score was significantly low in patient with MHE than without MHE (−7.22 vs. -0.524, p=0.00). Combination of figure connection test A and B (FCT-A and B) detected MHE in 32 patients (sensitivity=94.4%, specificity=95.2%). Time consumed in FCTs was lower than PHES (8 min 30 s. vs. 16 min 21 s, p=0.001). WAPIS battery detected only 3 patients (sensitivity=8.33%, specificity=100%). Combination of all trail making tests (NCT-A, B and FCT-A, B) has sensitivity and specificity of 96.4% and 97.4% respectively.
Conclusion: Combination of FCT-A and FCT-B is very sensitive and specific test in diagnosing MHE. It is easy to perform and less time consuming. Though WAPIS test battery has low sensitivity in diagnosing MHE but has good specificity.

L16

Karyotypic analysis in hepatocellular carcinoma patients

[*]***A Shiran Shetty,*** [**]*Mohana Devi,* [*]*Rahul Kothari,* [*]*Pazhanivel Mohan,* [*]*A Mohanakrishnan,* [*]*J Krishnaveni,* [*]*L Venkatakrishnan*
[*]Department of GI Science, P S G Institute of Medical Sciences and Research, Off Avanashi Road, Peelamedu, Coimbatore 641 004, [**]Bharathiar University, Coimbatore 641 046, India

Aim: To determine the chromosomal aberration in hepatocellular carcinoma patients.
Inclusion Criteria: All patients proved hepatocellular carcinoma by biochemical, imaging or tissue diagnosis were included after taking written consent as per protocol.
Methods: Karyotyping was conducted by analyzing the G-banding using 5 ml of heparinised peripheral blood samples. Metaphase spreads were performed from phyto hemagglutnin (PHA) stimulated peripheral lymphocytes using standard cytogenetic techniques.
Results: Karyotyping analysis was done in 10 patients. We found following chromosomal aberration.

Chromosomal aberration	Type	No. of patients
Microsatellete formation	14 S+, 22S+	2
Deletion	5P -	1
Chromosomal break	11p	1
Chromatid gap	11p	1

Conclusion: Karyotying analysis has provided valuable information of chromosomal aberration in a wide range of malignant disease. In hepatocellular carcinoma chromosomal deletion and minor aberration are common and of a non random pattern which might contribute to tumor cell proliferation and hepato carcinogenesis which might be of interest for future targeted biological therapy.

L17

Clinical profile of decompensated chronic liver disease at SRMC–1 year experience

Rupesh Kalyan*, Somasekar Rao, Naveen Mohandas, Sitaram, Shanthi Vijayaraghavan, Shanmuganathan*
Sri Ramachandra Medical College, 1, Ramachandra Nagar, Porur, Chennai 600 116, India

Aim: To study the clinical profile of patients with decompensated chronic liver disease presenting to a tertiary care university hospital.

Methods: One hundred and seventy-six patients diagnosed to have decompensated chronic liver disease in the period between 1st July 2010 and 30th June 2011 were analysed for etiology, clinical presentations and complications/sequelae. All the patients were evaluated with a detailed history and physical examination, routine lab parameters and viral markers. Workup for Wilson's disease was done in patient's less than 45 years of age. Serology for autoimmune liver disease was done as mandated by the clinical scenario. Patients were labelled to have cryptogenic chronic liver disease if the etiological workup was negative. The data obtained was retrospectively analysed by perusal of medical records.
Results: A total of 176 patients were retrospectively analysed. Among this 158 were males and 18 were females. The most common etiological factor was alcohol (43.75%) followed by cryptogenic liver disease (29.54%), hepatitis B (13.63%), hepatitis C (7.38%), followed in descending order by Wilson's disease, NASH (biopsy proven), drug induced liver disease and autoimmune hepatitis. The most common clinical presentation was with upper GI bleed (25.57%) and hepatic encephalopathy (23.86%). Complications of cirrhosis like SBP, HRS, HPS, HCC were found in 9.09%, 10.22%, 2.27% and 7.38% of patients respectively. Death was the outcome in 30 patients (17%). Cellulitis and pneumonia were found as contributing factors of mortality in 7 (4%) and 6 (3.9%) of patients respectively.
Conclusion: Alcohol was the most common etiological factor of chronic liver disease in our study. The prevalence of cryptogenic liver disease was also high. Upper GI bleed and hepatic encephalopathy were the most common clinical presentations and complicated most commonly by SBP and HRS.

L18

Sickle cell hepatopathy

***Rahul Kothari**, Shiran Shetty*
P S G Institute of Medical Sciences and Research, Off Avanashi Road, Peelamedu, Coimbatore 641 004, India

Sickle cell hepathopathy encompasses a range of hepatic pathology arising from a wide variety of insults to the liver in patients with sickle cell disease. It occurs predominantly in patients with homozygous sickle cell anemia, and to lesser extent in patients with sickle cell trait, Hb SC disease and Hb S β thalassemia. It is a well-documented entity that ranges from the self-limiting hepatic right upper quadrant syndrome to the potentially lethal intrahepatic cholestasis and acute hepatic sequestration syndromes. Chronic liver disease in SCD may be due to hemosiderosis and hepatitis. It is possible that repeated small, clinically silent microvascular occlusions occur throughout the life of a SCD patient, eventually leading to liver fibrosis, superimposed on other causes of chronic liver disease. We describe a 38-year-male with homozygous sickle cell disease who had this unique hepatic presentation and was documented to have characteristic findings of portal inflammation and sinusoidal dilatation on histopathology.

L19

Clinical profile of hepatocellular carcinoma at a tertiary care centre

***Sitaram Myneni**, Naveen Mohandas, K S Somasekharrao, Rupesh Kalyan, Shanmuganathan, Shanthi Vijaya Raghavan*
Sri Ramachandra Medical College, 1, Ramachandra Nagar, Porur, Chennai 600 116, India

A retrospective analysis was done on 42 patients admitted in our hospital between July 2010 and July 2011 with diagnosis of hepatocellular carcinoma. Different variables were considered and results compared. The diagnosis of HCC was made on the basis of serum AFP and CECT abdomen. Biopsy was done on patients where serum AFP and CECT Abdomen were inconclusive. Based on age group, 16 patients (38%) were between 60 and 70 years, 12 (28%) were between 50 and 60 years, 8 (19%) between 70 and 80 years, 3 (7%) between 40 to 50 years, 1 patient (2%) between 30 to 40 years and 2 (4%) were between 20 and 30 age group. Based on etiology, 16 patients (38%) were hepatitis B related, 10 patients (23%) were chronic alcoholics, 5 patients (11%) had cryptogenic DCLD, 3 patients (7%) were hepatitis C related. Serum AFP was greater than 400 ng/dL in 24 patients (57%), less than 400 ng/dL in 18 patients (43%). Out of 10 chronic alcoholics, 7 patients (70%) had AFP greater than 400 ng/dL, 3 had value less than 400 ng/dL.

L20

Clinical profile of autoimmune hepatitis in central India

***K Chandrashekhar, Waghmare**, Sagar J Adkar, Mayank Jain, Shohini Sircar, Ajay K Jain*
Department of Gastroenterology, Choithram Hospital and Research Centre, Manikbagh Road, Indore-452014, India

Introduction: Autoimmune hepatitis (AIH) is a rare cause of liver disease with variable geographic presentations. Present study determines the clinical, biochemical and histological profile of AIH from central India.
Method: Patient presenting with acute and chronic liver disease between January 2008 to January 2011 were

evaluated prospectively. International Autoimmune Hepatitis Group Criteria was used for diagnosis of AIH. Clinical examination, complete biochemical work up including liver function tests, viral markers, autoimmune hepatitis markers by immunofluorescence, USG abdomen, ARFI, UGI endoscopy, liver biopsy if required done in all patients.
Results: Twenty-three of patients were diagnosed to have AIH. Out of these 19 patients had AIH, 2 primary billiary cirrhosis and 2 had overlap syndrome. The mean age of the patients of AIH was 41.7 yrs, 18 were females and 5 were males. Twenty had chronic liver disease out of which 14 had cirrhosis, 6 had chronic hepatitis. Three had acute hepatitis presentation. The clinical presentations were jaundice in 15, acsites, pedal edema in 12 patient, hepatomegaly in 10 patients, splenomegaly in 12 patients, hepatic encephalopathy 3 and variceal bleed in 4 patients. Biochemical parameters were SGOT 303 IU/L, SGPT 223 IU/L, ALP 430 IU/L, globulin 4.4 g/dL, albumin 3.1 g/dL, bilirubin- direct 4 mg/dL and indirect 2.9 mg/dL, PT 20 s, INR 1.74 and ESR 53 at the end of 1 h. The autoimmune markers ANA was positive in 14 patient, SMA positive in 7, both ANA and SMA positive in 4 patients, anti LKM positive in 12 patients, both ANA and LKM positive in 6 patients, RA factor was positive in 2 and 2 had positive AMA. Eight patients had associated type 2 diabetes mellitus, 2 had hypothyroidism, 1 had vitiligo, 1 had autoimmune hemolytic anemia, 2 had rheumatoid arthritis. Viral markers were positive in 1 patient for hepatitis B (anti HBe Ab positive, anti HBs Ab positive), and one patient had positive anti HCV.
Conclusion: In central India, autoimmune hepatitis usually presents with chronic liver disease mostly in the form of decompensated cirrhosis, acute hepatitis is being very rare. Age of presentation is earlier. There were significant number of cases of type 2 AIH observed.

L21

Clinical profile of Wilson's disease in central India

Sagar Adkar*, Chandrashekhar Waghmare, Mayank Jain, Shohini Sircar, Ajay Jain*
Department of Gastroenterology, Choithram Hospital and Research Centre, Manikbagh Road, Indore 452 014, Madhya Pradesh, India

Background: Wilson's disease is a common metabolic disease mostly affecting the young. Clinical presentations of Wilson's disease are protean, ranging from mainly hepatic pattern in pediatric patients to neurological, psychiatric or rarely musculoskeletal symptoms in adults. Early recognition and treatment is crucial to retard the progression of this disease. There is to-date no community-based incidence and prevalence in India. We analysed the symptom profile, progression and clinical outcomes of patients presenting to a tertiary care centre in central India.
Methods: Hospital records of patients coming to Gastroenterology department over a 3-year period were reviewed to obtain the data on history and physical findings. Those patients on regular follow up were assessed for outcome in their last outpatient visit.
Results: Total 8 patients were studied. Mean age at onset of symptoms was 18 years. M:F ratio was 5:3. History of consanguinity was present in 1 patient. Five patients presented with pure hepatic symptoms, 2 with mixed neurological and hepatic pattern, 1 was asymptomatic sibling of an affected child. Out of 7 patients with hepatic involvement, 4 patients had features of decompensation; 3 patients improved with treatment and 1 was lost to follow up. One patient expired following a subdural hemorrhage secondary to a fall. Two patients had compensated cirrhosis and 1 had acute hepatitis none developed acute liver failure. Both patients with neurological disease with extrapyramidal and psychiatric symptoms, also had associated decompensated cirrhosis. One patient had polyarthralgia. None of the patients had hemolysis.
Conclusions: Timely treatment is cost effective and rewarding in improving the clinical outcome. Hence, once diagnosis is established the patient and the caregiver needs to be educated regarding compliance and long-term follow-up. Sibling screening of index cases is a must.

L22

Hepatocellular carcinoma and intrahepatic cholangiocarcinoma—similar yet different

Himanshu Patel, ***Amit Yelsangikar****, Manish Kak, Mehul Choksi, Prachi Patil, Shaesta Mehta, K M Mohandas*
Department of Digestive Diseases and Clinical Nutrition, Tata Memorial Centre, Parel, Mumbai 400 012, India

Background: Primary liver tumors are uncommon in India. Intrahepatic cholangiocarcinoma (IHCC) closely mimics hepatocellular carcinoma (HCC) and can be misdiagnosed.
Aim: To study the clinicopathological features of HCC and IHCC. To compare the clinical and laboratory parameters of both the tumors.
Methods: Case records of patients with diagnosis of IHCC or HCC from April 2010 to April 2011 were evaluated retrospectively. Clinical, biochemical, imaging, histological and immunohistochemistry findings were analyzed for both tumors.
Results: Sixty patients with HCC and 60 patients with IHCC were available for analysis. Patients with HCC

compared to IHCC had significantly higher incidence of hepatitis B infection (p=0.03), elevated alpha feto protein (mean 32775.9 vs. 755.5 ng/mL, p<0.0001), hypoalbuminemia (mean 3.2 gm/dL vs. 3.5 gm/dL, p=0.01), elevated aspartate amino transferase AST (mean 129 vs. 78 IU/mL, p=0.008) and imaging findings of cirrhosis (36 vs. 20 p= 0.002) with early arterial enhancement (53 vs. 10 p< 0.0001) and tumor encapsulation (38 vs. 12, p=0.000002). The subgroup of patients with IHCC and hepatitis B had significantly higher incidence of cirrhosis (76% vs. 21%, p <0.0001) and tumor encapsulation (53% vs. 10.8%, p= 0.0006) and trend toward higher alpha feto protein.
Conclusion: HCC and IHCC can be distinguished by careful clinical, biochemical, tumor markers and imaging assessment. Tumors in patients with IHCC and hepatitis B infection behave like HCC.

L23

Severe anemia in hospitalized patients with advanced cirrhosis: impact of Spur cells and severity of liver disease

K N Chandan Kumar*, Ramesh Kumar, Sanjeev K Gupta, Vikram Bhatia, Shiv Kumar Sarin*
Institute of Liver and Biliary Sciences (ILBS), Vasant Kunj Marg, New Delhi 110 070, India
Introduction: Spur cells are known to cause severe anemia (hemoglobin <7 g/dL) in advanced cirrhosis. The present study was aimed to evaluate clinical profiles of patients with severe anemia, incidence of spur cells anemia (SCA) and its correlation with disease severity and outcome in them.
Method: During study period, 106 consecutive hospitalized patients with cirrhosis and severe anemia without evidence of bleeding were studied.
Results: Forty-five (42.4%) of 106 patients had evidence of hemolysis with varying degree of spur cells (1–5% in 21 patients, and >5% in 24 patients). Compared with patients without SCA (n=61), patients with SCA had more advanced liver disease (MELD score, p 0.002, Child-Pugh score, p 0.003), higher serum bilirubin levels (p 0.03) and INR (p 0.001), more incidences of spontaneous bleedings (0.005), more frequent transfusion refractory anemia (p 0.01), and higher in hospital mortality (55.6% vs. 28%, p 0.01). Alcoholic cirrhosis was the predominant etiology. Patients with >5% spur cells had more advanced disease (MELD score, p=0.03, bilirubin, p=0.001, and INR p= 0.01) than those with spur cells 1–5%. In multivariate analysis, Child-Pugh score (OR [95%CI] 1.3 [1.02–1.8], p=0.03) and INR (OR 1.9 [1.08–3.3], p=0.02) independently predicted presence of SCA. Among alcoholic cirrhosis, discriminant function (DF) score was independent predictor of SCA, (OR [95%CI] 1.03 [1.00–1.05], p= 0.01). The diagnostic accuracy (AUROC) of DF for SCA was 0.76 (0.60–0.92).
Conclusion: In patients with advanced cirrhosis, spur cells causes severe, sometimes refractory anemia and is associated with disease severity and poor outcome.

L24

Scope and the utility of partial splenic artery embolization in the management of hypersplenism

Shorav Bhatnagar*, Ankur Arora, Deepak Jain*
Institute of Liver and Biliary Sciences (ILBS), Vasant Kunj Marg, New Delhi 110 070, India

Aim: To evaluate the efficacy of partial splenic artery embolization performed in patients with hypersplenism associated with chronic liver disease.
Introduction: Surgical removal of spleen is a well established procedure for the treatment of hypersplenism caused by chronic liver disease. As an alternative to surgical splenectomy, partial splenic artery embolization is another method of choice for treatment of hypersplenism. The procedure can be done in patients who are high risk from anaesthesia point of view, patients of advanced age and patients who are poor candidates for surgery.
Method: A retrospective analysis was done in 15 patients, who underwent partial splenic artery embolization for chronic liver disease associated hypersplenism. Post embolization analysis was done in terms of improvement in platelet count, TLC and hemoglobin and beneficial effects on varices and encephalopathy were also documented.
Result and Conclusion: Platelet counts responded promptly to PSE. Leucocytic counts also rose significantly within 2 weeks of PSE compared with counts before PSE. At follow up, leucocytic counts were within the normal range and were significantly higher than pre procedure counts in all patients. Hemoglobin levels did not significantly alter immediately post procedure but returned to normal by 6 months subsequent to PSE. It also decreases the variceal grading and encephalopathy.

L25

Association of adiponectin gene functional polymorphisms (−11377 C/G and +45 T/G) with nonalcoholic fatty liver disease

Abhishak Chandra Gupta,[1,3,4] *Richa Misra,*[2] *Puja Sakhuja,*[2] *Yogendra Singh,*[2] *Seemi Farhat Basir,*[4] *Shiv Kumar Sarin*[1]

Department of Hepatology, Institute of Liver and Biliary Sciences (ILBS), Vasant Kunj Marg, New Delhi 110 070, India, [1]Department of Pathology, G B Pant Hospital, J L Nehru Marg, New Delhi 110 002, India, [2]Institute of Genomics and Integrative Biology, Near Jubilee Hall, Mall Road, Delhi 110 007, India, [3]Department of Biosciences, Jamia Millia Islamia University, New Delhi, India

Background: Adiponectin levels are reduced in NAFLD patients and genetic variants of adiponectin have been frequently associated with type 2 diabetes and insulin resistance.
Aim: To determine the genotypic frequencies of adiponectin functional polymorphisms (−11377 C/G and +45 T/G) and their subsequent effect on disease progression and plasma adiponectin levels in the patients with NAFLD.
Methods: A total of 137 NAFLD patients and 250 matched controls were enrolled in the study. DNA sequencing and genotyping were performed to identify the genetic variants. The plasma adiponectin levels were assessed by standard ELISA assay.
Results: Two functional polymorphisms in the promoter (−11377 C/G) and Exon 2 (+45 T/G) were found to be associated with NAFLD. Homozygous mutant genotype of adiponectin SNPs, -11377 C/G and +45 T/G, were significantly more prevalent in NAFLD patients than in controls (Bonferroni corrected *p*-values: 0.014 and 0.018, respectively). Plasma adiponectin levels were significantly lower in the NAFLD patients as compared to controls. Moreover, presence of allele at position -11377 C/G and +45 T/G was found to be associated with necroinflammatory grade and reduced adiponectin levels, (*p*-values 0.02 and 0.01) respectively, in patients.
Conclusions: Adiponectin gene polymorphisms, -11377 C/G and +45 T/G, are associated with NAFLD in Indian patients. The adiponectin -11377 G and +45 G alleles are associated with severity of liver disease and hypoadiponectemia, respectively, in NAFLD patients.

L26

Oxidative stress induced cysteinylated plasma albumin in the patients with nonalcoholic fatty liver disease

Abhishak Chandra Gupta*, Kallol Gupta, Richa Misra, Puja Sakhuja, Yogendra Singh, Seemi Farhat Basir, P. Balaram, Shiv Kumar Sarin*
Department of Hepatology, Institute of Liver and Biliary Sciences (ILBS), Vasant Kunj Marg, New Delhi 110 070, India, Department of Pathology, G B Pant Hospital, J L Nehru Marg, New Delhi 110 002, India, Institute of Genomics and Integrative Biology, Near Jubilee Hall, Mall Road, Delhi 110 007, India, Department of Biosciences, Jamia Millia Islamia University, New Delhi, India

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Conclusions: Adiponectin gene polymorphisms, -11377 C/G and +45 T/G, are associated with NAFLD in Indian patients. The adiponectin -11377 G and +45 G alleles are associated with severity of liver disease and hypoadiponectemia, respectively, in NAFLD patients.

L27

Frequency and predictive factors of relative adrenal insufficiency in cirrhosis

Abhai Verma*, G Choudhuri, U C Ghoshal, S Mohindra*
Department of Gastroenterology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow 226 014, India

Background: A blunted hypothalamic pituitary adrenal (HPA) axis resulting in relative adrenal insufficiency (RAI) could underlie the vulnerability of patients of liver cirrhosis (LC) to the stress of infections and bleeding. We studied the frequency of RAI in patients of LC and factors associated with it.
Methods: One hundred and eight consecutive patients of LC (79 males, age 49.8+10.7 y, Child A 33, Child B

32, Child C 35), who were not on steroids and not in shock or sepsis, were included. Cortisol stimulation test was performed with 250 mcg of adreno-corticotropic hormone (Synacthin). RAI was defined as stimulated cortisol level <0.05), lower serum albumin (p=0.01) and increased INR (p=0.01), the latter two being significant on multivariate analysis. ROC curves showed Child score of 8 and MELD score of 12 to be the best differentiaters.
Conclusion: Suppression of HPA axis is common in cirrhotics. Its frequency increases with Child and MELD scores, to as much as 63% in Child's C class.

L28

Adrenal insufficiency predicts early mortality in patients with cirrhosis

Romesh Chawlani*, Ashish Kumar, Jay Toshniwal, Hardik Kotecha, Piyush Ranjan, Anil Arora*
Department of Gastroenterology, Sir Ganga Ram Hospital, Rajinder Nagar, New Delhi 110 060, India

Background: Although adrenal insufficiency (AI, hepato-adrenal-syndrome) has been documented in cirrhotic patients but factors associated with it and its influence on mortality is still not clear. We investigated AI in cirrhosis without hemodynamic instability and studied its influence on short-term mortality.
Methods: In consecutive cirrhotic patients AI was defined by a total serum cortisol (TC) <18 μg/dL, 60-min after 250 μg synacthan injection. Relative adrenal insufficiency (RAI) was defined when delta-fraction (post-synacthan–basal-cortisol) was <9 μg/dL.
Results: One hundred and nine patients were included (median age 50 years [range 27–73], males 87%). The median CTP and MELD-scores were 10 (range 5–14) and 21 (range 6–48). The etiology of cirrhosis was alcohol (57%), cryptogenic (25%), viral (15%), and others (3%). Thirty-four (31%) patients had AI, 35 (32%) had RAI and rest 40 (37%) had normal adrenal function. Serum bilirubin, albumin, INR, creatinine, CTP- and MELD-score were similar between those with and without AI. The frequency of AI was less in cryptogenic cirrhosis than in other etiologies (14% vs. 37%, p=0.03). On 120-day follow up, 37 patients died, 3 underwent OLT, and 69 were still surviving without OLT. Thus, the 120-day transplant-free survival was 63%, and this was higher in patients without AI than in patients with AI (71% vs. 47%; p=0.031). On multivariate analysis, absence of AI independently predicted 120-day transplant free survival, apart from CTP and MELD.
Conclusions: AI is present in one-third cirrhotic patients but does not parallel the severity scores. Its presence predicts early mortality in these patients, and this prediction is independent of CTP or MELD scores. Thus in every cirrhotic patient AI should be actively sought, and these patients should be transplanted early.

L29

Nitric oxide synthase genes: new players in fulminant hepatic failure

Rajib Kishore Hazam,[1] *Premashis Kar*[1]
[1]PCR Hepatitis Lab, Department of Medicine, Maulana Azad Medical College, Bahadur Shah Zafar Marg, Delhi Gate, New Delhi, Delhi 110 002, India

Background and Aim: Correlation between iNOS, eNOS polymorphism, expression and severity of disease in hepatitis has been reported earlier. The study was aimed to determine the role of iNOS and eNOS gene polymorphism and their expression in hepatitis E related acute viral hepatitis and fulminant hepatic failure.
Methods: HEV related 197 AVH and 39 ALF cases and age and sex matched 256 healthy controls were included in the study. PCR-RFLP was performed for iNOS and eNOS genes. Expression study was done using commercially available ELISA kits. Combined effects of iNOS genotype and risk factors were estimated using SPSS software.
Results: The frequency of iNOS (CT+TT) and eNOS (GT+TT) genotypes was non significantly higher in FHF compared to AVH and healthy controls. iNOS and eNOS expression in FHF (56.5±6.2 IU/mL, 61.1±1.7) cases were significantly increased as compared to AVH (17.2±8 IU/mL, 23.3±4.2) and controls (7.7±3.2 IU/mL, 16±3.6) by ELISA (p<0.005).
Conclusion: Hepatitis E viral infection can add to the severity of fulminant hepatic failure by disturbing the normal NO signaling cascade. iNOS and eNOS may be a potential determinant of susceptibility to fulminant hepatitis, and nitric oxide synthase genes may be new players in the pathophysiology of fulminant hepatic failure.

L30

Clinical course, multivariate analysis of response to various treatment modalities and complicatons of liver abscess

Ashok Jhajharia, *Sandeep Nijhawan*
Department of Gastroenterology, S M S Medical College, Jaipur

Background: Liver abscess is a life threatening condition. Purpose of the study was to audit etiology, the

clinical course, multivariate analysis of response to various treatment modalities and complications of liver abscess.
Methods: A total of 140 patients were randomly enrolled between August 2010 to December 2010 of both amebic and pyogenic liver abscessin three groups depending on certain important criteria. By multivariate analysis we tried to analysis response rate of various treatment modalities in form of size regression radiologicaly by USG and various complication in form of jaundice cholestasis, hypoprotienemia and other fatal complications
Results: Antibiotic treatment was given in all, antibiotic and percutaneous aspiration done in 68 patients; antibiotic and pigtail catheter treatment was done in 32 patients and antibiotic treatment alone in 30 patients. Ten patients lost to follow up. There was no significant difference in radiological resolution of liver abscess in all three groups.
Conclusion: Majority patients can be treated by antibiotic and percutaneous aspiration and pigtail catheter have no added advantage except morbidity and complication. Liver abscess is complicated by various complication and they can be treated if timely intervened.

L31

Clinical profile of anti-tubercular treatment induced hepatitis

***Madhura Prasad**, C Ganesh Pai*

The clinical profile of anti-tubercular therapy induced hepatitis is variable and the treatment of tuberculosis after the occurrence of hepatitis is difficult and controversial. We studied in retrospect, the clinical profile of patients (total 54) who developed ATT induced hepatitis during 2008–2009. Twenty-nine (54%) were females. The mean age of the patients was 37.7 years (S.D.-12.78). Twenty-nine patients (54%) had BMI less than 18. Mean albumin was 3.2 mg/dL. Twenty-five patients (46.3%) had pulmonary tuberculosis. Eight patients were HIV ELISA positive, with a median CD4 count of 55.5. Eighteen out of 54 patients (33.33%) presented with only nausea and vomiting. Two patients had developed rash which subsided on stopping pyrazinamide. One patient expired. Other than 4 patients, all others had developed hepatitis within 40 days, with a median of 8 days (IQR:6–20). The mean AST and ALT at presentation with hepatitis were 333 and 251 mg/dL with the highest values recorded being 2,530 and 1,676 respectively. The time taken for normalization of AST and ALT values, was a median of 6 (IQR: 4–14) and 13 days (IQR: 7–23) respectively. Thirty-nine patients (72.22%) were restarted on either isoniazid or rifampicin or both which were introduced in a step-wise manner. Thirty-three out of the 39 patients (84.62%) tolerated the regime and completed treatment without recurrence of hepatitis. Thus, our results showed that the patients who developed ATT induced hepatitis were predominantly young and malnourished and the majority tolerated the hepatotoxic drugs when they were reintroduced in a step-wise manner.

L32

Peri-operative bacterial infection in deceased donor and living donor liver transplant patients

***V Joy**, P Rajasekhar, K Venugopal, N Gomathy, S Vivekanandan, A Olithselvan, S Naresh, S Vijaya, V Jayanthi, M Rela*
Institute of Hepatopancreaticbiliary and Transplant Unit, #439, Cheran Nagar, Perumbakkam, Off OMR, Near Sholinganallur, Chennai 600 100, India

Background: The risk of infection and its effect on survival amongst living donor (LDLT) and deceased donor (DDLT) in Indian patients is not known.
Aim: To compare non viral infection rates among LDLT and DDLT patients and their impact on survival.
Methods: Retrospective data on 73 liver transplant patients were reviewed. A detailed data on peri-operative non-viral infections was obtained. Follow up for infection was noted at one month and six months. Statistics: SPSS Version 16, chi square, relative risk and attributable risk were computed.
Results: Forty patients had LDLT (group I) and 33 had DDLT (group II). Age, sex and socioeconomic status in either groups were comparable. The median age was 48.8 years (youngest 9 days). The prevalence of infection in group I was 47.2% vs. 42.2% in group II. Seven in group I (17.5%) and 3 (9.0%) in group II had no perioperative infection. Twenty-three (57.5%) and 34 (80.5%) patients respectively had pre- and postoperative infection in group I while in group II this was present in 12 (36.3%) and 28 (84.6%) patients respectively (difference not significant). The source of infection was similar. *E coli* was common organism in perioperative period followed by Klebsiella, pseudomonas and candida infection. Six patients required antituberculous treatment. Death rates due to septicaemia was similar in both groups (LDLT: 12.5%; DDLT: 12.1%).
Conclusions: The risk of postoperative infection was similar (0.99) in LDLT and DDLT and was not attributable to either surgical procedure. Postoperative infection rates was not influenced by preoperative infection rates.

L33

A comparative analysis of clinical, biochemical and radiological features of cirrhotic HCC patients with and without portal vein thrombosis

K A Anoob John*, Abhilash, Rajani Antony, N Premletha, D Krishnadas, K R V Kumar*
Department of Gastroenterology, Government Medical College, Thiruvananthapuram 695 011, India

Introduction: Portal vein thrombosis is seen in 1% of Cirrhosis and 25% of HCC. The development of portal vein thrombosis in HCC is a marker of poor survival.
Aim: To compare non viral infection rates among LDLT and DDLT patients and their impact on survival.
Aim: To identify clinical, biochemical and radiological predictors for occurrence of PVT in patients with HCC.
Methods: Seventy-eight patients with HCC admitted in a teritiary centre were included in the study. Cases and controls were selected based on the occurrence of portal vein thrombosis. Their clinical, radiological and biochemical parameters were analyzed statistically.
Results: 61.5% of our patients had portal vein thrombosis. Mean values of the AFP, ALP and platelets were higher among cases. Mean size of the largest lesion (7.3 cm vs. 5.5 cm) and the number of focal lesions were more in cases (2.01 against 1.5) compared to control group. While applying Independence T test p value was significant for the size of the lesion. Applying linear regression, R2 of 0.016 was obtained for lesion size as dependent variable.
Discussion: Abdominal pain and GI bleed was proportionately higher among patient with PVT. Mean AFP level was 5 times higher among PVT patients, but statistically insignificant probably due to small study population. The lesion size might be a predicting factor for portal vein thrombosis.

L34

Real time ultrasound guided liver biopsy - a procedural experience in a tertiary care hospital

Y Praveen Kumar*, Pradeep Kumar, Sojan, Mukunda, K R Vinayakumar*
Department of Medical Gastroenterology, Medical College Hospital, Thiruvananthapuram 695 011, India

Introduction: Liver biopsy is the cornerstone in the evaluation of chronic liver diseases. However, concerns regarding the complications make clinicians delay it. In our experience, liver biopsy when done properly has negligible risks.
Objectives: To compare the patient compliance for transthoracic real time ultrasound guided liver biopsy with lymph node biopsy. To evaluate the patients acceptance in comparison with other gastrointestinal invasive procedures.
Methods: In this cross sectional study patients undergoing transthoracic real time ultrasound guided liver biopsy in our department and lymph node biopsy in Surgery department were included (6 months). Patients were interviewed 4 weeks post procedure. Visual analogue scale was used to assess pain and anxiety scores. Student t test and chi square tests were used for statistical analysis.
Results: Sixty patients where included with age ranging 8–64 yrs. Anxiety score was more in liver biopsy group (8 vs. 6.85). Post procedure pain severity was similar, but post procedure pain duration and analgesic use was more in LN biopsy group. Complications were more common in the LN biopsy group (11.7% vs. 0).76.5% patients preferred liver biopsy over OGDscopy, 92.8% over colonoscopy, and all were willing to undergo second liver biopsy if required. No difference in time period of resuming daily activities in both groups.
Conclusion: Ultrasound guided liver biopsy may not be deferred for fear of complications or patients in acceptance.

L35

A study on the clinical profile of cirrhotic patients with cellulitis

K Sojan George,*, Zameer Mohammed, A Shanid, Sreesh Srijaya, K R V Kumar*
Department of Gastroenterology, Government Medical College, Thiruvananthapuram 695 011, India

Introduction: Nineteen per cent of cirrhotics suffer from cellulitis, leading to increased mortality. Knowledge of their clinical profile would open up new areas of research.
Objectives: To study the clinical profile of cirrhotic patients presenting with cellulitis.
Methods: All cirrhotic patients presenting with cellulitis in a tertiary care centre of Kerala were included in this study. Data collected regarding age, sex, aetiology, comorbidities, site of cellulitis, Childs core, hemoglobin level, platelet count, INR, creatinine levels, bilirubin, albumin and blood culture reports was analysed statistically.
Results: Twenty-three patients (including 19 males) were studied. The mean age was 50.9 years. The major etiologies were ethanol in 13 and HBV and HCV in 3 patients each. The important comorbidities were diabetes (43.5%) and hypothyroidism (17.4%). Lower limb and scrotum were the common sites. Most patients belonged to Child C (19). All patients had preceding edema. 73.9% patients had anemia and platelets <1,00,000/cmm. All patients had a prolonged

INR. Fourteen patients had creatinine >1.2 mg/dL. Mean bilirubin was 3.7 mg/dL. 56.5% patients had albumin < 2.5gm/dL. Cultures yielded *Ecoli* in 13 and Klebsiella in 2 patients.
Conclusion: Male sex, anemia, hypoalbuminemia, thrombocytopenia and increased creatinine were common in our patients.

Gall Bladder and Biliary Tree

GB1

Is gallstone disease a risk factor for gallbladder cancer in South India?

Sandeep Sachidananda, ***Arunkumar Krishnan,*** *K Janani, P C Alexander, Vimalraj Velusamy, R Surendran, V Jayanthi*
Department of Surgery and Department of Gastroenterology, Stanley Medical College Hospital, Chennai, 600 108, India

Background: Gallbladder cancer (GBC) is common in north India. It is also a well established fact that gall bladder cancer is frequently associated with gallstone disease in north India, similar to the West. The magnitude of the problem of GBC in south India and its link to gallstone disease is not clearly established. To determine the link between gallstone disease and GBC in these south Indian patients.
Methods: Retrospective data was obtained from records of proven cases of GBC and patients undergoing cholecystectomy for gallstone disease between January 2001 and December 2010. Data retrieved included age, gender, and clinical presentation, findings on imaging, histology and details of management.
Results: The number of proven cases of GBC each year ranged from 8 to 17. There were 38 men and 23 women. Men were more in the successive decades. Right upper quadrant pain (42%) followed by jaundice (27%) and a presence of a palpable mass (12%) were the clinical presentation. Pre-operative diagnosis of gall bladder cancer was possible in 80%. Twelve patients had co-existing gallstones (19.6%). Forty patients (50%) had stage IV disease; only 6 patients had Stage I operable disease (9.8%). During the same time 758 patients had cholecystectomy for gallstone disease. The male: female ratio was 1:1.8. 80% of patients had black pigment amorphous stones. Only one patient had an incidental GBC, who had an extended cholecystectomy.
Conclusions: Gallbladder cancer is uncommon in south India and there is apparently no link of gall bladder cancer to gallstone disease.

GB2

Spectrum of bacterial flora in bile collected during ERCP procedure

J K Pradeep Kumar*, T M Amruthesh, Mukesh Agarwala, Thakkar Bhavesh Hiralal, Ubal Dhus, R Ravi, M Hariharan, K R Palaniswamy*
Apollo Hospitals, Greams Road, Chennai 600 006, India

Introduction: Cholangitis is frequent and potentially life threatening complication in biliary obstruction. Blood culture often remain negative (around 50%) even in febrile patient with cholangitis. Bile aspirated during ERCP provides an opportunity to grow the organism in culture and establish antibiotic sensitivity and resistance. The aim of the study is to assess the effectiveness of bile collection for microbiological analysis and to choose appropriate antibiotics in cholangitis.
Methods: This prospective study was conducted between November 2010 and June 2011 in endoscopy unit of Apollo Hospital, Chennai in patient with various biliary disorders. Bile was collected during ERCP before injection of contrast, inoculated into blood culture medium immediately in endoscopy unit and then sent to microbiology department.
Results: Bile was collected in 30 patents. Bile culture were positive in 20 patients in spite of receiving pre-procedural antibiotics (50%). Most common indication was choledocholithiasis. Monobacterial growth was more frequent in comparison with polymicrobial growth. Gram negative organism were frequent. (*E. coli* 45%, K. Pneumonia 35%, *p*. aurugunosa 15%). The most effective antibiotic against gram negative organism were gentamycin, cefoperazone/sulbactum, piperacillin/tazobactum and imepenem.
Conclusion: Our study showed that gram negative organism are more predominant in acute cholangitis with sensitivity to were gentamycin, cefoperazone/sulbactum, piperacillin/tazobactum. Bile sample collected during ERCP for culture and sensitivity is simple, valuable diagnostic tool in patients with cholangitis.

GB3

Malignant biliary obstruction- an audit from tertiary centre

G Sathya*, G Ramkumar, K Muthukumaran, R Balamurali, T Pughazhendi, S Jeevankumar*
Department of Digestive Health and Diseases, Government Peripheral Hospital, Anna Nagar, Chennai 600 010, India

Introduction: The objective of this study was to audit the various etiological spectrum of malignant obstructive jaundice in patients who underwent ERCP.

Methods: A retrospective analysis of the case reports was done for the patients who underwent ERCP during the year 2010. Thorough analysis regarding history, physical examination, biochemical tests and various investigations like USG abdomen, CT abdomen, MRCP, ERCP procedure was done.
Results: Of the total of 77 patients, 49 (63.6%) were males and 28 (36.3%) were females. The mean age was 59 yrs. The majority of them presented with classical symptoms of obstructive jaundice like pruritis, pale stools, abdominal pain associated with significant loss of weight. The commonest malignancy was ampullary growth found in 36 (46.7%) patients. It was more common among males with 23 (64%) patients and females with 13 (36%) patients. The next commonest was GB mass infiltrating into CBD in 13 (17%) patients with 9 (69%) males and 4 (31%) females. The next was distal cholangiocarcinoma with 13 (17%) patients with 8 (61.5%) males and 5 (38.4%) females. Overall, all the malignancies were found to be more common among males.
Conclusion: Obstructive jaundice due to malignant etiology is predominant in males compared to females. Increasing age is associated with increased incidence of malignant obstructive jaundice. Ampullary growth is the commonest malignancy as a whole.

GB4

Role of endoscopy in biliary injuries

Rupesh Kalyan, Somasekar Rao, ***Naveen Mohandas****, Sitaram, Shanthi Vijayaraghavan, Shanmuganathan*
Sri Ramachandra Medical College, 1, Ramachandra Nagar, Porur, Chennai 600 116, India

Introduction: Biliary injuries continue to be a significant problem following open or laparoscopic cholecystectomy, liver transplant, trauma or infection. Endoscopic interventions have essentially replaced surgery as first-line treatment for most of the biliary injuries following cholecystectomy and also in hemodynamically stable patients with traumatic hepatobiliary injuries.
Methods: We retrospectively evaluated patients who presented to the department of Gastroenterology with biliary injuries during the period July 2009 to July 2011.
*Results:*A total of 12 patients had evidence of biliary tract injury. Prior to presentation, 8 patients had undergone laparoscopic cholecystectomy, 3 had open cholecystectomy and 1 patient had a history of blunt abdominal trauma sustained in a road traffic accident. The most common presenting symptoms were abdominal pain (8), bile ascites (6), jaundice (2) and biliocutaneous fistula (2). ERCP detected leak in 5 patients, stricture in 3 patients, stricture with CBD leak in 1 patient and cut-off in 3 patients. Endoscopic treatment was successful in 9 out of the 12 patients. The 3 patients in whom endoscopic therapy was unsuccessful had cut-off at the levels of CBD (2) or CHD (1). All 9 patients who were managed endoscopically underwent biliary stenting, including 1 patient who was treated with a self-expanding covered metallic stent for a malignant CBD stricture with T-tube drain leak. Endoscopic sphincterotomy was done in 6 patients and balloon dilatation was done in 4 patients who had stricture of CBD. None of the patients had any procedure related complications.
*Conclusion:*Endoscopic intervention is a safe and effective method of treatment of biliary injuries.

GB5

Study on APEndonuclease (APE1/ref-1), a DNA repair enzyme, in gallbladder cancer

Prashant Chandra Das, *S K Bhartiya, Somprakash Basu, M J Raman, Vijay K Shukla*
Department of General Surgery, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, India

Introduction: Human AP-endonuclease (APE1/Ref-1), plays central role in repair of oxidative base damage via DNA base excision repair (BER) pathway. High expression levels of APE1 in cancer cells compared to normal cells has been reported. This study investigates levels of APE1 in gall bladder cancer tissue and co-relates these levels with various clinicopathological parameters of gall bladder cancer (GBC).
Methods: This study included twenty new cases of GBC and twenty cases of cholelithiasis. Western blot analysis of tissue samples done taking Actin as reference protein. Densitometric analysis and IDV (integrated density value) of samples determined. Ratio of IDV values of APE1/Actin, taken as relative expression in each sample determined and comparision in cholelithiasis and GBC done.
Results: Mean IDV ratio values of APE1 in GBC group was 0.63±0.33 with range 0.31–1.99; and 0.45±0.19 with range 0.08–1.05 in cholelithiasis group ($p<0.05$). Mean IDV ratio values of APE variant (ΔAPE1) for GBC was 0.51±0.09 with range 0.30–0.60 and in cholelithiasis group was 0.40±0.16 with range 0.10–0.70 ($p=0.018$). Mean IDV ratio of total APE (APE1+APE1) in GBC was 1.13±0.31 with range 0.81–2.32 whereas in cholelithiasis was 0.85±0.23 with range 0.35–1.26 ($p=0.003$). Significant correlation ($p=0.044$) was found between expression of APE variant (APE) and histologically evident gall bladder wall infiltration and that between the expression of APE , APE, total APE and perineural invasion ($p<0.001$; 0.031 and 0.002 respectively). Hence APE1 can act as novel molecular marker for gall bladder cancer in predicting locoregional spread and aggressive behavior.

GB6

Air cholangiogram is not inferior to dye cholangiogram for malignant hilar biliary obstruction: a randomized study of efficacy and safety

***Rajesh Pur**i, Randhir Sud, Ashish Mehta, Parvesh K Jain, Abdul Khaliq*
Sir Ganga Ram Hospital, Rajinder Nagar, New Delhi 110 060, India

Background: Endoscopic biliary drainage is palliative treatment of choice in patients with malignant hilar biliary obstruction, but contrast injection can lead to cholangitis. Air cholangiography assisted metal stenting has shown fewer incidences of cholangitis. There are no randomized comparative studies so far.
Objective: To prospectively compare the efficacy and safety of air versus dye cholangiogram in malignant hilar biliary obstruction.
Methods: This was a prospective randomized study carried out in a tertiary care centre. Patients with type II and III malignant hilar biliary stricture were included in the study and single metal stent was deployed using either air or dye as a contrast medium. Main outcome measures were successful deployment, successful drainage, early complications, procedure related and 30-day mortality.
Results: Of total 49 patients, 25 were in air cholangiogram group (group A) and 24 in dye cholangiogram group (group B). Nineteen, 6 in group A and 20, 4 patients in group B had type II and type III biliary stricture respectively. Successful stent insertion and drainage was achieved in 25 (100%), 24 (96%) in group A and 23 (95.8%), 22 (91.6%) (p=ns) respectively. Cholangitis developed in 1 (4%) and 4 (16.67%) patients in group A and B respectively ($p<0.05$). There was no procedure related or 30 days mortality. The mean survival was 167±134.1 days and 162±145.8 days in group A and B (p=ns) respectively.
Conclusion: In malignant hilar biliary obstruction, stenting using air cholangiography is as safe and effective as dye cholangiography and it reduces the risk of post ERCP cholangitis.

GB7

Bile acids, small intestinal bacterial overgrowth and orocecal transit time in gallstone north Indian patients

***S. V. Rana**, J. Kaur, R. Gupta*, V. Gupta*, S. K. Sinha, K. Singh*
Departments of Gastroenterology and *General Surgery, Postgraduate Institute of Medical Education and Research, Chandigarh 160012, India

Introduction: Gallstone disease is one of the most prevalent gastrointestinal diseases with a substantial burden to health care systems. The etio-pathogenesis of this disease is poorly understood. Change in serum bile acid levels, bacterial overgrowth and small bowel motility disorder may cause this problem.
Aim: To compare serum bile acid levels, small intestinal bacterial overgrowth (SIBO) and orocecal transit time (OCTT) in gallstone patients and controls.
Methods: Eighty gallstone patients were enrolled in the study. There were 23 males aged between 24–65 years and 57 females aged between 18–67 years. 82 age and sex matched apparently healthy subjects were also enrolled as controls. Serum bile acid levels, SIBO and OCTT were measured in all subjects.
Results: Serum bile acids were found to be significantly higher in gallstone patients as compared to controls. Serum bile acids levels were 6.52 ± 2.89 μmol/L in SIBO positive gallstone patients as compared to 4.47 ± 1.27 μmol/L in SIBO negative patients. In controls, serum bile acids levels were 3.70 ± 1.40 μmol/L. Mean ±SD of OCTT in patients with gallbladder stones was 134.8 ± 30.64 minutes while 85.35 ± 19.81 minutes in apparently healthy controls. It was observed that OCTT was significantly delayed in gallstone patients as compared to controls. SIBO was found to be significantly more in gallstone patients (15%) as compared to controls (1%).
Conclusion: SIBO in gallstone patients may be due to delayed OCTT and leading to increased serum bile acids.

Pancreas

P1

ERCP in chronic pancreatitis—an audit

***B Prakash Shankar**, P Jagadeesan, G R Balamurali, K Muthu Kumaran, T Pugazhendhi, S Jeevan Kumar*
Department of Digestive Health and Diseases, Kilpauk Medical College and Hospital, Chennai 600 010, India

Background and Aim: ERCP as a therapeutic modality is emerging as an effective alternative to surgery. In this retrospective study demographic profile of patients with chronic pancreatitis and role of endotherapy in these patients was analyzed.
Observation: About 24 patients with chronic pancreatitis underwent ERCP for various indications over a period of 1 year from June 2010 till May 2011. Median age-43.5 years, range 22–75 years, male: female 17:7.
Indications: CBD stricture—5, PD stricture—2, communicating pseudocyst—3, pancreatic ascites −1, pancreatic

fistula-2, management of pain refractory to medical management—11. ERCP was unsuccessful in 9 out of 24 patients (37.5%). Failure rate was high despite two or more attempted ERCPs. Failure rate was high in ERCPs done for pain management. There was a striking feature of increasing incidence of alcoholism as a predominant cause of chronic pancreatitis. Causes of chronic pancreatitis in this study: alcoholism—15, idiopathic—4, tropical calcific pancreatitis—3, trauma—1, pancreas divisum—1.
Conclusion: ERCP is very effective in the management of complications of chronic pancreatitis especially pancreatic ascites, pancreatic fistula and communicating pseudocysts are effectively managed with pancreatic stenting. Failure rate is still high when compared to biliary causes. Alcoholism is emerging as the commonest etiology of chronic pancreatitis.

P2

An interesting cause of pancreatitis

R Senthil Kumar*, T Arun, R Balamurali, S Chitra, T Pugazhendhi, S Jeevan Kumar*
Department of Digestive Health and Diseases, Kilpauk Medical College and Hospital, Chennai 600 010, India

Case Report: A 47-year-old gentleman presented with upper abdominal pain for 1 week duration. Pain increased on food intake, decreased on stooping forward and radiated to back. There was no history of vomiting, GI bleed, jaundice, respiratory distress and abdominal distention. Not an alcoholic and smoker. On examination, vitals were stable. Abdominal examination was unremarkable except for epigastric tenderness. Basic blood investigations, LFT, RFT were within normal limits. Serum amylase was 1300 IU/L. Triglycerides, serum calcium and phosphorus were normal. CECT abdomen showed edematous pancreas with ductal calculi, liver abscess, bilateral renal calculi and left adrenal mass. Plasma metanephrines were in normal limits. Patient was treated and he improved. Five months later he again presented with pancreatitis. MRCP revealed acute-on-chronic pancreatitis with resolved liver abscess. Repeat serum calcium was 12.4 mgs% and s. phosphorus was 2.2 mgs%. Serum parathyroid hormone level was 232 pg/mL which was highly elevated. Tc-99 m sestamibi dynamic study revealed tracer retention in lower poles of thyroid gland. Bilateral inferior parathyroidectomy with total thyroidectomy was done. Postoperatively parathyroid hormone level came down to 11 pg/mL and serum calcium was 10 mgs%. HPE report revealed colloid goitre with bilateral inferior parathyroid adenoma. Patient improved and there were no further episodes. Final diagnosis was bilateral inferior parathyroid adenoma with hyperparathyroidism presenting as pancreatitis.
Conclusion: Hyperparathyroidism is a rare [<1% as a cause] but treatable cause of pancreatitis. Timely identification will avoid unnecessary biliary and pancreatic surgeries.

P3

To compare the APACHE II and CT severity index as predictors of clinical outcome in patients with acute pancreatitis

Manoj Kumar*, Ajit Kumar, Akash Chaudhary, C Padmavathi, Yogesh Harwani, Nayana Joshi*
Department of Gastroenterology, Nizam's Institue of Medical Sciences, Punjagutta, Hyderabad 500 082, India

Background: APACHE II and CT severity index are commonly used as prognostic markers in patients with acute pancreatitis.
Aim: To compare the utility of APACHE II score and CT severity index as prognostic markers in acute pancreatitis.
Methods: Forty consecutive patients admitted with acute pancreatitis at NIMS were classified into mild, moderate and severe pancreatitis groups as per APACHE II score and CTSI.
Results: There were 34 (85%) males and 6 (15%) females. In patients with mild pancreatitis (APACHE II score 12) 66.67% had pseudocyst, 100% necrosis, 16.67% sepsis and 50% organ failure. In patients with moderate pancreatitis (CTSI 5–6) 60% had pseudocyst, 100% necrosis, 0% sepsis and 20% organ failure and in patients with severe pancreatitis (CTSI >6) 62.5% had pseudocyst, 100% necrosis, 25% sepsis and 62.5% organ failure. No patient died in any of the groups. There was no significant difference in the clinical outcome between the two scoring systems (p-value>0.05).
Conclusion: APACHE II score and CT severity index are equally good predictors of clinical outcome in patients with acute pancreatitis.

P4

To study the effect of antioxidant therapy in patients with early acute pancreatitis

Manoj Kumar, *Ajit Kumar, Akash Chaudhary, Yogesh Harwani, C Padmavathi, Nayana Joshi*
Department of Gastroenterology, Nizam's Institue of Medical Sciences, Punjagutta, Hyderabad 500 082, India

Background: Increased oxidative stress or a reduced antioxidant status has been reported in acute pancreatitis. A variety of antioxidants like super oxide dismutase,

catalase, glutathione precursors, ascorbate, and selenium etc., have shown benefit in the outcome of experimental and clinical human pancreatitis.
Aim: To study the effect of exogenous antioxidant supplementation on the clinical outcome in patients with early acute pancreatitis.
Methods: Forty consecutive patients admitted with acute pancreatitis at Nizam's Institute of Medical Sciences, were randomized into two groups of twenty patients each. Standard medical treatment (SMT) group received standard treatment for acute pancreatitis as per hospital policy. Antioxidant (AO) group were given standard medical treatment plus antioxidants (iv glutathione, iv ascorbic acid, oral vitamin E, β carotene and selenium) for 5 days as per defined protocol clinical outcome parameters i.e systemic complications (organ failure, sepsis) and local complications (pancreatic necrosis, pseudocyst, pancreatic abscess) and duration of hospital stay and mortality were compared between SMT and AO groups.
Results: On comparing local complications, systemic complications, mortality and duration of hospital stay, there was no statistically significant difference between SMT and AO groups ($p>0.05$) that means the outcome was similar in the two treatment groups. No patients died in any of the groups.
Conclusion: Exogenously administered antioxidants were not useful in improving the clinical outcome in patients with early acute pancreatits in our study.

P5

Diagnostic yield of EUS guided fine needle aspiration cytology in pancreatic and peripancreatic masses: an initial experience

Bhavesh Thakkar, *Mukesh Agarwala, T M Amruthesh, J K Pradeepkumar, P Piramanayagam, R Ravi, K R Palaniswamy*
Apollo Hospitals, Greams Road, Chennai 600 006, India

Background: Pancreatic and peripancreatic masses are important diagnostic dilemma and EUS is important modality for evaluation and tissue sampling and further management.
Aims: To assess yield of EUS FNAC in diagnosis of pancreatic and peripancreatic solid and cystic mass lesions without on site cytopathologist in newly established programme.
Methods: Patients detected to have pancreatic or peripancreatic mass lesions on imaging studies of abdomen (ultrasound/CT/MRI) were subjected to EUS guided FNAC under propofol anesthesia after obtaining informed and written consent. Slides were prepared and fixed with 80% propanol and for cell block preparations in formalin. Pancreatic cysts on EUS were identified and fluid was aspirated and was sent for CEA and amylase levels.
Results: Of 26 patient who underwent EUS FNAC, 17 had solid mass (12 in head, 4 in body, 1 in tail of pancreas), 5 had cystic mass (3 in head, 1 in genu and 1 in tail), 4 had enlarged peripancreatic lymph node. EUS FNAC was diagnostic in 76% (75% of head, 75% of body, 100% of tail) of solid mass lesion, 100% in cystic lesions and 75% of peripancreatic lymph nodes.
Conclusion: EUS is useful tool for evaluation and management of pancreatic and peripancreatic mass lesions.

P6

Effect of insulin secretagogues on PDX-1expression

P Pavan Kumar,[1] *G Radhika,*[1] *P Penusha,*[1] *G V Rao,*[2] *R Pradeep,*[2] *D Nageshwar Reddy,*[2] *M Sasikala*[1]
[1]Asian Health Care Foundation, [2]Asian Institute of Gastroenterology, 6-3-661, Somajiguda, Hyderabad 500 082, India

Background/Aim: Secretagogues such as glutamine, alanine, leucine, lysine and proline were shown to improve islet functions and act as secretogauges. Several studies reported that transcription factor PDX-1 regulates insulin gene expression, β-cell growth, and differentiation of the β-cell phenotype in islets. Leucine levels were found to be reduced in chronic pancreatitis patients with diabetes. In the present study we investigated, if addition of aminoacids can improve pdx1 expression and insulin secretion.
Methods: Pancreatic tissue explants from controls were incubated in RPMI-1640 medium with different concentrations of amino acids (glutamine, alanine, leucine, lysine, proline) in presence of 5.5 mM and 16.5 mM of glucose for 1 h in CO2 incubator. Insulin secretion was estimated in explants by ELISA. Immunofluorescence was performed to study Pdx1 expression and β-cell mass of the islets in tissue samples.
Results: At 16.5 mM glucose, L-leucine, L-lycine and L-proline enhanced 3–4 folds glucose stimulated insulin release when compared to controls. PDX-1 expression also improved 25% to 30% in comparison with control islets. Maximum insulin secretion and PDX-1 expression was observed with 20 mM L-leucine and L-lysine amino acids.
Conclusion: Secretagogues such as L-leucine and L-lycine improved insulin secretion as well as PDX-1 expression in human pancreatic islets. Subsequent studies may help us to find new therapeutic stratagies for diabetes.

P7

Prognostic significance of cathepsin L in patients with carcinoma of pancreas

Nidhi Singh, *Shyam Chauhan,[*] Prasenjit Das,[**] S D Gupta,[**] R M Pandey,[***] Anoop Saraya*
Departments of Gastroenterology, [*]Biochemistry, [**]Pathology, and [***]Biostatistics, All India Institute of Medical Sciences, New Delhi 110 068, India

Background: Pancreatic cancer has a propensity for wide stromal invasion. Cathepsin L is a cysteine protease that degrade the peri-tumoral tissue and help in tumor dissemination. Thus, we aimed to assess the prognostic significance of Cathepsin L expression in patients with pancreatic cancer.
Methods: Plasma samples from 127 Ca pancreas patients were analyzed for Cathepsin L levels by ELISA. Out of these patients, 25 underwent surgery, so their paraffin-embedded tissue were analyzed for Cathepsin L by immunohistochemistry (IHC). The low and high Cathepsin L levels were compared with clinicopathological parameters like vascular encasement, lymph node invasion, stage of the disease, metastatic disease, locally advanced disease, differentiation and survival. Results were obtained using appropriate statistical analysis.
Results: Cathepsin L was expressed mainly in the cytoplasm in 90% of the pancreatic carcinomas by IHC method. The expression was found both in epithelial cells as well as in stroma surrounding the tumor islands. Tissue expression of Cathepsin L had significant correlation with lymph node and vascular invasion. Cathepsin L expression in epithelial cells showed poor prognosis for the disease (p=0.003). The plasma level of Cathepsin L was also found to indicate a poor prognosis (p=0.01); however its plasma level did not correlate with the other clinicopathological parameters of the disease.
Conclusion: In Ca pancreas, Cathepsin L expression either in the tumor tissue or in the plasma indicates poor prognosis. Moreover, Cathepsin L levels correlate with vascular and lymph node invasion. Hence, Cathepsin L can be used as an important marker for tumor behavior.

P8

Hemosuccus pancreaticus as an initial presentation of chronic pancreatitis: series of three cases

Amit Kumar Sanghi, *A S Puri, Vijay Trehan, S Sachdeva, Amit Agarwal, Vaishali Bhardwz*
G B Pant Hospital, J L Nehru Marg, New Delhi 110 002, India

Hemosuccus pancreaticus (HP) refers to bleeding through the main pancreatic duct (MPD) into the duodenum. We present here a report of 3 cases of upper GI bleed who were subsequently diagnosed to have hemosuccus pancreaticus associated with chronic pancreatitis.
Case 1: A 16-year-old girl presented with recurrent hemetemesis and abdominal pain for last 6 months. UGI endoscopy revealed blood coming out from the papilla of Vater. CECT abdomen showed atrophic pancreas with dilated MPD and intraductal calculus and splenic artery pseudoaneurysm.
Case 2: A 20-year-old male was admitted with recurrent hemetemesis with epigastric pain for last 8 months. SVE showed blood coming from the papilla. CT angiography revealed pseudoaneurysm of a branch of gastrodudenal artery (GDA), atrophied calcific pancreas and dilated MPD. Both underwent selective angiography which confirmed the pseudoaneurysm. Covered stent placement for splenic artery pseudoaneurysm and micro-coil embolisation for feeder arising from GDA, were successfully done. Patients subsequently underwent endoscopic pancreatic sphincterotomy and PD stenting and are now asymptomatic over a follow up period of 6 months.
Case 3: A 26-year-old female was admitted with recurrent hemetemesis and epigastric pain for 1 month. CECT showed splenic artery pseudaneurysm with multiple large intraabdominal and axillary nodes. Definitive angiographic procedure was deferred in view of her poor general condition.
Conclusion: Bleeding from visceral artery pseudoaneurysms manifests as hemosuccus pancreaticus. Occasionally this may be the initial manifestation of the underlying chronic pancreatitis. Most cases can be managed with nonsurgical techniques. Angio-embolization is the treatment of choice for most of these patients.

P9

Pancreatic stent therapy of pancreatic duct disruption in acute pancreatitis

Amit Kumar Sanghi, *A S Puri, S Sachdeva, Ameet Banka*
G B Pant Hospital, J L Nehru Marg, New Delhi 110 002, India

Background: Pancreatic duct (PD) disruption can result in acute or chronic pancreatitis, surgery or trauma, and pancreatic malignancy. The consequent leakage of pancreatic secretions will either resolve spontaneously or lead to complications, such as ascites, pseudocyst, pleural effusion and fistula formation. The aim of this study was to

determine the outcome of pancreatic stenting for PD disruption in patient with acute pancreatitis.
Method: Retrospective data review over a 3 yrs period was done and patients with acute pancreatitis and ductal disruption were evaluated. PD disruption was defined as free extravasations of contrast from PD during ERP. These patients underwent pancreatic stent placement. Technical success was defined as placement of stent across disruption. Clinical success was defined as complete resolution of symptoms.
Result: Four patients (all male, mean age 31.7 years, SD 9.06) were evaluated. Etiology of acute pancreatitis was alcohol in 2, idiopathic in 2 and biliary in 1 patient. Three patients had pancreatic pseudocyst whereas one patient had pancreatic ascitis as the presenting manifestation. Site of disruption was genu in 2 and body and tail in 1 patient each. Transpapillary pancreatic duct stenting was technically successful in all patients. Post stenting clinical and radiological resolution of fluid collection and stricture seen in all patients. Complication in the form of intraabdominal abscess was managed successfully with PCD and broad spectrum antibiotics in three patients.
Conclusion: Successful resolution of PD disruption in acute pancreatitis can be achieved by transpapillary stent placement. Surgery is rarely required for these patients.

P10

Incidence of autoimmune pancreatitis in pancreatic resections done for chronic pancreattis and presumed pancreatic malignancies-an experience of tertiary centre from North India incidence of autoimmune

***R Nada,*[1]** *D K Bhasin,*[2] *S Rana,*[2] *R Gupta,*[3] *L Kaman,*[3] *T D Yadav,*[3] *C Rao,*[2] *K Joshi*[1]
[1]Departments of Pathology, [2]Gastroenterology, and [3] Surgery, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background: Autoimmune pancreatitis is the only form of pancreatitis which has specific diagnostic histomorphology and immunohistology.
Aim: This retrospective study was done to identify cases of IgG4 positive autoimmune pancreatitis in pancreatic resections done for chronic pancreatitis and presumed carcinomas.
Methods: Histomorphology of pancreatic resections done from 2004–2010 (7 years) were reviewed. Immunohistochemistry for IgG4 was done in cases suggestive of AIP, 10 pancreatic carcinomas and other chronic pancreatitis (controls). Cases were categorized as idiopathic pancreatitis, alcoholic pancreatitis and autoimmune pancreatitis based on clinical details.
Results: There were 103 cases of chronic pancreatitis out of 586 surgical pancreatic resections. There were 3 - autoimmune pancreatitis (2.9%), 7—alcoholic pancreatitis (6.8%), 6 -biliary strictures (5.8%), and 84—idiopathic pancreatitis (84.5%). In autoimmune pancreatitis, there were 2 females and 1 male and all were above 40 years of age. Indication of surgery in two females was a presumed carcinoma head of pancreas and chronic pancreatitis in the male. Histomorphology of autoimmune pancreatitis was characteristic with ductcentric IgG4+ve plasma cell rich inflammation with venulitis and oblitrative arteritis. IgG4 positive plasma cells (>10 high power field) were seen in autoimmune pancreatitis, though few positive cells were seen in pancreatitis associated with carcinomas and idiopathic pancreatitis.
Conclusion: Incidence of autoimmune pancreatitis in pancreatic resections done for chronic pancreatitis and presumed carcinomas is 2.9% which is comparable to reports from united states but less than Japan. It is lymphoplasmacytic sclerosing pancreatitis type. However, prospective studies need to be done.

P11

Admission SIRS score is better than admission BISAP score in predicting adverse clinical outcomes in patients with acute pancreatitis

***Rupjyoti Talukdar,*[*]** *Hana Nechutova,*[**] *Magdalen Clemens,*[**] *Santhi Swaroop Vege*[**]
[*]Asian Institute of Gastroenterology, 6-3-661, Somajiguda, Hyderabad 500 082, India, [**]Division of Gastroenterology and Hepatology, Mayo Clinic, Rochester, MN, USA

Background: An ideal predictor to predict clinically important adverse outcomes in acute pancreatitis (AP) is not yet available. Recently the BISAP score has been shown to be such a predictor. The SIRS score, a component of BISAP, has also been shown to be such a predictor. In this study we compare the predictive capability of SIRS and BISAP scores at admission.
Methods: We prospectively studied 284 directly admitted patients with AP over a 2-year period. The BISAP and SIRS scores were calculated at admission and a predictive cut-off of BISAP >3 and SIRS >2 were used for analysis. The study outcomes were length of hospitalization (LOH) >7 days, need for ICU care, primary intra-abdominal infections (PAI), pancreatic necrosis (PN), peripancreatic collections (PPC), persistent organ failure (POF) and death. Chi-square/Fischer Exact test and logistic regression were used to assess the predictive capability. Results were expressed as odds ratio (OR) [95% confidence intervals (CI)] and p-value of<0.05 was considered statistically significant.

Results: ORs of BISAP >3 and SIRS >2 for developing the outcomes were (*indicates statistically significant): LOH> 7 days- 1.76 (0.45–5.88) and *4.21 (2.39–7.41); need for ICU care- 2.81 (0.41–12.5) and *4.28 (1.75–12.50); PAI- 1.27 (0.07–7.14) and *4.92 (1.96–14.39); PN- *4.02 (1.01–14.29) and *4.09 (2.04–8.33); PPC- 1.98 (0.51–6.67) and *2.47 (1.39–4.35); POF- *3.76 (0.92–15.39); death- 3.28 (0.69–12.50) and 2.96 (0.64–16.67).
Conclusions: Adverse outcomes were associated significantly with an increase in BISAP and SIRS scores. Admission BISAP score of >3 predicted only PN while admission SIRS score of >2 predicted all adverse clinical outcomes except death.

P12

Solid pseudopapillary neoplasm of pancreas—a retrospective study of 26 cases

B Ramakrishna*, P Singh, K Patel, F Vyas,[*] P Joseph[*]*
Departments of Pathology and [*]Surgery, Christian Medical College, Vellore 632004, India

Introduction: Solid pseudopapillary neoplasm of pancreas is an uncommon tumour that occurs more frequently in young females. The majority of these tumors have a benign behaviour.
Methods: A total of 26 cases of solid pseudopapillary neoplasm of pancreas diagnosed over a period of 9 years from 2001–2009, in the Department of Pathology, Christian Medical College, Vellore were included in this study.
Results: The median age at diagnosis was 23.3 (range 10–50) years. Twenty-three patients were female. The tumors were located respectively in the head (9), body (8), tail (7) and body and tail (2). All patients underwent surgical resection in the form of Whipple's resection (7), subtotal (4) and distal pancreatectomies (15). Resected tumors ranged in size from 2.5–16 cm (median 6.5) in widest dimension. The tumors were solid in 9, cystic in 2 and solid and cystic in 15. Hemorrhage and necrosis were present in 20 and 9 cases respectively. Histologically, all cases had pseudopapillae. Other features included foam cells, cholesterol clefts, PAS-D positive hyaline globules, necrosis, and calcification in some cases. There was no increase in mitotic activity. Infiltration into adjacent pancreas was seen in 3 cases and lymphovascular invasion in 2 cases. Immunostaining for chromogranin/synaptophysin done in 13 cases were negative. Follow up details were available in 18 cases for a median of 21.5 months (range 2–82 months). All patients remained well without evidence of recurrence or metastasis.
Conclusion: One of the largest case series of this rare neoplasm is presented.

P13

Severity stratification of acute pancreatitis: validation of a new four tier classification

Ragesh Babu Thandassery*, Sreekanth Appasani, Indrajit Abujam, Thakur Deen Yadav,[*] Usha Dutta, Kartar Singh, Rakesh Kochhar*
Departments of Gastroenterology and General Surgery,[*] Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Objectives: Atlanta classification divided patients of acute pancreatitis (AP) into mild and severe, however this classification cannot stratify patients accurately. The aim was to characterize the severity of AP based on the presence of two key determinants i.e., organ failure (OF) and infected necrosis (IN) into mild, moderate, severe and critical AP, and correlate hospital course and outcome with these four grades of severity.
Methods: All consecutive patients presenting with AP to us (from January 2009 to December 2010) were studied. Patients were observed for development of necrosis and OF. Patients were classified into four groups as mild (no necrosis or OF), moderate (sterile necrosis or transient OF), severe (IN or persistent OF) and critical (IN and persistent OF). The four groups were compared with each other regarding the hospital course and mortality.
Results: Of the 151 patients with AP (mean age 41.1± 13.5 years, 101 men), 21 (13.9%) patients had mild, 63 (41.7%) moderate, 59 (39.1%), severe and 8 (5.3%) critical AP. Duration of hospital stay, occurrence of blood stream infection, IN, computerized tomography severity index, need for percutaneous catheter drain (PCD) insertion, surgery and mortality were higher in groups with higher grades of severity. Significantly higher number of patients with critical AP required PCD insertion (p=<0.001) and surgery (p=<0.001). Mortality was highest in patients with critical acute pancreatitis (87.5%, p<0.001). APACHE II and IN were independent predictors of mortality.
Conclusions: Classification of severity of AP helps in stratification of patients into appropriate clinical groups that reflect the outcome.

P14

Time to onset of organ failure determines outcome in severe acute pancreatitis

C P Lakshmi*, Alok Sehgal, V A Saraswat, G Choudhuri*
Department of Gastroenterology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow 226 014, India

Introduction: High mortality rates in severe acute pancreatitis (SAP) have been attributed to number and severity of organ failures (OF), rather than on their period of onset. We investigated whether rapidity of onset of OF determined outcome in SAP.
Methods: Three hundred and thirty-one (66.1%) of 501 consecutive patients (mean age 41.3±15.2 years, 69.5% males) of acute pancreatitis over a 3 year period fulfilled Atlanta criteria for SAP. They were divided into early SAP (ESAP: 115, 34.7%) and late SAP (LSAP: 216, 65.3%) if OF developed within or after 7 days of disease onset. ESAP was subdivided into fulminant (FAP: 49 of 115, 42.6%) and sub-fulminant (SFAP: 66, 57.4%) groups with onset of OF within 72 h and 72 h to 7 days of disease respectively.
Results: Within the overall mortality rate of 27% (89 of 331) in SAP, significantly higher deaths occurred in ESAP group (49.6%, 57/115) compared to LSAP (15.7%, 34/216, $p<0.05$). Within ESAP, it was significantly higher in those with FAP (63.3%, 31/49) than those with SFAP (39.4%, 26/66). Respiratory failure accounted for 50.9% (29/57) of deaths in ESAP, but only in 20.6% (7/34) in LSAP ($p<0.01$). Sepsis, on the other hand, accounted for 31.6% (18/57) in ESAP but 70.6% (24/34) in LSAP ($p<0.01$).
Conclusion: Our observation suggests that the time of onset of organ failure in SAP is an important determinant of death, mortality being higher in those with a fulminant (SFAP) or rapid course (ESAP) than those where the disease progresses slowly (LSAP).

P15

Role of endoscopic ultrasound in diagnosis of pancreas divisum

S S Rana, D K Bhasin, ***C Rao****, V Sharma, K Singh*
Department of Gastroenterology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background and Aims: ERCP is gold standard for diagnosing pancreas divisum (PD), but is invasive and associated with potential complications. Endoscopic ultrasound (EUS) can also image the pancreatic duct and could be potentially helpful in diagnosing PD. We evaluated the efficacy of EUS in diagnosing PD.
Methods: Retrospective analysis of EUS findings in patients with chronic pancreatitis referred for EUS who subsequently underwent ERCP was done. The EUS was done using radial echoendoscope and PD was diagnosed when the stack sign could not be elucidated or the bulb view showed Santorini duct crossing common bile duct (crossed duct sign) and PD was excluded if the main pancreatic duct could be tracked backwards from main papilla from ventral to dorsal pancreas and/or well around the genu.
Results: Over a 36 month period, 15 patients of PD were retrospectively evaluated. EUS could correctly diagnose PD in 10 (66.6%) patients. Stack sign was absent in 4 patients and in 1 patient crossed duct sign along with absent stack sign was present. Stack sign was also falsely positive in 3 patients without PD. None of the patients in whom ventral duct could be tracked backwards crossing the genu had pancreas divisum.
Conclusion: EUS can accurately exclude pancreas divisum but has moderate sensitivity for its diagnosis and therefore ERCP is needed for its definitive diagnosis.

P16

Hemosuccus pancreaticus: clinical profile and management

D K Bhasin, S S Rana, R Gupta,[*] *M Kang,*[**] ***C Rao****, A Bhalla, N Khandelwal,*[**] *K Singh*
Departments of Gastroenterology, [*]Surgery and [**]Radiodiagnosis, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background: Hemosuccus pancreaticus is a rare cause of gastrointestinal bleed and conventional treatment is surgery.
Aim: To retrospectively evaluate the clinical profile and management of patients with hemosuccus pancreaticus.
Methods: Eleven patients (9 males) with hemosuccus pancreaticus were evaluated. The patient's clinical features, investigational profile and the treatment given were retrospectively evaluated.
Results: Eight patients had chronic alcoholic pancreatitis, 2 patients had idiopathic chronic pancreatitis (one having complete pancreas divisum) and one had hyperparathyroidism. All 11 patients had history of abdominal pain and nine patients (80%) presented with overt digestive bleeding. An upper gastrointestinal endoscopy revealed fresh red blood in the first or second part of the duodenum in 7 patients and blood oozing from the major or minor papilla was observed in 4 of these patients. The pseudoaneurysm was detected on contrast enhanced computed tomography in 10 patients and by endoscopic ultrasound in 1 patient. The location of pseudoaneurysm was gastroduodenal artery (6), splenic artery (5) and left gastric artery (1). Four patients were treated with percutaneous thrombin injection and five patients underwent digital subtraction angiography and embolisation. Surgery was performed in 2 patients. One patient rebled after thrombin injection and required additional coil embolisation.
Conclusion: Hemosuccus pancreaticus is rare cause of gastrointestinal bleeding and interventional radiological interventions can be effective therapeutic modality in majority of these patients.

P17

Comparison of diagnostic yields of endoscopic ultrasound and ultrasound/computed tomography guided fine needle aspiration of pancreatic masses

R Srinivaisan, *S S Rana,[*] D K Bhasin,[*] N Kalra, C Rao, K Singh*
Departments of Cytology and [*]Gastroenterology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background: Endoscopic ultrasound (EUS), fine needle aspiration (FNA) is important diagnostic tool for evaluation of pancreatic masses.
Aim: To compare diagnostic yield of EUS-FNA with that of US/CT guided FNA for diagnosis of pancreatic mass
Methods: Over last 18 months, 40 patients with pancreatic mass (solid/cystic) lesions presumed to be resectable on CT abdomen were subjected to EUS FNA. During same period 114 patients underwent US/CT guided FNA. The final diagnosis was obtained either by surgery or endoscopic retrograde cholangiopancreatography (ERCP) or after clinical follow up.
Results: The final diagnosis in patients with pancreatic mass lesion who underwent EUS FNA was: adenocarcinoma (14), pseudocyst (10), inflammatory mass (4), neuroendocrine tumor (4), pancreatic tuberculosis (3), pancreatic metastasis from renal cell carcinoma (1) simple cysts (1), mucinous cystadenoma (1), serous cystic tumor (1) and intraductal papillary mucinous tumor (1). EUS guided FNA yielded the correct diagnosis on first attempt in 37/40 (92.5%) patients. Three patients required repeat FNA for achieving correct diagnosis. The final diagnosis in 114 patients with pancreatic mass lesion who underwent US/CT guided FNA was: adenocarcinoma (43), pseudocyst (12), autoimmune pancreatitis (6), inflammatory mass (5), solid pseudopapillary tumor (4), neuroendocrine tumor (3), pancreatic tuberculosis (3), non Hodgkin lymphoma (1), and serous cystic tumor (1). No definite diagnosis could be made in 36/114 (31.6%) patients. US/CT guided FNA yielded the correct diagnosis on first attempt in 78/114 (68.4%) patients. No major complications were noted either of EUS or CT/EUS guided FNA.
Conclusion: EUS FNA gives higher yield than CT/US guided FNA for establishing diagnosis in pancreatic mass lesions.

P18

Step up approach in emphysematous pancreatitis

R Gupta,[1] *Y B Raghavendra,[1] M Kang,[2] D K Bhasin,[3] S S Rana,[3] R Singh[1]*
[1]Division of Surgical Gastroenterology, General Surgery, [2]Radiodiagnosis and Imaging, and [3]Gastroenterology; Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background: Emphysematous pancreatitis (EP) is considered a virulent form of infected pancreatic necrosis (IPN). The objective of this study was to evaluate the effectiveness of step up approach in the management of EP.
Methods: Seventy consecutive patients with severe acute pancreatitis were recruited in this prospective study between April 2008 and December 2009. Patients of IPN were analysed for presence of gas in the pancreatic or peripancreatic area.
End Points: Effectiveness of step up approach in EP and compare result with non emphysematous IPN.
Results: There were 53 patients of IPN enrolled during this study period. Sixteen of these patients (30.1%) had EP. All patients in EP group required percutaneous catheter drainage (PCD), 8 (50%) were managed with PCD alone, while the remaining 8 (50%) required necrosectomy after initial PCD. In non emphysematous IPN group (n=37), one patient (2.7%) was managed conservatively, 17 (45.9%) managed with PCD alone, and 19 (51.3%) underwent necrosectomy after initial PCD. No statistically significant difference was present in the two groups as regards etiology (p=0.15), percentage of necrosis (p=0.74), APACHE II score (p=0.19), CTSI score (p=0.78), number of organisms grown (p=0.26), presence of fungemia (p=0.12), therapeutic intervention (p=0.3), multiorgan failure (p=0.36), outcome (p=0.58).
Conclusion: Step up approach could be employed in EP with similar results as in non-emphysematous IPN.

P19

Utility of positron emission tomography/computed tomography using Fluorine-18 fluorodeoxyglucose-labelled autologous leucocytes in the management of fluid collections in acute pancreatitis

Anish Bhattacharya,[1] *Rakesh Kochhar,[2] Sarika Sharma,[1] Niranjan Khandelwal,[3] Pallab Ray,[4] Bhagwant Rai Mittal[1]*
Departments of [1]Nuclear Medicine, [2]Gastroenterology, [3]Radiodiagnosis and [4]Medical Microbiology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background: Early detection of infection in acute pancreatitis (AP) influences the choice of treatment and clinical outcome. We assessed the role of positron emission tomography—computed tomography with Fluorine-18 fluorodeoxyglucose labeled autologous leucocytes (FDG-

LAL-PET/CT) in the management of patients with AP and pancreatic and peri-pancreatic fluid collections.
Methods: Thirty-six patients (27 M, 9 F) aged 21–69 years with AP and radiological evidence of fluid collection in/around the pancreas were studied. A final diagnosis of infection was based on microbiological culture of aspirated fluid and clinical outcome. Patients were managed with supportive care, antibiotics, percutaneous drainage or laparotomy as indicated.
Results: At the time of the study, total leucocyte count and neutrophil count varied from 4900–21600/mm^3 and 55% to 90% respectively and 20/36 patients had fever. While CT images provided anatomical details and necrosis grading, abnormal radiotracer uptake in the fluid collection was seen in 11 patients; 9/11 had culture-proven infection and underwent percutaneous drainage. Fluid aspiration was unsuccessful in 2/11. These two, and 25/36 scan-negative patients were managed conservatively; 17/25 were culture-negative, fluid could not be aspirated in 6 and 2 patients with previously positive fluid culture had taken antibiotics for 7 days before the scan. All patients recovered and have remained well on follow up.
Conclusions: FDG-LAL-PET/CT can provide a reliable, non-invasive imaging technique to detect and localize pancreatic infection in fluid collections in AP. While effective antibiotic therapy may render the scan negative, scan positivity in antibiotic-treated patients may indicate ineffective antibiotic penetration of the infected region or bacterial resistance.

P20

Factors at the outset of acute pancreatitis predicting need of surgery or intervention

***C Rao**, D K Bhasin, S S Rana, R Gupta,[*] M Kang,[**] K Singh*
Departments of Gastroenterology, [*]Surgery and [**]Radiodiagnosis, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background: The factors predicting mortality in patients with acute pancreatitis have been reported but the factors that predict the need of surgery or endoscopic/radiological intervention have not been adequately studied.
Aim: To prospectively identify the clinical and investigational factors at admission that could predict the need of surgery or endoscopic/radiological intervention.
Methods: One hundred and sixty-four patients (111 males; mean age 40.35±14.62 years) with acute pancreatitis were prospectively evaluated. Various clinical, biochemical and radiological parameters at admission were evaluated and correlated with need of surgery or radiological/endoscopic intervention.
Results: Twenty-one (12.8%) of patients required surgery and 62 (37.8%) of patients required endoscopic/radiological intervention. Presence of respiratory failure and gastrointestinal bleed was significantly associated with the need of surgery. However, presence of renal failure, persistent hypotension and pancreatic necrosis was not significantly associated with the need of surgery. Presence of respiratory failure, renal failure, pancreatic necrosis and gastrointestinal bleed was significantly associated with the need of percutaneous/endoscopic intervention. However, presence of persistent hypotension was not significantly associated with the need of percutaneous/endoscopic intervention. Thirty-one (19%) of patients succumbed to illness. Presence of respiratory failure, renal failure, persistent hypotension and gastrointestinal bleed was significantly associated with adverse outcome whereas presence of pancreatic necrosis was not significantly associated with mortality.
Conclusion: Factors that predict need of surgery or radiological/endoscopic intervention in patients with acute pancreatitis are not similar to the factors that predict mortality. Further studies are needed to develop better prognostic models for this enigmatic disease.

P21

Is hypocalcemia a predictor of severity in acute pancreatitis?

***C Rao**, D K Bhasin, S S Rana, R Gupta,[*] A Bhalla,[**] K Singh*
Departments of Gastroenterology, Surgery,[*] and Medicine,[**] Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background: Hypocalcemia is observed in patients with acute severe pancreatitis but it has not been reported to predict adverse outcome.
Aim: To prospectively evaluate the role of serum calcium levels at admission in predicting the need of surgery or endoscopic/radiological intervention or mortality.
Methods: One hundred and sixty-four patients (111 males; mean age 40.35±14.62 years) with acute pancreatitis were prospectively evaluated. Corrected serum calcium levels at admission were recorded and correlated with need of surgery or radiological/endoscopic intervention or mortality.
Results: Twenty-two (13.4%) of patients had corrected serum calcium levels less than 8.0 mg%. Thirty-one (19%) of patients succumbed to illness, 20 (12.1) patients required surgery and 62 patients (37.8%) required radiological/endoscopic intervention. Patients who required radiological/endoscopic intervention had significantly lower levels

of serum calcium in comparison to patients who did not required intervention (8.58±1.41 mg% vs. 8.95±0.86 mg %). However, there was no significant difference in the serum calcium levels between the patients who expired and who survived as well as between patients who required surgery and the patients who were not operated.
Conclusion: Hypocalcemia at admission may predict the need of endoscopic/radiological intervention but does not predict the mortality or the need of surgery.

P22

Single dose diclofenac to prevent post ERCP pancreatitis: a meta analysis

***Amit Kumar Dutta**, Ashok Chacko*
Christian Medical College and Hospital, Vellore 632 004, India

Background and Aim: Non steroidal anti-inflammatory drugs reduce the incidence of post ERCP pancreatitis (PEP). However, the different drugs and dosage frequency used does not provide an easy choice for the clinician. We aimed to perform a meta analysis on the role of a single dose of diclofenac given after ERCP in preventing PEP.
Methods: We searched Medline and Cochrane central register of controlled trials to select prospective randomised controlled trials assessing the role of a single dose of diclofenac in preventing PEP. The search terms used were 'pancreatitis and diclofenac', 'post ERCP pancreatitis and diclofenac' and 'ERCP and pancreatitis'. For 'pancreatitis', 'ERCP' and 'diclofenac' exploded medical subject heading (MeSH) terms were used. A pooled estimate of relative risk of PEP in the diclofenac vs. placebo arm was obtained using Mantel-Haenszel method.
Results: Three studies were included in the meta-analysis with a total of 200 patients in the diclofenac and 200 in placebo group. There was no significant heterogeneity among the studies ($I^2=0$). The pooled relative risk of PEP in diclofenac group was 0.32 (95% CI: 0.17, 0.60) compared to placebo.
Conclusion: A single dose of diclofenac given after ERCP reduces the incidence of PEP by two-third.

P23

Serum ADA levels in predicting the severity in acute pancreatitis

***Sreekanth Appasani**,[1] R B Thandassery,[1] P Dixit,[1] T D Yadav,[2] S V Attri,[3] S V Rana,[1] K Singh,[1] R Kochhar[1]*
Departments of Gastroenterology,[1] Surgery,[2] and Biochemistry,[3] Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Aims: To prospectively evaluate the role of serum adenosine deaminase (SAD) levels in determination of severity and hospital course of acute pancreatitis and correlate it with standard scoring systems.
Methods: Sixty consecutive acute pancreatitis patients from January 2010 to December 2010 (64% males, age 21–75 yrs) were stratified into mild and severe pancreatitis as per Atlanta criteria. SAD levels were analyzed quantitatively at admission by colorimetric method and were compared with RANSON, APACHE, BISAP and MOFS scores along with CRP levels while analyzing severity and outcome.
Results: The mean SAD level in study population was 17.49±6.10 U/L while in the control population was 10.97 ±3.94 U/L. The mean SAD levels were higher with severe pancreatitis (19.26 U/L, $n=34$) than with mild pancreatitis (14.77 U/L, $n=26$, $p=0.005$). At a cut off of 14.0, serum ADA on day 0 had a sensitivity of 80% and specificity of 56% in predicting severe pancreatitis (AUC=0.690). The mean SAD levels were higher with organ failure than those without (19.08U/L vs. 14.08, $p=0.005$). The mean SAD levels were not significantly different in those with necrosis (18.5U/L vs. 15.1U/L, $p=0.044$), fluid collections (18.38U/L vs. 15.31U/L, $p=0.098$) and death (19.69 U/L vs. 16.66 U/L, $p=0.125$). There was good correlation ($p<0.001$) of SAD with APACHE (0.432), BISAP (0.463), MOFS (0.391), RANSON (0.370) and CTSI (0.281). No correlation was found with CRP levels (CC=0.171, $p=0.166$).
Summary: SAD level at admission is an effective predictor of severity of acute pancreatitis as well as development of organ failure. SAD correlated with APACHE, RANSON, BISAP and MOFS scores in predicting hospital course and outcome.

P24

Comparative evaluation of Balthazar grade, CTSI and modified CTSI in prediction of severity and hospital course of acute pancreatitis

***Sreekanth Appasani,**[1] R B Thandassery,[1] A Indrajit,[4] T D Yadav,[2] S V Attri,[3] K Singh,[1] R Kochhar[1]*
Departments of Gastroenterology,[1] Surgery,[2] Biochemistry,[3] and Medicine,[4] Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Aims: To prospectively evaluate the role of CT severity scoring systems in determination of severity and hospital course of acute pancreatitis and correlate it with standard scoring systems.
Methods: Patients with acute pancreatitis from January 2010 to June 2011 were stratified into mild and severe

pancreatitis as per Atlanta criteria. CT scan was done in all patients after 72 h of admission and was graded as per the Balthazar grading, CTS index and the Mortele's modified CTSI. Necrosis was defined on CT as a non enhancing area of more than 3 cm as per Atlanta criteria. These CT scoring systems were compared with APACHE scores while analyzing severity and outcome.
Results: One hundred and twenty consecutive patients with acute pancreatitis (66% males, age 13–84 yrs) were analyzed. Compared with the both CT indexes, APACHE II more accurately correlated with severity of pancreatitis (AUC for Balthazar grade, CTSI, modified CTSI and APACHE were 0.856 ($p<0.001$), 0.902 ($p<0.001$), 0.894 ($p<0.001$) and 0.945 ($p<0.001$) respectively). APACHE II correlated better than CT indexes with the need for intervention ($n=31$, AUC for Balthazar grade, CTSI, modified CTSI and APACHE were 0.843, 0.861, 0.834 and 0.788, $p<0.001$ respectively). CTSI correlated better with infected necrosis than the rest indexes (AUC for Balthazar, CTSI, modified CTSI and APACHE were 0.783, 0.857, 0.786 and 0.720, $p<0.001$).
Conclusion: No significant differences were noted between the CTSI and the modified CTSI in evaluating the severity of AP. APACHE correlated better with severity while CT indexes correlated better with necrosis and need for intervention.

P25

Ammonia positron emission tomography- computed tomography in acute pancreatitis

Abdul Khaliq,[1] *Raghav Kashyap,*[2] *Manish Manrai,*[1] *Rakesh Kochhar,*[1] *Anish Bhattacharya,*[2] *B R Mittal,*[2] *Kartar Singh*[1]
Departments of [1]Gastroenterology and [2]Nuclear Medicine, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Introduction and Aims: CECT is done in acute pancreatitis. CTSI correlates with outcome. Renal failure can complicate pancreatitis where CECT or CEMR cannot be done. N13-ammonia is well taken in pancreas owing to high perfusion per gram tissue. This inspired us to apply N13-NH3 PET for evaluation of pancreatic perfusion in acute pancreatitis and to compare with CECT and clinical outcome.
Methods: Prospective observational study in acute pancreatitis patients. NH3-PET CT followed by CECT was done according to protocol and images analysed by two independent observers. Standard uptake value (SUV) of pancreas (P) and liver (L) were taken and SUV P/L achieved. Clinical parameters, follow up at 28 days, surgery requirement were noted.
Results: Of 29 patients, CECT was done in 23 patients (6 patients deranged RFT precluded CECT) and NH3-PET CT in all cases as well as in 9 controls. Marshall class has good correlation with 28 day outcome ($p=0.015$). Mean SUV P/L in controls, uninvolved pancreas and necrotic areas were 0.97±0.14, 0.69±0.27 and 0.15 respectively. CTSI, MCTSI, PETCTSI and PET-MCTSI all have good correlation amongst themselves (>0.95) and with 28 day outcome. Additionally, PET CTSI and PET MCTSI correlated with surgical requirement. Inter-observer acceptance of necrosis and grading on NH3 PET CT is good (κ- 0.93).
Conclusion: NH3-PETCT is an alternative cross-sectional imaging for determining necrosis in acute pancreatitis and can be performed even in renal failure. It has good correlation with CECT and with 28-day outcome, requirement of surgery with a good interobserver acceptability.

P26

Diagnostic performance of MRI vs. CT in acute pancreatitis

K Rahul, *M Kang, R Gupta, D K Bhasin, N Kalra, N Khandelwal*
Department of Radiodiagnosis and Division of Surgical Gastroenterology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background and Aims: This study purported to compare the diagnostic performance of magnetic resonance imaging (MRI) with computed tomography (CT) in evaluating acute pancreatitis.
Methods: Forty patients (30 male and 10 female with age range varying from 12 to 80 years) were enrolled in the study from January 2010 to April 2011. Contrast enhanced computed tomography (CECT) and contrast enhanced magnetic resonance imaging (CEMRI) were performed on all cases of acute pancreatitis warranting a CECT within 48 h of each other. CT severity index (CTSI) and MR severity index (MRSI) was credited to all cases by two different radiologists based on Balthazar grading system.
Result: Statistically significant correlation was found between CTSI and MRSI for almost all outcome parameters except for mortality where CTSI showed higher chance of error ($p=0.058$). Patients with MRI signs of pancreatic/peripancreatic hemorrhage showed higher chance of systemic complications and percutaneous drainage, longer hospital stay and higher incidence of mortality. MRI could also detect one case of pancreatic duct disruption where CT assessment of pancreatic duct was normal. However, incidence of degraded and compromised image quality was seen more in case of MRI than on CT.
Conclusion: MRI is comparable to CT in assessing severity of acute pancreatitis and both modalities are equally efficient for predicting local and systemic complication.

Superiority of MRI over CT was seen in demonstrating ductal pathology and hemorrhage.

P27

Efficacy of percutaneous catheter drainage in severe acute pancreatitis and factors leading to surgery

Y B Raghavendra,[1] *R Gupta,*[1] *M Kang,*[2] *D K Bhasin,*[3] *S S Rana,*[3] *R Singh*[1]
[1]Division of Surgical Gastroenterology, Department of General Surgery, [2]Departments of Radiodiagnosis and Imaging, and [3]Gastroenterology; Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background: The aim of the present study was to assess whether the site and maximum extent of pancreatic necrosis during the stay has role in guiding the therapeutic modality in severe acute pancreatitis.
Methods: Retrospective analysis of prospectively maintained database of 70 consecutive patients with SAP. All patients managed with step up approach. The maximum extent of pancreatic necrosis was categorized into three groups, i.e., <30%, 30% to 50% and >50%. Site of pancreatic necrosis was categorized into involving head region or sparing head region.
Results: <30% necrosis was present in 12. 30% to 50% necrosis was noted in 17. Significantly higher number of patients underwent management with PCD alone in this group compared to those also requiring necrosectomy. >50% necrosis was present in 41 patients. Patients requiring open necrosectomy as step up approach were significantly higher in this group compared to PCD alone. Pancreatic necrosis of head of pancreas with or without involvement of body or tail was noted in 36 patients and pancreatic necrosis involving only the body and or tail was noted in 34 patients. No significant difference was noted in management based on site of pancreatic necrosis. Extra pancreatic necrosis noted in 14 patients (52%) in pancreatic necrosectomy group, compared to 7 patients (24%) in PCD alone group and 1 patient (7%) in conservative group and was statistically significant.
Conclusions: Significantly higher number of patients with >50% necrosis and with extra pancreatic necrosis required surgery.

P28

Fungal infections in acute pancreatitis: pattern and correlates

H Sharma,[*] *A Kumar,*[*] *A Kapil,*[±] *I Xess,*[±] *A Saraya*[*]
[*]Departments of Gastroenterology and Human Nutrition, and [±]Microbiology, All India Institute of Medical Sciences, New Delhi 110 068, India

Background: Delayed surgery and preference for minimal access procedures in acute necrotizing pancreatitis have increased hospital stay and antibiotic exposure.
Aim: To evaluate the effect of fungal infections on the course and outcomes of patients with severe acute pancreatitis.
Methods: Two hundred and ninety-five consecutive patients with severe acute pancreatitis admitted between January 2007 to June 2011 were reviewed and analysed. Patients underwent periodic surveillance cultures of blood, catheter sites, drains, endotracheal aspirates (if ventilated) and necrosectomy samples (in case of surgery). Data were compared with patients with bacterial infections [BI].
Results: Fungal infections were diagnosed in 15.5% (n=46) cases [FI]. The most common isolate was candida albicans (n=27). Other species like candida glabarata (n=8) and candida krusei (n=7) were more common in patients receiving prophylactic antifungals (71%). Patients with fungal infections [FI n=46] had greater severity on CT scans (CTSI>7) compared to those with only bacterial infections [BI n=95] 68.6% vs. 50.5% respectively. The mortality rates were comparable in both groups (24% in FI) versus (22.6% in BI). The overall hospital stay was however significantly prolonged in those with fungal sepsis 78±33 days versus 34±21. Antibiotic use especially with carbapenems came out as the strongest correlate for fungal sepsis OR 11.2, CI 2.9–15.
Conclusion: Fungal infections are associated with markedly prolonged hospital stay. Mortality rates in this group are comparable to those with bacterial infections. Prolonged wide spectrum antibiotic usage is the strongest correlate for fungal sepsis. Prophylactic antifungal use is associated with infection with resistant species.

P29

Differential expression of heat shock protein 70–2 gene polymorphism (at position 1267; A to G transition) in patients with acute pancreatitis

A S Chalapathi Rao,[*] *N Shafiq,*[#] *Deepak K Bhasin,*[*] *P Pandhi,*[#] *R Singh,*[##] *R Gupta,*[##] *M Kang,*[**] *S S Rana,*[*] *K Singh* [*]
Departments of [*]Gastroenterology, [#]Clinical Pharmacology, [##]General Surgery and [**]Radiodiagnosis, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background and Aims: Heat shock proteins (HSPs) are proteins synthesized by eukaryotic cells and bacteria upon exposure to sub lethal stress like hyperthermia, hypoxia, ischemia/reperfusion and other environmental stresses. We studied the role of HSP 70–2 gene polymorphism (at

position 1267, A to G transition) in acute pancreatitis (AP), and its association with disease severity and complications.
Methods: This is a case control study including 144 patients of AP and 50 healthy blood donors (controls). Three alleles {wild (AA), heterozygous (AG) and mutant (GG)} of HSP 70–2 gene were determined by Pst1 RFLP (restriction fragment length polymorphism).
Results: The frequency of allelic distribution in AP {55.6% vs. 66% for AA; 38.9% vs. 30% for AG; 5.6% vs. 4% for GG} was similar to controls (p=0.199). No significant association of this polymorphism was noted with disease severity, complications, course and outcome of AP. The mutant G allele {combined mutant (GG) and heterozygous (AG) group} was significantly more associated with development of any of the known local complications (p=0.037; OR 2.79; 95% CI=1.0–7.5) and sepsis (p=0.047; OR 2.04; 95% CI =1.0–4.1) than wild A allele {homozygous wild (AA)}.
Conclusions: Frequency of mutant GG allele in patients with AP was similar to controls. Though no association of this polymorphism was noted with disease severity, complications, course and outcome of AP, mutant G allele {combined homozygous (GG) and heterozygous (AG) group} was significantly more associated with development of the local complications and sepsis.

Surgical Gastroenterology

SG1

Varied presentations of gastrointestinal stromal tumor

Vivek Srivastava,* *Vaibhav Pandey,** *Mumtaz A Ansari,** *Saroj Gupta,^ Anand Kumar**
*Department of General Surgery, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, India

Background: Better understanding of the pathogenesis and imaging facilities GIST is diagnosed more frequently. However, the presentation remains variable and non-specific. We present this varied picture of GIST operated over 1 year.
Case Series: (i) A 66-year-old gentleman presented in EOPD with diffuse abdominal pain, vomiting, distention and fever. Patient had tachycardia, hypotension and features of peritonitis with normal per rectal findings. Laparotomy revealed an exophytic growth in rectum 7 X 4 cm with infiltration into terminal ileum with ileal perforation. As R0 resection was not possible due to tumor fixity palliative end ileostomy was made. (ii) A 66-year-old lady presented with colicky abdominal pain and distension for 15 days with history of bloody diarrhea. Examination and plain abdominal X-ray abdomen suggested small bowel obstruction. Laparotomy reaveled jejunojejnal intussusception caused by an intraluminal mass extending up to serosa. Resection of 10 cm jejunal segment with end to end anastomosis was done. (iii) A 50-year-old male presented with bleeding per rectum. Examination revealed marked pallor with a freely mobile intraabdominal mass. CECT scan showed enhancing mass arising from small bowel of size 5 X 4 X 3 cm. Laparotomy reaveled a mass approx 5 X 4 X 3 cm in size arising from the mesenteric border of jejunum. Resection of the 10 cm jejunal segment was done, followed by primary end to end anastomosis . Histology confirmed GIST and immunohistochemical tests were positive for CD 117 (C-KIT) for all three cases.
Conclusion: The presentation of GIST remains non-specific and varied depending upon the size and the organ of origin.

SG2

Our experience with pancreatic head mass

R Poppy Rejoice*, R Balamurali, Ramkumar, G Muthukumaran, T Pugazhendi, S Jeevan Kumar, Rajendran Kannan*
Department of Digestive Health and Diseases, Government Peripheral Hospital, Anna Nagar, Chennai 600 010, India and Department of Surgical Gastroenterology, Government Royapettah Hospital, Government Kilpauk Medical College and Hospital, Chennai 600 010, India

Aim: To evaluate the cause for pancreatic head mass and the interventions undertaken.
Methods: This is a retrospective study conducted at DDHD Government Peripheral Hospital, Anna Nagar, and Government Royapettah Hospital, KMC, Chennai. from January 2010–July 2011. Patients came with an evidence of pancreatic head mass (imaging studies) and who were operated were included. Patients not operated and mass from body, tail and infiltrating head from adjacent structures were excluded. Their reports were retrospectively analysed for the etiology and interventions undertaken.
Results: Total number of cases 53. Males 38, females 15. Age ranges from 15–75 yrs. Twelve were cystic lesions and 41 solid mass. The commonest preoperative diagnosis was periampullary growth 18 (33.9%) cases. Others were ca head of pancreas 13 (24.5%), CCP 13 (24.5%), chronic pancreatitis 9 (16.9%), cases. Postoperative HPE diagnosis in the periampullary growth group 17 were malignant and 1 was benign polyp, and most of them were adenocarcinoma arising from distal CBD. Among ca head of pancreas group 2 were benign lesions mimicking malignant (autoimmune, groove pancreatitis), and carcinoid 1. Among chronic pancreatitis 1 case was found to be malignant. Interventions undertaken were Whipples 23 and Freys

procedure 29 and cystodeodenostomy for 1 case. The mortality was one case (1.8%) in the Whipple group.
Discussion: In this study most of the pancreatic head mass were malignant. The common cause for benign lesion was chronic pancreatitis, benign lesion can also mimic as malignant lesion. The histopathology was not considered preoperatively when the lesion was found to be operable.
Conclusion: Both benign and malignant pancreatic head mass were effectively managed by surgical intervention. Pre operative histopathology was not considered in operable cases.

Pediatric Gastroenterology

PG1

A case report of tracheoesophageal fistula and esophageal atresia associated with congenital esophageal stenosis secondary to tracheo-bronchial remnant

Harsh Udawat, Sunita Ojha, ***Mahendra Agrawal***
Santokba Durlabhji Memorial Hospital cum Medical Research Centre, Bhawani Singh Marh, Jaipur, India

Clinical Details: One-year-old male child presented with progressively increasing vomiting and regurgitation of ingested food for last 6 months. He was operated at birth for primary repair of tracheo-esophageal fistula (TEF) and esophageal atresia (EA).
Investigations: Contrast study of esophagus showed hold up of contrast in mid-esophagus and a tight stricture at the lower third of esophagus. Endoscopy revealed slight narrowing in mid esophagus that could be negotiated without resistance. There was a tight stricture at the lower end of esophagus. Scope was not negotiable through it. The stricture was resistant to balloon dilation (TTS, 10 mm) thrice and triamcinolone (40 mg/mL) injection twice. Even 7 mm Savary-Guilliard bougie dilator could not be passed through. He was eventually subjected to right thoracotomy, resesction of stricture and end to end anastomosis. Microscopic examination of the stricture revealed lining of stratified squamous epithelium and presence of cartilage and mucus glands. The histological features were consistent with ectopic tracheo-bronchial remnant.
Discussion: CES secondary to TBR is a rare condition with 75 reported cases. It is an important cause of dysphagia after primary repair of TEF/EA. Symptoms of dysphagia and regurgitation develop at the age 3.2±4.5 months and definitive treatment at 2.6±3 years with a significant time lag from the onset of symptoms.
Conclusion: CEC with TBR should be suspected in a tight stricture distal to EA repair.

PG2

Effect of C/T −13910 *cis*-acting regulatory variant on expression and activity of lactase in Indian children and its implication for early genetic screening of adult-type hypolactasia

Raja A H Kuchay,[a,c] *Babu R Thapa,*[b] *Akhtar Mahmood,*[c] *Safrun Mahmood*[a]
[a]Department of Experimental Medicine and Biotechnology, [b]Division of Pediatric Gastroenterology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India; [c] Department of Biochemistry, Panjab University, Sector 14, Chandigarh 160 022, India

Background: Absorption of milk sugar (lactose), is regulated by the activity of lactase enzyme in gut wall. Intestinal lactase activity declines during childhood in majority of human populations leading to adult-type hypolactasia (primary lactose malabsorption), limiting the use of fresh milk due to lactose intolerance. Aim of this study was to correlate lactase expression and activity with C/T −13910 variant in Indian children, determine the age of onset of down-regulation of lactase activity and assess the applicability of the C/T −13910 variant as a diagnostic marker for identifying children genetically inclined to develope adult-type hypolactasia.
Methods: Intestinal biopsies were obtained from 176 children aged 1–16 years undergoing routine endoscopy for various abdominal complaints. The biopsies were assayed for lactase, sucrase and maltase activities and genotyped for C/T −13910 variant using PCR-RFLP analysis. The functional effect of the C/T −13910 variant on expression of lactase mRNA and protein in these children was examined using reverse- transcription PCR and western blotting.
Results: Among the 176 children investigated in our study, 56.8% (100/176) carried the C/C - 13910 genotype, which has been associated with the onset of adult-type hypolactasia, while 40.9% (72/176) carried the C/T −13910 genotype and 2.3% (4/176) the T/T −13910 genotype.
There was a significant correlation between lactase activity and C/T −13910 variant ($p<0.001$). The mean level of lactase activity among children with C/C −13910 genotype was 15.9 U/g protein and with C/T and T/T −13910 genotypes was 30.9 U/g protein. The age of onset of down-regulation of lactase activity in children with C/C −13910 genotype was between 3–5 years and keeping 10 U/g protein lactase activity as cut-off, adult-type hypolactasia was evident in all the individuals >8 years of age for this genotype. C/C −13910 genotype was associated with low expression of lactase mRNA and protein compared with C/

T genotype. Considering lactase activity of 10 U/g protein as gold standared, predictive value of genetic test based on C/T −13910 variant for adult-type hypolactasia was 100% in children >8 years of age.
Conclusion: C/T −13910 *cis*-acting regulatory variant located≈14 kb upstream of lactase gene (LCT) completely correlates with lactase phenotype in Indian children. The genetic testing for the C/T −13910 variant may be helpful in the diagnosis of adult-type hypolactasia in Indian children.

Nutrition

N1

Prevalence of malnutrition in various stages of liver disease

Neha Singh, *V K Dixit, S K Shukla, A K Jain, S K Singh,* J K Choudhary*
Departments of Gastroenterology, and *Endocrinology, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, India

Introduction: The liver plays a central role in the metabolism of most nutrients. Nutritional deficiency is common in chronic liver diseases (CLD) and should be seen as a complication in line with ascites, esophageal varices, hepatic encephalopathy (HE) and cirrhosis. There is a direct correlation between the progression of the liver disease and the severity of malnutrition.
Objective: To study the prevalence of nutritional status of patients in various grades of CLD as determined by Child's-Pugh Turcotte (CTP) score.
Methods: A prospective study was performed on patients with decompensated CLD. The disease was diagnosed on the basis of biochemical and radiological imaging parameters. Nutritional assessment was done by using anthropometric measurement, subjective global assessment and 24 hour dietary recall and its correlation was assessed with degree of liver diseases.
Results: A total of 210 (M/F-177/33) patients with mean age of 37.5±12.40. Etiology reveals that 75 patients of HBV related CLD, 62 of alcoholic and 73 of cryptogenic. Among them 38 were CTP A, 99 CTP B and 73 CTP C class and calorie intake was 1750, 1412 and 1235 kcal/day whereas protein intake was 47, 38 and 34 gm/day respectively. BMI was 21.5, 22.3, and 23.1 kg/m and MAMC was 25.5 cm, 23.12 cm, 23.0 cm respectively. Albumin levels were lower in B and C groups whereas normal in A group.
Conclusion: The daily calorie and protein intake was lower than RDA values in all groups of patients. This indicate the poor nutritional status having correlation with different stages of CLD.

N2

Dietery factors in gastroesophageal reflux disease

Jigna Shroff, ***Akash Shukla****, Meena Godhia, Shobna Bhatia*
Seth G S Medical College and K E M Hospital, Mumbai 400 012; and Sir Vithaldas Thackersey (SVT) College of Home Science, Sir Vithaldas Vidyavihar, SNDT Campus, Juhu Road, Santacruz (W), Mumbai 400 049, India

Background and Aim: The benefit achieved from change in dietary habits in patients with gastroesophageal reflux disease (GERD) is yet unclear. We therefore conducted a prospective controlled cross sectional study, using purposive sampling method, to assess the dietary habits in 100 GERD patients, and compared them with 100 normal subjects of the same socioeconomic class.
Methods: GERD was defined by Montreal classification. A pre-tested questionnaire was used to obtain information on demographic profile and dietary habits. The frequency and portion size of selective food items was recorded.
Results: The age (38 vs. 40 years), socioeconomic status, BMI (21.73 kg/m^2 vs. 22.5 kg/m2) GERD and control subjects were similar. The mean duration of symptoms of GERD was 3.05 years. Seventy-four patients had worsening of reflux symptoms after fried and spicy foods. Patients reported symptom worsening after consumption of sour, tea/coffee, pulses, non-vegetarian, Chinese food, alcohol, bakery products, carbonated beverages, sweets, milk and hot foods. After diagnosis, 86 patients decreased consumption of these foods; 70% reported improvement in symptoms after this measure. Heartburn correlated with the intake of butter (p=0.05) and citrus fruits (p=0.02). Regurgitation correlated with amount of fish consumed (p=0.00), lemon (p=0.00), tomato and tomato-based products (p=0.02), garlic (p=0.00), number of meals consumed per day (p=0.01), and drinking water during (p=0.001) and immediately after meals (p=0.001).
Conclusion: Intake of fried/spicy foods, non-vegetarian, sweets, citrus fruits, and larger number of meals per day are associated with increased reflux symptoms; most patients get relief of symptoms from avoiding the aggravating foods.

N3

Oxidative stress and total antioxidant status among anemic adolescent girls of Jaipur, India

S Prakash*, Priyatma, *Anuradha Goyle*
Department of Gastroenterology and Human Nutrition, All India Institute of Medical Sciences, New Delhi 110 068,

India, *Department of Home Science, University of Rajasthan, J LN Marg, Jaipur 302 004, India

Free radicals (FRs) are involved in various nutritional diseases while anemia is prevalent amongst women and children in India. Since no data is available on potential of FRs particularly in anemia however, the present study was planned to assess oxidative stress markers and iron status of anemic adolescent (AA) girls. Three hundred adolescent girls (age range 13–16 years) were randomly screened from the Government Girls Junior School, Jaipur. Subjects were categorized into two groups based on hemoglobin status i.e., non anemic (n=50; hemoglobin >120 g/L) and anemic (n= 250; hemoglobin <120 g/L). Fasting blood samples were collected after getting the ethical clearance. Lipid peroxidation (LPO), superoxide dismutase (SOD), vitamin C, vitamin E, free radical antioxidant potential (FRAP), ceruloplasmin (CP), serum iron and urinary copper (UC) levels were analyzed in both the groups using the standard methodology. Vitamin C (0.86±0.14 mg/dL), FRAP (860.5± 78.4 μM/L), SOD (1.38±0.55U/mL) and serum iron (8.54 ±2.12 μM/L) levels were significantly decreased (p<0.05) in anemic adolescent (AA) girls, while LPO (6.47±1.40 nM/mL) and UC (36.9±6.85 μM/L) levels were significantly increased (p<0.05). Vitamin E (24.22± 1.56 μM/L) and CP (69.8±18.22 mg/dL) levels were non-significant (p>0.05). The levels of vitamin C (1.29± 0.52 mg/dL), FRAP (1036±82.5 μM/L), SOD (2.48±0.44 U/mL), serum iron (11.22 ±1.32 μM/L), LPO (3.62±3.5 nM/mL) and UC (16.9±2.7 μM/L) were assessed in non-anemic adolescent girls. Synergistic involvement of oxidative stress and lower level of iron may be responsible in development of anemia. Oxidative stress and total antioxidant status could be early markers for assessment of anemia thus, the future intervention strategies can be planned to avoid oxidative stress in adolescent girls.

Miscellaneous

M1

A study to analyse the awareness regarding hepatitis B in nursing staff

R Baijal, H R Praveenkumar, Mayank Jain, ***Deepak Gupta***
Department of Gastroenterology, Jagjivanram Hospital, Maratha Mandir Marg, Mumbai Central, Mumbai 400 008, India

Introduction: Hepatitis B is a major health problem all over the world and health care workers are at increased risk of contracting it. This questionnaire based study was conducted among nurses at two tertiary care centres in India to assess the awareness regarding hepatitis B.
Results: The awareness regarding the infectivity and diseases caused by the virus was low. Significant number of nurses believed blood and blood products alone transmitted hepatitis B. Only three fifths of the respondents knew that both vaccine and immunoglobulin should be administered to prevent vertical transmission. Nearly one quarter of the respondents did not know the correct vaccination schedule for hepatitis B and 30% had not received three doses of the vaccine. Sixty one percent had never been tested or did not remember when they were last tested.
Conclusion: We would like to recommend vaccination for all new entrants in health care field and seminars and CME to promote hepatitis B awareness.

M2

Does COX1 gene polymorphism (A-842 G/C50T) influence peptic ulcer bleeding in India

Ebby George Simon, *S Santhosh, Ashok Chacko*
Department of Gastrointestinal Sciences, Christian Medical College, Vellore 632 004, India

Aim: To investigate the influenc of specific COX1 gene polymorphisms (A-842 G/C50T) on the occurrence of peptic ulcer bleeding observed in a tertiary care centre in South India.
Methods: Patients older than 16 yrs who underwent an upper GI endoscopy in our institution for bleeding peptic ulcer from January 2007 to January 2009 were recruited. We collected information about clinical presentation, use of antiplatelets and anticoagulants; presence of comorbidities, endoscopic findings and type of endotherapy and important outcome measures. The A-842 G/C50T COX-1 polymorphism was studied by using polymerase chain reaction (PCR) followed by restriction fragment length polymorphism (RFLP).
Results: Out of a total of 50 patients recruited, 8 (16%) were found to be heterozygous for COX-1 A842G/C50T mutation while the remaining 42 (84%) had wild type mutations. The clinical characteristics and the outcome measures did not differ significantly among those with heterozygous and wild type mutations. The presence of the heterozygous mutations among high and low risk peptic ulcer bleeders (19% vs. 13.8%, p=0.9538) did not differ significantly. Among the 8 heterozygotes, 4 (50%) had taken aspirin/NSAID while the remaining 4 did not take either. There was no significant difference in the clinical details and outcome measures between these latter 2 groups.
Conclusion: Preliminary results show the lack of influence of COX-1 A842G/C50T polymorphisms on the patients with bleeding peptic ulcer disease.

M3

Effect of intrahepatic cholestasis of pregnancy on maternal and fetal outcome

R Arvind, Murali, ***Harshad Devarbhavi****, Preethi Rao Venkatachala*[*]
Departments of Gastroenterology and Obstetrics,[*]St John's Medical College Hospital, Bangalore 560 034, India

Background: Intrahepatic cholestasis of pregnancy (ICP) has geographic and regional differences. We aimed to study the incidence, clinical presentation and maternal and fetal outcome of patients with ICP.
Methods: The clinical, hematological and laboratory features of ICP and fetal and maternal outcome from 2000 to 2011 were analyzed. Acute viral hepatitis A-E and pregnancy associated acute liver diseases (PAALD) such as pre-eclampsia associated liver disease; AFLP and HELLP syndrome were excluded. Patients were followed up from the time of diagnosis to 1 month after delivery. UDCA (12–15 mg/kg) was initiated soon after the diagnosis. The mean gestational age at the time of diagnosis and at the time of delivery were calculated.
Results: Of the170 pregnant patients with PAALD from 2000 to 2011, 34 had ICP (20%). The mean gestational ages at the time of diagnosis of ICP and at delivery were 31.1 and 37.3 weeks respectively. There was no maternal mortality. Among the 34 patients, 20 patients (59%) had vaginal delivery, with or without induction of labor, 14 (41%) cesarian section (12 elective, 2 emergent). There were 2 (5.8%) intra-uterine deaths (IUD) and 9 pre-term delivery's (26.5%). The two IUDs occurred in patients with MELD scores of 30 and 34.
Conclusion: ICP accounts for 20% of pregnancy specific liver diseases. Although no maternal mortality occurred, 5.8% of intrauterine deaths occurred, both in women with a high MELD score. ICP merits close monitoring, given the preterm deliveries in a 26.5%, IUD'S in 5.8% and the need for cesarian section in 41%.

M4

Needle knife sphincterotomy- to cut or not to cut, a study in 565 ERCP patients

T Arun*, R Senthil Kumar, G Ramkumar, K Muthukumaran, T Pughazhendhi, S Jeevan Kumar*
Department of Digestive Health and Diseases, Kilpauk Medical College and Hospital, Chennai 600 010, India

Background: Needle knife sphincterotomy (NKS) is used to achieve biliary access when routine cannulation methods have been unsuccessful.
Aim: To analyze the efficacy of NKS in patients with an inaccessible common bile duct (difficult cannulation) in ERCP and the factors associated with the failure of this procedure and its complications.
Methods: This is a retrospective study done in 565 ERCP patients from a high volume centre (>250 ERCPs/year) by experienced endoscopists. Data was collected from DDHD ERCP registers. A total of 565 patients were taken for study done during the period of January 2010 to July 2011.
Results: Of 565 patients who underwent ERCP, NKS was done in 141 (24.95%), NKS succeeded in biliary cannulation in 62 (43.26%), failed in 80 (56.74%). Bleeding occurred in 4 (2.83%) and pancreatitis in 3 (2.12%). In patients who had failed cannulation even after NKS, the diagnosis were distal CBD stones in 35 (43.75%), distal CBD strictures 16 (20%), chronic pancreatitis 12 (15%), Klatskin tumor 5 (6.25%), post laproscopic cholecystectomy 4 (5%), carcinoma gall bladder 3 (3.75%), distal cholangiocarcinoma 2 (2.5%) and post gastrojejunostomy 1 (1.25%). Prophylactic pancreatic stent deployed in 3 (2.12%) patients.
Conclusion: Needle knife sphincterotomy is an effective procedure improving the cannulation rate by 43% and relatively safe with a complication rate of 5% in the hands of experienced endoscopists. Factors associated with failed NKS were commonly distal CBD stones, distal CBD strictures and chronic pancreatitis.

M5

Spectrum of presentation in gastrointestinal tuberculosis—profile of 31 cases

A R Akilandeswari*, R Balamurali, K Muthukumaran, G Ramkumar, T Pughazhendi, S Jeevan Kumar*
Department of Medical Gastroenterology, Kilpauk Medical College and Government Peripheral Hospital, Anna Nagar, Chennai 600 010, India

Objective: To study the spectrum of presentation in gastrointestinal tuberculosis.
Study Design: Retrospective Study Setting and Duration: Medical Gastroenterology Department, Kilpauk Medical College and Government Peripheral Hospital, Anna Nagar, Chennai from January 2008 to December 2010.
Methods: All patients with gastrointestinal tuberculosis who had various modes of presentation were included. Diagnosis was based on history, physical examination, laboratory investigations, endoscopic findings and histopathology.
Results: Mean age of 15 male and 16 female patients was 38 years (range 13–65 years). Various presentation of

gastrointestinal tuberculosis included pain abdomen (80%), right iliac fossa mass (24%), fever, weight loss and loss of appetite (7%), ascites (3%), subacute intestinal obstruction (6%), associated pulmonary tuberculosis (3%). Surgical intervention was done in (3%) of patients. The most frequently involved site was the ileocecal region (90%). Other sites included splenic flexure and rectum. Ulceroproliferative lesion was the most common colonoscopic finding.
Conclusion: The diagnosis of intestinal tuberculosis should be considered in various clinical settings. Gastrointestinal tract is one of the commonest sites of extrapulmonary tuberculosis. Patients with abdominal tuberculosis have a wide range of symptoms and signs. In this study both male and female patients were involved equally, when compared with previous studies where female preponderance was more. Increased awareness, a high index of suspicion in various clinical settings described in this study will help in early diagnosis and proper treatment.

M6

Endoscopic ultrasound guided fine needle aspiration cytology in the evaluation of mediastinal and gastrointestinal lesions

Harsh Udawat, Anurag Govil, Dinesh Agarwal, ***Mahendra Agrawal****, Kumud Gangwal*
Departments of Gastroenterology and Pathology, Santokba Durlabhji Memorial Hospital cum Medical Research Centre, Bhawani Singh Marh, Jaipur, India

Background: Endoscopic ultrasound guided fine needle aspiration cytology (EUS-FNA) is minimally invasive and accurate for sampling mediastinal and abdominal lesions. Present study was carried out to evaluate role of EUS-FNA in these lesions.
Methods: Retrospective study of 93 patients over 21 months. All had proven lesions on CECT/USG. For lymph nodes 2–4 passes and pancreatic lesions 3–5 passes were made short of onsite pathologist.
Results: Of 93 EUS-FNA's 2 samples were inadequate (1 from pancreatic and mediastinal lesion each) and 1 lung mass was unapproachable (excluded). The sites for EUS-FNA were: mediastinal nodes (n=50), lung masses (n=10), pancreatic lesions (21), abdominal nodes (n=8), GB mass (n=1), liver SOL (n=1), adrenal mass (n=1), gastric submucosal lesion (n=1). Of 49 cases of mediastinal lymph nodes diagnosis was: granulomatous lesion with necrosis (n=7), granulomatous lesion without necrosis (n=15), metastatic carcinoma (12), reactive hyperplasia (n=2), NHL (n=1), fungal infection (n=1), histiocytosis (n=1); there were 10 non-diagnostic/normal lesions. Etiology of lung masses: NSCLC (n=9), tubercular (n=1). Pancreatic lesions were: adenocarcinoma (n=5), malignant (n=4), NET (n=2), inflammatory (n=3), non-dignostic (n=4), solid-cystic pseudopapillary tumor (n=1), benign cysts (n=2). Abdominal nodes were tubercular (n=4), metastatic (n=2), NHL (n=1), non-diagnostic (n=1). Each of adrenal, liver SOL and GB mass were malignant. Submucosal gastric lesion was tubercular. The procedure was well tolerated. The positive results impacted the management of patients particularly mediastinal lesions as other modalities were non-diagnostic and empirical therapy was avoided.
Conclusions: EUS-FNA is a safe, simple and effective method for diagnosing mediastinal and gastrointestinal lesions and impacts patient management.

M7

Fluoroscopy assisted endoscopic removal of gastric foreign body in non-fasting state

S Khanna*, S Mazumder, A K Seth*
Department of Gastroenterology, Dr B L Kapur Memorial Hospital, Pusa Road, New Delhi 110 005, India

Aim: To assess the use of fluoroscopy for endoscopic removal of gastric foreign bodies, when done in a post prandial state.
Case 1: A 3½-year-old child presented to emergency department 1 h after accidental ingestion of 2.5 cm long metal screw. There was no history of pain abdomen or vomiting. The child had taken dinner 3 h ago. Clinical examination was unremarkable. Plain X-ray of abdomen confirmed the presence of the screw in the stomach. The family was counselled for early upper gastrointestinal (UGI) endoscopy under sedation. At UGI endoscopy the screw was partially visualized in the copious gastric residue in the fundus. The screw could not be captured blindly from within the food residue with dormia basket or foreign body forceps. Finally, the screw successfully caught under fluoroscopic assistance using a dormia basket and extracted per orally. Post procedure the patient was stable and was discharged after 12 h of observation.
Case 2: A 3-years-old child was taken up for endoscopic removal of ingested button battery within 1 h of ingestion. As the stomach was full of residual food, the foreign body could not be identified/captured blindly. Fluoroscopic guidance was used to capture and extract the button battery with Dormia basket.
Conclusion: Fluoroscopy may be useful to localize and capture foreign body from stomach when poorly visualized due to non-fasting state.

M8

Financial and clinical implications of EUS: impact of a newly established program

P Piramanayagam, *R Rav, K R Palaniswamy*
Department of Gastroenterology, Apollo Hospitals, Greams Road, Chennai 600 006, India

Background: Although EUS is increasingly available in India, data on clinical and financial implications of the technology is sparse. This study was designed to evaluate these implications in a tertiary care setting.
Methods: All patients who underwent EUS over a 12 month period (July 2010-June 2011) in a newly established EUS program were prospectively enrolled. Procedures were undertaken under anesthesia assistance and included both diagnostic and therapeutic interventions. Clinical implications were estimated by the impact of EUS which was defined as change in medical management as a consequence of EUS findings. Financial implications were estimated by direct and downstream revenue due to EUS.
Results: One hundred and eighty-three procedures were performed in 177 patients (mean age 48.2 yrs; male 66%). Indications were pancreatico-biliary in 123 (67%), luminal mass 36 (20%) and mediastinum/lymph node sampling in 24 (13%). Therapeutic EUS was performed in 51 (29%) patients: FNAC in 46 (diagnostic accuracy 74%), celiac neurolysis 3 and cystogastrostomy in 5. EUS had an impact on clinical management in 98 of 126 (78%) patients. Total downstream referrals following EUS were 25% that included surgery in 19, ERCP in 10 and subspecialty referrals in 16. EUS generated a direct revenue of Rs 18,35,500 and downstream revenue of Rs 11,43,000 in 1 year.
Conclusion: The clinical and financial implications of EUS to a multispecialty tertiary hospital appear substantial. A significant clinical impact was observed in three-fourth of patients and 40% of total revenue was generated from downstream effects.

M9

Intraabdominal mesothelioma–a case report

Anand, *Radha, Shafique, Hemamala, Aravind, Senthil Kumar, Malarvizhi, Biggs Saravanan, Vinoth, Kani, Premkumar, Caroline, Rathnagargini, Padmanabhan, Mohhamed Ali*
Madras Medical College, Chennai 600 003, India

Primary abdominal mesothelioma is extremely rare (1 in a million). Although 90% of mesotheliomas are associated with asbestos exposure, cases have been identified with no exposure. Abdominal mesothelioma rapidly spreads within the confines of abdominal cavity. Most common presentation is pyrexia of unknown origin. A 42 year old male, a plastic goods shop keeper presented with pain abdomen, abdominal distension, awareness of mass and fever of 15 days duration. On examination patient had an irregular mass measuring around 6 cm x 7 cm occupying right lumbar and right iliac fossa. USG abdomen and CECT abdomen revealed a mass in abdomen measuring 13 cm x 8 cm size. An USG guided biopsy was done which was reported as spindle cell tumor high grade. Patient was then subjected to an exploratory laparotomy which revealed a peritoneal mass with multiple deposits. Immunohistochemical analysis revealed mesothelioma epitheliod type. Patient was started on chemotherapy. This case is presented for its rarity.

M10

Profile of patients with tuberculous peritonitis in a tertiary care hospital in north Kerala

A R Rajneesh, *Varghese Thomas*
Department of Gastroenterology, Calicut Medical College, Kozhikode 673 008, India

Aim: To analyze the clinical, laboratory, radiological and laparoscopic findings in patients with peritoneal tuberculosis
Methods: Retrospective data of patients with ascites admitted in our hospital during the 2 year period from January 2009 were collected from the medical records. Those with low SAAG and or elevated ADA were included in the analysis and others were excluded.
Result: There were 38 patients suspected to have tuberculous peritonitis (21 males, 17 female) with a mean age of 41.2 years (range 15–74). Additional symptoms were anorexia and weight loss (100% each). Twenty-five patients (65.78%) had positive tuberculin test. All patients except the lone cirrhotic patient had low SAAG ascites (97.36%). The mean ascitic fluid (AF) protein was 5.6 g/dL (3–7.60). Mean ADA value was 88.71 units (30–180.2). Laparoscopic biopsy in 25 patients (65.78%) showed granulomatous inflammation in 96%. Twenty-nine (76.32%) patients underwent CECT abdomen which showed omental and peritoneal thickening in all and enlargement of intra abdominal lymphnodes in two thirds. Antituberculous drug induced hepatotoxicity was observed in 7 (18.42%) cases.
Conclusion: AF analysis was helpful in the diagnosis in 31 (81.57%) cases. Laparoscopy and peritoneal biopsy is very useful in confirming the diagnosis especially if the AF study is equivocal. CECT abdomen is a good tool to exclude other causes of ascites. Drug induced liver damage was observed in approximately one fifth of patients.

M11

Prevalence and safety of propofol based sedation for GI endoscopy procedures

***S Khanna**, S Mazumder, S Singh, U K Valecha, R Gulati, A K Seth*
Departments of Gastroenterology and Anesthesiology, Dr B L Kapur Memorial Hospital, Pusa Road, New Delhi 110 005, India

Aim: To present our experience with propofol based sedation for GI endoscopic procedures.
Methods: Audit of endoscopic procedures performed January 2009 to June 2011. Patients were offered propofol sedation in endocsopy suite monitored by anesthesiologist. Protocol included combination of midazolam 1–2 mg or fentanyl 0.5–1 mcg/kg and propofol 0.5–1 mg/kg. Frequency of use and adverse effects of propofol based sedation (group A) were compared with non-propofol based sedation or topical anesthesia (group B). Adverse events were considered significant if they led to scope withdrawal and were recorded prospectively in event register.
Results: Of 2,389 endoscopic procedures, 1,503 (62.9%) were carried out under propofol, including 890 of 1,450 (61.3%) UGI endoscopy, 426 of 442 (96.3%) colonoscopy, all 232 combined procedures, 129 of 149 (86.5%) ERCP and 58 of 184 miscellaneous. Adverse effects were noted in 28 patients (desaturation 21, hypotension 4 in group A vs. desaturation 3 in group B, $p=0.005$). However, all procedures were completed in the same sitting once the patient stabilized. Of 24 desaturation episodes, 16 occurred during UGI endoscopy, 8 during ERCP and none during colonoscopy ($p=0.01$).
Conclusion: Anesthesiologist monitored propofol sedation was opted for by more than 60% patients, despite increase in cost. Despite higher prevalence of adverse effects procedure could be completed in all patients. No desaturation was noted in patients undergoing colonoscopy, indicating that neck and jaw position was responsible for desaturation during upper GI procedures.

M12

Pain abdomen due to lead poisoning from consumption of indigenous drugs

***S Mazumder**, S Khanna, R Gulati, A K Seth*
Department of Gastroenterology, Dr B L Kapur Memorial Hospital, Pusa Road, New Delhi 110005, India

Aim: To share our experience with a cluster of patients with lead poisoning due to indigenous medication.

Case Report: From January 2011 to March 2011, 4 patients, median age 31 (range 24 to 39 years), including 3 male, presented with severe continuous central abdominal pain with cramp like exacerbation for 1 to 3 days. The pain was poorly localized, non-radiating with occasional vomiting. There was history of intake of indigenous medicine (for vitality 2, chronic constipation 1 and diabetes mellitus 1). Clinical examination was unremarkable symptoms were out of proportion to signs. Serum amylase, LFT, AXR, UGI endoscopy, USG and CECT abdomen were normal. All patients had anemia (median Hb 9.7, range 9 to 10.8 g%) and 1 had basophilic stippling. All had elevated transaminases with median AST 105 (range 47 to 238) and median ALT 203 (range 92 to 486 U/L). Serum lead levels were high in all (median 69.3, range 49.6 to 93.07 mcg/dL). There was poor relief of pain with IV tramadol/pentazocin. With chelation (D-penicillamine 3, DMSA 1) symptomatic improvement occurred during the hospital stay (median 6.5, range 4 to 8 days) and hematological and biochemical parameters normalized within 4 weeks. At median follow up of 21.2 (range 16 to 25 weeks), median lead level was 26.2 (range 15 to 37 mcg/dL). Level of lead in medication was >20 fold above permissible limit while there was no lead in potable water.
Conclusion: Lead toxicity should be considered in patients with pain abdomen, anemia, raised transaminases and indigenous drug intake.

M13

Extra hepatic biliary obstruction and duodenal obstruction and secondary to histoplasmosis in an AIDS patient

*Harsh Udawat, **Mahendra Agrawal,** Anurag Govil, Dinesh Agarwal, Shubha Gupta*
Santokba Durlabhji Memorial Hospital cum Medical Research Centre, Bhawani Singh Marh, Jaipur, India

Introduction: Disseminated histoplasmosis is an AIDS-defining illness which usually involves the liver and gastrointestinal tract, most commonly the small bowel.
Clinical Details: Forty-eight year old male, on HAART since 3 years for AIDS and low CD4 counts, stopped HAART by himself. After 1.5 years of discontinuation of HAART presented with complaints of pain upper abdomen, post prandial vomiting, weight loss and generalized weakness for 3 months. There was no jaundice. HAART was restarted 3 months back. Ultrasonography of abdomen showed moderate IHBR dilatation, dilated pancreatic and common bile duct with echogenic mass at distal common bile duct. CT abdomen shows duodenal wall thickening

with nodular lesion at ampulla of vater causing obstruction and proximal pancreatic and biliary duct dilatation. Upper GI endoscopy showed polypoidal mass lesions starting at the D1-D2 junction and continuing into D2 with a stricture in D2. Diagnosis of lymphoma/tuberculosis was suspected and multiple biopsies taken. Histopathological examination was suggestive of fungal infection which proved on special stains to be histoplasma infection. Patient was treated with injection Amphotericin-B for 14 days and then shifted on oral Itraconazole. Patient showed marked symptomatic improvement and endoscopic regression of disease. He was able to tolerate oral diet and repeat upper GI endoscopy performed after 3 weeks showed marked resolution of mass lesion at D1-D2 junction.
Conclusion: Histoplasmosis presenting as duodenal and biliary obstruction is rare. Amphotericin-B followed by itracoazole/voriconazole is an effective life saving therapy.

M14

Clinicopathologic study of gastroenteropancreatic neuroendocrine tumors

Manish Kak*, Rahul Bhalgami, Himanshu Patel, G Y Ami, K M Mohandas, Prachi Patil, Shaesta Mehta*
Department of Digestive Diseases and Clinical Nutrition, Tata Memorial Hospital, Parel, Mumbai 400 012, India

Introduction/Background: Neuroendocrine tumors (NETs), previously thought to be rare are not uncommon disorders. These are heterogeneous family of neoplasms with a wide and complex spectrum of clinical behavior. Scarce data is available on GEP-NETs from India.
Aims: To determine the clinical and pathological features of gastroenteropancreatic neuroendocrine tumors.
Methods: Clinical charts of the patients seen and evaluated for NETs in our hospital between 1999 and May 2010 were reviewed. One hundred and thirty-two patients with gastroenteropancreatic neuroendocrine tumours were included in the analysis.
Results: Male to female ratio was 2:1. Mean age at presentation was 47.92 years. Among GI NETs stomach was the predominant primary site (18.9%). Most of the patients were symptomatic (91.66%) and were of advanced stage (65.15%). CT scan, SRS scan and PET scan were done in 93.18%, 28.78% and 25.75%, respectively. Endoscopy was done in 46.96%. Biochemical tests done were 24 h urinary 5 HIAA (43.93% of patients), serum chromogranin A (34.84%) and serum gastrin (19.69%). Most common IHC done was chromogranin A. MIB score was available in 53.03% patients. Well differentiated NECs were 35.6%, PDNECs 22.5% and WDNETs 20.5%. Tumors greater than 2.1 cms in size, T3/T4 tumors and tumours with poor differentiation were metastatic. The predominant first line therapy was surgical while predominant second line therapy was medical.
Conclusion: Increasing incidence of GEP—NETS was observed. A different organ distribution of NETs was observed in Indian patients, with stomach being the predominant site.

M15

Does presence of an onsite cytopathologist improve the results of EUS-FNA? A single center study

Amol Bapaye,[1] *Advay Aher,*[1] *Vijayshree Bhide,*[2] *Veena Joshi,*[2] *Harshal Gadhikar,*[1] *Lalit Shimpi* [1]
[1]Departments of Digestive Diseases and Endoscopy, and [2]Pathology, Deenanath Mangeshkar Hospital and Research Center, Erandawane, Pune 411 004, India

Introduction: Over a 4-year period (2006–10), 160 patients underwent EUS guided FNAC/FNAB for mass lesions in and around the upper gastrointestinal tract.
Methods: EUS was performed using Fujinon SU7000 EUS system and EG530UT linear echoendoscope (Fujifilm Inc., Japan). One hundred and eighty lesions were sampled in 160 patients. After locating the lesion by EUS, FNA was obtained using a 22 G Echotip-Ultra needle (Cook, USA). Onsite pathologist was available for 73 lesions in 61 patients, 38% (group 2) whereas absent in 99 patients 107 lesions, 61% (group 1).
Results: Overall accuracy in our series was 89%. Organs sampled were pancreas 92 (51%), lymph nodes 50 (27%), duodenum 11 (6%), esophagus 6 (3%), stomach 4 (2%), gall bladder 4 (2%), liver 4 (2%), CBD 3 (2%), mediastinal and retroperitoneal tumors 3 (2%) each. Cytopathology confirmed malignancy in 61 (34%), was reported as benign 17 (9%), inflammatory 47 (26%), inconclusive 20 (11%) and showed normal cytology in 35 (19%). Inconclusive reports were significantly reduced in group 2 vs. group 1 – 3/61 (5%) vs. 17/107 (15%), $p<0.05$. Positivity of samples improved when FNAC was combined with FNAB (clot in formalin) 8/130 (6%) vs. FNAC alone 12/50 (24%), $p<0.005$. 64/125 (51%) patients had lesions that were treated medically and did not require surgery.
Conclusions: Presence of onsite pathologist significantly increased EUS-FNA yield. FNAC combined with FNAB significantly improved diagnostic yield. EUS-FNA avoided surgery in half the patients.

M16

Mapping and assessment of artificial recharge potential zones using geospatial technology

D D Sinha,* *S N Mohapatra,** *Padmini Pani*****
*Centre of Remote Sensing and GIS, SOS in Earth Science, Jiwaji University, Gwalior, India **Centre for the Study of Regional Development, Jawaharlal Nehru University, New Mehrauli Road, New Delhi 110 067, India

In context to the present day scenario for the demand of water, development of a watershed using modern tools have become inevitable. The Bilrai watershed in Shivpuri district, Madhya Pradesh covering an area of 294.167 sq. km has been considered for the present study. The aim of the study was to delineate the artificial recharge potential zones for the prepararion of a water resources development plan for the area using the geospatial tools. IRS-1D (LISS III) satellite data along with geology, soils data sets have been utilized to extract information of various features such as lithological, geomorphological, structural, drainage, slope, land use/land cover and soil. These maps have been generated using ARC GIS and Erdas Imagine software. DEM has been generated from contours in order to obtain the slope percentage and slope aspect of the area. The artificial recharge zones were delineated by weighted overlay analysis. The themes geology, geomorphology, slope and soil are considered and the weightage are assigned to the different classes of respective themes according to their role in artificial recharge potential. Finally, five artificial recharge potential zones namely very good, good, moderate, fair and poor were delineated for the study area. It was estimated that an area about 102.12 Sq. km (34.72% of total area) forms the very good recharge potential zones.

M17

Reactive oxygen species measurement in patients of chronic pancreatitis by flow cytometric technique

R P Ola*, S V Rana, D K Bhasin, S S Rana, C Rao, K Singh*
Department of Superspeciality of Gastroenterology, Postgraduate Institute of Medical Education and Research, Chandigarh160 012, India

Background: Reactive oxygen species (ROS) contribute to the pathogenesis of several inflammatory diseases including pancreatitis. The ROS may play a significant role in pathophysiology of CP which is still unexplored.

Aim: To evaluate reactive oxygen species in red blood cells (RBCs) of patients with chronic pancreatitis and compare it with healthy controls.

Methods: The study included 115 patients with CP (48 idiopathic, 67 alcoholic and 65 calcific, 60 non-calcific) and 80 healthy controls. Smoking and antioxidant or vitamin supplements were stopped prior to the study. Fasting blood samples were collected and cells were incubated with 0.1 mM, 7-dichlorofluorescein diacetate (DCFH-DA) for 30 min and then washed. ROS was measured in RBCs by fluorescence activated cell sorting (FACS) method.

Results: Flow cytometric analysis showed that RBC mean fluorescence index (MFI) was significantly.

M18

Comparison of patient comfortness with conventional EGD with Ultrathin nasal EGD in patients requiring upper GI scopy

Manoj Kumar Sahu*, S Arulprakash, Dinesh Jothimani, Subash S Samal, George M Chandy*
MIOT Advanced Center for GI and Liver Diseases, MIOT Hospitals, 4/112, Mount Poonamalle Road, Manapakkam, Chennai 600 089, India

Background: Esophagogastroduodenoscopy (EGD) is the most frequently performed diagnostic procedure for upper gastrointestinal disorders. Transnasal endoscopy has advantages such as no sedation and less patient monitoring, nursing time and expenses than conventional per oral EGD.

Objectives: To assess the comfortness of unsedated transnasal EGD with per oral ultrathin EGD and conventional EGD in daily practice.

Methods: Patients due to undergo EGD were randomly allocated to either unsedated transnasal EGD (group: I) or per oral conventional EGD (group II) peroral Ultrathin EGD {5.8 mm diameter} (group III). Adequate local anesthesia is given with 10% lignocaine spary for pharyngeal and nasal areas respectively. All procedures were performed by a senior gastroenterologist. All patients were surveyed using a questionnaire, and were asked to give specific scores for discomfort and objective pain score. All variables were assessed by scores between 0 and 10, with 10 indicating the most severe degree of each variable. Any complications were also recorded.

Results: Between May 2011 and August 2011, 121 patients underwent endoscopy. Male:female ratio is 1.81. Forty-three patients had comorbidities like hypertension, diabetes. The median age of the patients was 48 years (range 14 to 83 years). Complete examinations were possible in all patients. Patients reported a high degree of acceptability and low degrees of

choking sensation, nasal discomfort, sore throat with trans nasal ultrathin endoscopy. Comfort score of transnasal ultrathin gastroduodenoscopy (group I: 45) was better compared to peroral conventional gastroduodenoscopy (group II: 49) and transoral ultrathin gastroduodenoscopy (group III: 28). Difference is statistically significant ($p<0.03$). The difference between group II and group III were not statistically significant. The only complications reported by the patients were epistaxis ($n=1$, 0.8%). When asked, 87 patients (71.9%) stated that they were willing to undergo the same procedure in the future if medically indicated without sedation. Of the 43 patients who had conventional EGD in the past, 38 patients (88%) preferred transnasal EGD without sedation.
Conclusions: Transnasal EGD is generally well tolerated, feasible and safe. It can be performed with topical anesthesia in an outpatient setting. The low complication rate, high patient satisfaction and potential cost savings make transnasal endoscopy an attractive alternative to conventional EGD to screen patients for upper gastrointestinal tract diseases.

M19

Helminthic infestation presenting as overt GI bleed in RVD patient

G R Srinivas Rao, Chandrasekhar Reddy, S Jithendar Reddy, B Vamshi Krishna Reddy, ***Ambareesh Barat****, Subhashini, R Sikanta Kumar, T J Sri Gowri, B Ravi Shankar*
Department of Gastroenterology, Yashoda Hospital, Hyderabad 500 082, India

A 45-year-old male presented to our center with melena and fresh blood per rectum, without abdominal pain or hematemesis. These symptoms were intermittent. He is diagnosed case of RVD not on treatment. There is history of significiant ethanol ingestion for past 30 years. No history of NSIAD abuse. Examination revealed pallor, pedal edema, and soft abdomen and enlarged liver.
Laboratory evaluation showed anemia (Hb 4.6 gm%) WBCs and platelets were normal. Peripheral smear showed microcytic hypochromic blood picture. LFT showed mild hypoalbuminimia (serum albumin-3 gm/dL). USG abdomen showed fatty liver and mild splenomegaly. Endoscopy showed grade I esophageal varix and no obvious source of blood loss. Colonoscopy was normal. He received blood transfusions to improve Hb to 7 gm/dL. Capsule enteroscopy was done in view of ongoing blood loss. Capsule enteroscopy showed small bowel studded with thousands of worms mimicking hook worms.
A diagnosis of helminthiasis was made and he was started on Ivermectin and Albendazole combination. The next day patient developed altered sensorium and slurring of speech. Toxic/hepatic encephalopathy was suspected and he was started on anti-encephalopathy measures. Sensorium gradually improved in 2–3 days. Repeat Albendazole was given after 5 days.
There was no further melena or bleeding PR. He was started on iron supplementation. His Hb improved to 10.5 gm/dL. Patient remained stable during follow up and, was started on anti retroviral therapy.
It is a rare case of intestinal helminthiasis presenting as massive GI bleed requiring multiple blood transfusions which responded to simple anti-helminthic treatment.

M20

Association of tnfsf15 RS3810936 polymorphism with inflammatory bowel disease

B Kirankumar, *Srinivasan Pugazhendhi, Balakrishnan S Ramakrishna*
Department of Gastrointestinal Sciences, Christian Medical College, Vellore 632 004, India

Background and Aim: Ulcerative colitis (UC) and Crohn's disease (CD) are two major forms of inflammatory bowel disease (IBD) that have aroused considerable attention recently. In both diseases, there is evidence for genetic susceptibility. The genes involved may vary in different populations. Genetic variations in the tumor necrosis factor superfamily 15 (TNFSF15) gene contribute to IBD susceptibility in both Japanese and Caucasian populations. We investigated whether variants in TNFSF15 are associated with IBD in a well-characterized cohort.
Methods: Rs3810936 SNP was genotyped in 264 CD, 283 UC and 398 control subjects. 8 mL venous blood was collected, DNA extracted by salting out method and subjected to allele-specific polymerase chain reaction to identify the C and T alleles at this location. The genotype was allocated by examination of the amplicon size after electrophoresis. Significance of differences between groups was analysed using chi square test.
Results: The T allele showed a protective association with Crohn's disease (Odds ratio 0.79, 95% CI 0.62–1.00, $p=0.05$) and with ulcerative colitis (Odds ratio 0.74, 95% CI 0.58–0.94, $p=0.01$). The CC genotype showed a protective association with Crohn's disease (Odds ratio 0.68, 95% CI 0.49–0.93, $p=0.01$) and with ulcerative colitis (Odds ratio 0.71, 95% CI 0.52–0.97, $p=0.03$).
Conclusion: This study shows an association between TNFSF15 rs3810936 genotype and IBD in Indians. TNFSF15 codes for a cytokine, TL1A, which is an important modulator in the development of chronic mucosal inflammation by enhancing T–helper 1 and T–helper 17 effector functions.

M21

Percutaneous endoscopic gastrostomy in a tertiary care hospital- our experience

M Radha, *Anand, Hemamala, Arvind, Shaffique, Senthil Kumar, Malarvizhi, Biggs Saravanan, Ratnakar Gini, Caroline Selvi, Prem kumar, P Padmanaban, Mohamed Ali*
Madras Medical College Hospital, Chennai 600 003, India

Background: Percutaneous endoscopic gastrostomy (PEG) since its introduction in 1980, has gained wide acceptance as the procedure of choice in delivering enteral alimentation and has largely replaced surgical gastrostomy. PEG allows long-term tube feeding. The most common indication being the neurological diseases and head and neck malignancies and also helps to decompress of the stomach in cases of severe gastroparesis. The morbidity and the mortality are less compared to surgical gastrostomy. This study analyses the type and the frequency of the morbidity regarding PEG procedure.
Method: This is the retrospective study in which we have analyzed PEG tube insertion in patients 1 year period.
Results: Total number of cases of PEG insertion done was 18. The indication were stroke/parkinsons-8, pontine hemarrhge-2, Ca cricopharynx-6, Ca larynx-2. 14/18 patients did well. Only 4 patients developed the following complication in order of frequency. Major complications reported hemorrhage-1, and aspiration-2. Minor complications like peristomal wound infection-2, ileus-1.
Discussion: Morbidity occurs in approximately 3% of patients in large series reported. In our study it is shows occur in 22% of cases and we had one rare complication reported of ileus after PEG tube feeds presented with features of intestinal obstruction which was managed by decompression through the PEG tube thereby avoiding unnecessary surgical intervention.
Conclusion: PEG is a relatively safe procedure. It can undertake even in sick patients when their general condition is not fit surgical intervention. Most of patients did not developed any major complications and minor complications rare like ileus early recognition essential for effective and efficient non surgical management to reduce the morbidity related to PEG.

M22

An open label comparative study between xylocaine lozenges and xylocaine spray in patients undergoing upper gastrointestinal endoscopy in a tertiary care center

R Biggs Saravanan, *M Malarvizhi, Hemamala, Safique, Radha, J Arvind, Senthil Kumar, Anand, Prem Kumar, Caroline Selvi, Ratnakar Kini, P Padmanabhan, Mohammed Ali*
Department of Medical Gastroenterology, Madras Medical College Hospital, Chennai 600 003, India

Aim: To determine the efficacy safety and ease of use of lidocaine lozenges for endoscopy as compared to lidocaine spray.
Methods: Total of 50 patients were taken and separated randomly in to group A and group B; each containing 25 patients. Group A was given lidocaine lozenge 200 mg to suck 15 min before and group B was given lidocaine spray just prior to the upper GI endoscopy. Efficacy was assessed by ease of the procedure, gag refluxes in a 0 to 5 point scale. Physicians and patients global assessment of topical analgesia were obtained. All the procedures were done by single experienced endoscopist. Comparison was made by SPSS version 17.
Results: Lidocaine lozenge showed less difficulty in intubation ($p<0.0001$) and less gag reflux ($p<0.0001$). Group A had 7 (29%) patients with staining of mucosa with the lozenge which may pose difficulty in assessing the fine detail of the mucosa. In group A 4 patients (16%) said the analgesia was excellent; 15 (62%) said it was good and 5 (20%) said the analgesia was fair. None said it was poor. In group B 11 patients (42%) said the analgesia was good, 13 (50%) patients said the analgesia was fair and 1 (0.03%) patient said it was poor.
Conclusion: Lidocaine lozenge was more efficacious than lidocaine spray for topical analgesia before upper GI endoscopy. Lozenge stained the mucosa which may interfere with fine details of mucosa. This may be avoided by creating colorless lozenges in the future.

M23

Evaluation of factors for methane production in healthy North Indian subjects

S V Rana, ***S Sharma****, J Kaur, K Singh*
Department of Gastroenterology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Introduction: Methane (CH4), a gas produced by a group of colonic anaerobes, is absorbed from the colon and excreted in expired air. As a result, breath CH4 excretion can be used as an indicator of the in situ activity of the methanogenic flora.
Aim: To evaluate factors for methane production in healthy North Indian subjects.
Methods: Two hundred and seventy-six apparently healthy controls were prospectively enrolled in the study. Lactulose breath test was performed using 10 g

lactulose. Breath samples were collected every 15 min up to 180 min. Fasting breath H_2 and CH_4 concentration were measured by SC Microlyzer from Quintron USA.
Results: Out of 276 subjects, 94 (34%) were predominant methane producers (PMP) (methane>3 ppm) while 182 non methane producers. Out of 94 PMP subjects, 51 were males and 43 females. Forty-nine out of 94 (52.1%) PMP subjects were doing regular physical hard work (Cycling/Gym/Yoga). In the group of 182 healthy subjects who were non-methane producers, 102 were males and 80 females. Only 12 out of 182 (6.6%) subjects were doing regular physical hard work (Cycling/Gym/Yoga). Subjects with higher physical activity (52.1%) were found to be significantly more ($p<0.001$) in PMP subjects as compared to non-methane producers (6.6%).
Conclusion: This study shows that regular physical hard work (Cycling/Gym/Yoga) may be a positive predictive factor for production of methane in healthy individuals.

M24

Endoscopic assessment of orolaryngopharynx an easy tool for assessment and operability of laryngopharyngeal cancers for head and neck oncosurgeons

Devanand Mohapatra, Sanjoy Panda, Swarupa Panda
Hi-Tech Medical College, S C B Medical College, Cuttack 753 007, India

Introduction: Oral, pharyngeal and laryngeal cancers have shown a rising trend in India due to the chewing habit of pan, tobacco and cigarette smoking. Due to complacent attitude of people and poor awareness about after effects of the substance, people often present with oral, pharyngeal and laryngeal cancers in early and advanced stage.
Aim: To screen and study the extent and accessibility for surgery. A comparative study and observation was carried out with laryngoscopy and video-upper GI endoscopy. One hundred and twenty-four cases of pharyngeal and laryngeal growth were studied involving sex, growth site, spread and assessment for operability was studied. All the patient under went laryngoscopy both rigid and flexible followed by upper GI endoscopy.
Observation: Out of 124 cases, 96 were male and 28 were females, mean age male-45–60, and female—45–50. Eighty-four patients had well differentiated squamous ca, 10 had moderately differentiated squamous ca, 20 had poorly differentiated squamous ca. Ten had pharyngeal and post cricoid squamous ca. Forty patients of laryngeal ca had involvement of pyriform fossa. Thirty-six patients had associated cervical lymphnode biopsy positive. Seventy patients could undergo total laryngectomy follwed by CT and RT, 3 patient had voice prothesis implanted.
Conclusion: All patients who had upper GI endoscopic assessment, had better assessment of the abnormal anatomy, with options of easy biopsy and proper pictures of accessibility of pyriform and postcricoid area, which was a better guidance for pharyngeal and laryngeal surgeries.

M25

Epidemiology of upper gastrointestinal bleed in a tertiary care center

Charles Panackel, *Harshad Joshy, K R Pradeep, Benoy Sebastian, Sunil K Mathai*
Department of Gastroenterology, Medical Trust Hospital, M G Road, Kochi 682 016, India

Background: Upper gastrointestinal bleed is bleeding occurring from gastrointestinal tract proximal to ligament of Trietz. Epidemiology of upper gastrointestinal tract bleed is changing world wide. Present study was done to assess the etiology and demographic profile of upper gastrointestinal bleeds evaluated in a tertiary care center.
*Aim:*To study the etiology and demographic profile of patients with upper gastrointestinal bleed evaluated in a tertiary care centre.
*Method:*Retrospective observational study done between January 2010 to March 2011. All patients evaluated in endoscopy unit of Medical Trust Hospital, Kochi with a history of overt upper gastrointestinal bleed were included in the study. Demographic profile, etiology of upper gastrointestinal bleed, therapeutic intervention done and outcome were analyzed.
Results: During the study period 427 patients underwent upper gastrointestinal endoscopy for overt upper gastrointestinal bleed. Male to female ratio was 4.6:1. Age ranged from 4–88 years with a mean of 61 years. Nonvariceal bleed (58.3%), was more common than variceal bleed (41.6%). Common causes for nonvariceal bleed were duodenal ulcer (18%), esophagitis (16.8%), Mallory-Weiss syndrome (12.8%), antral erosions (10.3%), gastric ulcer (10.3%). Variceal bleed included esophageal varices (78%), fundal varix (19.6%) and ectopic varix (2.2%). All patients with esophageal varices underwent endoscopic band ligation. Fundal and ectopic varices were treated with glue injection. Therapeutic modality for gastric and duodenal ulcers varied based on availability and choice of endoscopist. Surgical intervention was required in 14 patients (3.27%). Overall in hospital mortality was 6.08%.
Conclusion: Nonvariceal bleeding was most common cause for overt upper gastrointestinal bleeding in our centre. Among patients with non variceal bleed, duodenal ulcer was most common followed by esophagitis. Surgical

intervention was required in 14 patients (3.27%). Overall in hospital mortality was 6.08%.

M26

Speciation of Campylobacters isolated from patients and identified by biochemical and molecular methods

Chetana Vaishnavi, Meenakshi Singh, ***Prashant Kapoor***
Department of Gastroenterology, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Background: Campylobacteriosis is a zoonotic disease and an important cause of acute bacterial diarrhea. *Campylobacter jejuni* and *C. coli* account for the majority of human infections. Campylobacters were isolated from diarrheic patients by culture and the isolates were speciated by biochemical and molecular methods.
Methods: Fecal samples were collected from 954 adult and pediatric patients presenting with acute enteritis at different hospitals in Chandigarh. The samples were cultured directly and through filtration method on Campylobacter blood based agar media. Campylobacter species were differentiated biochemically on the basis of hippurate hydrolysis method. Further species identification was done by polymerase chain reaction (PCR) using three sets of primers. The first PCR assay was designed to co-identify *C. jejuni* and *C. coli* based on their conserved fragment of 16S rRNA gene sequences. The distinction between *C. jejuni* and *C. coli* was subsequently made by molecular determination of the presence of the hipO gene in *C. jejuni* and the ask gene in *C. coli*.
Result: Campylobacters were detected in 17/954 (1.78%) of the fecal samples cultured. Of these 88.2% of the isolates were positive for Campylobacter spp., among which *C. jejuni* was isolated in 13/17 (64.7%) of the isolates while 2 (11.7%) of them were *C. coli*. The 2 remaining campylobacter could not be speciated.
Conclusion: C. jejuni is more commonly prevalent than *C. coli* in patients with acute enteritis.

M27

Differential expression profiles of microRNA in periampullary carcinoma

K S S Uma Mahesh,[1] K Rajsekhar,[2] G Naga Harini,[1] G R Chandak,[3] P Sumit,[3] M Sasikala[1] G V Rao,[2] R Pradeep,[2] D Nageshwar Reddy[2]
[1]Asian Healthcare Foundation, [2]Asian Institute of Gastroenterology, 6-3-661, Somajiguda, Hyderabad 500 082, [3]Centre for Cellular and Molecular Biology, Habsiguda, Uppal Road, Hyderabad 500 007, India

Background: Differential expression of some of the microRNAs in pancreatic cancer and chronic pancreatitis as compared to normal pancreas has already been reported. However, the miRNA expression pattern has not been studied in periampullary carcinoma (PAC), a commonly occurring malignancy in India. We hypothesized that PAC may have altered expression of some of the miRNAs (may be unique), which may play a critical role in its development, progression, diagnosis, and prognosis.
Aim: Our aim was to study miRNA profiles in periampullary carcinoma and compare with that of normal pancreas in Indian patients.
Methods: Sixteen tissue samples (eight tumor tissue samples and eight adjacent normal pancreatic tissue samples) were collected from periampullary adenocarcinoma patients who underwent Whipple's pancreaticoduodenectomy. The diagnosis of periampullary adenocarcinoma and tumor free adjacent normal pancreatic tissue were confirmed by histopathalogical examination. Total RNA was extracted using RNA isolation kit and quantified. Isolated RNA was subjected for screening of 847 human miRNAs on the microarray gene chips.
Results: In periampullary carcinoma patients, miRNA profile of tumor tissues was compared with adjacent normal tissues. Statistically significant ($p<0.01$) differential expression was observed in sixteen miRNAs, of which twelve miRNAs were upregulated and four miRNAs were downregulated. In the upregulated miRNAs, miRNA-1307 is highly significant ($p<0.001$) and miRNA-31 shows the 4-fold change. In the downregulated RNAs, miRNA-518c is highly significant ($p<0.001$) and all of them expressed similar fold change of about 0.8
Conclusion: There is differential expression of miRNA profiles in periampullary carcinoma tissues when compared with adjacent normal tissues. This profiling may give a lead in determining the unique miRNA signatures in periampullary carcinoma.

M28

Post op biliary complications and ERCP

R Poppy Rejoice, R *Balamurali,[1] Ramkumar,[1] G Muthukumaran,[1] T Pugazhendhi, S Jeevan Kumar*
Department of Digestive Health and Diseases, Government Peripheral Hospital, Anna Nagar, Chennai 600 010, Kilpauk Medical College and Hospital, Chennai 600 010, India

Aim: To assess the various post op biliary complications and the interventions undertaken.
Design: Retrospective study at Anna Nagar, Peripheral Hospital between November 2009-June 2010.

Methods: Patients with history of biliary surgery and who underwent ERCP for jaundice, fever, pain abdomen, abdominal mass etc. were included. Malignancies were excluded. These patients reports were retrospectively analysed for various biliary complications, clinical presentations and interventions.
Results: Total subjects: 103, males 41 and females 62. Age ranges from 16 to 78 years. <30 yrs=13 (12.6%), 31–60 yrs =69 (66.9%), >61 yrs =21 (20.4%). Most of them 51 (49.5%) underwent laproscopic cholecystectomy. Pain abdomen was the commonest clinical manifestation 41 (39.8). Jaundice, fever, abdominal mass, increase bile in drain were other manifestations. Complications were identified during, per op period in 3 (2.9%), first week 44 (42.7%), 1–6 month 44 (42.7%), >6 months 12 (11.6%) respectively. Fifty-three (51.5%) had retained CBD stones. Other complications were biliary stricture 23 (22.3%), bile leak 22 (21.4%), secondary biliary cirrhosis 2 (1.9%), biliary enteric fistula 2 (1.9%), pancreatitis 1 (0.9%). Complete transection of CBD at level of insertion of cystic duct either by clip or ligature is the commonest bile duct injury noted in this study. ERCP interventions were successfully done in 84 (81.5%). Failure of ERCP was noted with secondary biliary cirrhosis, tight biliary strictures and bile leak with complete cut-off noted in cholangiogram. Twelve (11.7%) were managed by hepaticojejunostomy.
Discussion: Retained CBD stones were the major post op biliary complication noted in this study and majority were managed by ERCP. Early identification of complications and early intervention prevents dreadful complications like biliary cirrhosis. Majority of post op biliary complications were managed by ERCP.
Conclusion: ERCP plays a major role in managing post op biliary complications.

M29

Cancer stem cells in oral squamous cell carcinoma

Sam Vijay Kumar,[a] *John Muthuswami,*[b] *B S Ramakrishna*[a,c]
Departments of Gastrointestinal Sciences,[a] Surgery,[b] and Centre for Stem Cell Research, [c]Christian Medical College, Vellore 634 004, India

Aim: To isolate and characterize cancer stem cells from squamous cell carcinoma of buccal mucosa and tongue.
Methods: Bits of oral squamous carcinoma tissue were obtained after surgical resection in previously consented patients and cultured for outgrowing cells. Cells were passaged and characterized by flow cytometry for surface antigens, soft agar assay for clonogenicity, and poly-HEME assay for anchorage-independent growth. Side population analysis for cells exhibiting high ABCG2 activity was performed.
Results: Of 28 tumor samples (16 buccal mucosa and 12 tongue) 11 (6 buccal mucosa and 5 tongue) were successfully cultured. Moderately and poorly differentiated carcinoma tissues showed outgrowing cells in culture, whereas well differentiated squamous cell carcinoma did not show such outgrowth. Three tumours provided clone-like colonies in culture with a polygonal cell morphology associated with an increase in CD29 expression and decrease in CD44 expression. CD133 and CD117 positive cells formed a very small proportion of cells in the native tumor tissue. We were able to demonstrate holoclones, meroclones and paraclones *in vitro*. Two samples showed evidence of anchorage independent growth. Three samples gave rise to clones in soft agar assay. A side-population of cells expressing high levels of ABCG2 drug efflux pumps was identified in two of the samples.
Conclusion: Cancer stem cells were identified in squamous cell carcinoma of buccal mucosa and tongue and will undergo further characterization.

M30

Role of 18 F-fluorodeoxyglucose positron emission tomography/computed tomography in the differentiation of benign from malignant pancreatic masses

Sampath Santhosh, *Bhagwant Rai Mittal, Deepak Bhasin,*[*] *Radhika Srinivasan,*[**] *Surinder Rana,*[*] *Asim Das,*[***] *Anish Bhattacharya,*[****] *Rajesh Gupta,*[#] *Rakesh Kapoor,*[***] *Ritambhra Nada* [***]
Departments of Nuclear Medicine and PET, [*]Gastroenterology, [**]Cytopathology, [***]Histopathology, [****]General Surgery and [#]Radiotherapy, Postgraduate Institute of Medical Education and Research, Chandigarh 160 012, India

Introduction: Mass-forming pancreatitis is frequently found in those patients with suspected pancreatic cancer and there is diagnostic dilemma in characterising these lesions. While there are reports of FDG-PET in differentiation of benign from malignant pancreatic masses, there is paucity of data on role of FDG-PET/CT in evaluation of pancreatic masses when conventional imaging modalities or biopsy is non-diagnostic.
Aim: In this prospective study, we report the utility of FDG-PET/CT in characterisation of mass forming lesions of pancreas.
Methods: Eighteen F-FDG PET/CT was done in 51 patients diagnosed to have periampullary or pancreatic mass by conventional imaging modalities. Lesions with focally

increased FDG uptake in PET/CT were considered malignant whereas, those with diffuse or no FDG uptake were considered benign. Semi quantitative analysis with SUVmax was calculated. The PET/CT results were compared with histopathological results in all patients.
Results: Based on FDG uptake pattern, sensitivity, specificity, PPV, NPV and accuracy for FDG-PET/CT in characterising periampullary and pancreatic masses into benign and malignant lesions were 87%, 86%, 90%, 82% and 86% respectively. ROC analysis of SUVmax of the lesions yielded cut-off value of 2.85, with sensitivity and specificity of 93.3% and 43% respectively.
Conclusion: FDG uptake pattern in PET-CT can differentiate malignant from benign mass-forming lesions of the pancreas with high accuracy. However, it was not possible to arrive at a discrete cut-off value of SUVmax. Hence, in patients with suspicion of malignancy in the pancreas, focally increase FDG uptake in PET/CT is the most reliable criteria for diagnosis of malignancy.

M31

Profile of abdominal tuberculosis at a tertiary care hospital in coastal Orissa

S K Kar, *H S Das, C R Panda, M K Panigrahi, B Misra, S P Singh*
Department of Gastroenterology, S C B Medical College and Hospital, Cuttack 753 007, India

Background: Abdomen is an important site of extra pulmonary tuberculosis.
Aim: To study the profile of abdominal tuberculosis at a tertiary care hospital in Orissa.
Methods: The records of all patients of abdominal tuberculosis admitted into the Gastroenterology ward of S C B Medical College, Cuttack, during the period 2009–2011 were analyzed. All subjects underwent appropriate investigations including ascitic fluid analysis, chest roentgenography, ultrasonography, FNAC, barium studies, CT scan, UGI endoscopy, colonoscopy, laparoscopy and exploratory laparotomy as required for diagnosis.
Results: One hundred and twenty-two patients of abdominal tuberculosis were studied with a sex ratio (M: F) 2.6:1. The age range was 16–85 years with mean age 39.96± 13.08 years. Clinical features included abdominal distension 52.45%, pain abdomen 39.34%, anorexia 23.77%, diarrhea 22.95%, vomiting 18.02%, weight loss 11.47%, fever 9.01%, jaundice 7.37%, upper GI bleeding 4.09%, constipation 2.45% of these cases. Extraintestinal tuberculosis in the form of pulmonary tuberculosis, pleural effusion, cervical adenitis or Pott's spine was present in 11.47%. Other associated conditions were cirrhosis (8.19%), alcoholism (8.19%), diabetes mellitus (4.09%), HIV (3.27%), HBV (2.45%). Site of involvement was peritoneal 52.45%, small intestine (dilatation/stricture/ulcer) 40.98%, omental thickening 29.50%, mesenteric lymphadenopthy 14.75%, colonic 6.55%, pancreas 1.63%, liver 0.8%, common bile duct 0.08%. Most patients (92.64%) responded to anti-tubercular medication. Only 4.91% underwent surgery and 2.45% died.
Conclusions: Ascitic variety is the commonest type of abdominal tuberculosis followed by small intestinal variety. Besides other modalities, USG guided FNAC of omentum and abdominal nodes enhances the diagnostic yield.

M32

Determinants of PHG like appearance seen in dyspepsia patients-a case control study

P Pradeep Kumar, *Y Praveen Kumar, S Anil Kumar, M Mukunda, K R Vinayakumar*
Department of Medical Gastroenterology, Medical College Hospital, Thiruvananthapuram 695 011, India

Introduction: PHG is the presence of a characteristic mosaic like pattern of the gastric mucosa on endoscopy. The etiopathogenesis of PHG is poorly understood. PHG like appearance is seen in patients with dyspepsia in whom there is no evidence of cirrhosis or extrahepatic portal hypertension.
Aim: To find out the determinants of PHG like appearance seen in patients with dyspepsia.
Materials and Methods: This was a case control study done in a tertiary care center, South Kerala, from December 2009 to July 2010. Patients with dyspeptic symptoms were included and patients with cirrhosis, chronic hepatitis and fatty liver were excluded. All patients underwent UGI endoscopy, USG abdomen, biochemical tests and viral markers. Patients with PHG like appearances were taken as cases and those without as controls.
Results: Total study population was 219 (M:F-14:8) with 18 cases and 201 controls. Prevalence of PHG like appearance was 8.21%. Those having PHG like appearance were significantly different from control group in following factors. Mean (SD) weight of the cases was65.39 (11.7) and of the controls was 57.34 (12.2) (p value 0.008). There was weak correlation for male sex (p value 0.68, odds ratio 3.1), *H pylori* (p value 0.32, odds ratio 1.68) and negative association to previous PPI use (p value 0.68) which were not statistically significant. Logistic regression analysis showed significant association to body weight.
Conclusions: Prevalence of PHG like appearance was 8.21% in dyspepsia. Only factor which found to have association was body weight. Study did not find any association with *H pylori*.