

Hermes

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COVID-19 and multisystem inflammatory syndrome in children: a systematic review and meta-analysis.

Yasuhara J, Watanabe K, Takagi H et al.

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Children with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection generally are asymptomatic or only have mild symptoms. However, there has been increasing recognition in children of a hyperinflammation syndrome with multiorgan involvement related to the disease caused by the 2019 virus, COVID-19, beginning 2–4 weeks after the acute infection. This study investigated the epidemiology and clinical course of multisystem inflammatory syndrome in children (MIS-C) by means of a meta-analysis of 27 published international observational studies including 917 patients younger than 21 years meeting Centers for Disease Control and World Health Organization criteria for diagnosis. Mean age was 9.3 years; 34% were Hispanic and 31% Black. Comorbidities such as asthma, chronic lung disease and obesity were present in 31%. Common manifestations were fever (99%), gastrointestinal (GI) symptoms (87%), myocardial dysfunction (55%), coronary artery aneurysms (22%) and shock (66%). In addition, 41% had respiratory and 36% neurologic symptoms, 57% conjunctivitis, 59% rash and 42% oral mucosal changes. Intensive care unit admission was required in 79%. Infiltrates on chest radiograph were present in only 38%. Inflammatory and cardiac markers were markedly elevated. Therapies used included treatments based on those used in patients with Kawasaki disease: intravenous immunoglobulin (81%), aspirin (67%) and corticosteroids (64%), as well as a variety of anti-inflammatory and antiviral agents. Extracorporeal membrane oxygenation (ECMO) was required in 6.3% of children and the mortality was 1.9%. Myocardial dysfunction improved in 55% by the time of discharge. The authors found that differentiating MIS-C from other inflammatory processes, particularly Kawasaki disease, could be

challenging. Compared to Kawasaki disease, MIS-C affects older children, predominantly Hispanic and Black, with a higher incidence of myocardial dysfunction and GI symptoms, higher inflammatory markers and higher mortality but fewer coronary aneurysms.

Contrast enhanced colostography: new applications in preoperative evaluation of anorectal malformations.

Tirrell TF, Demehri FR, McNamara ER et al.

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Contrast-enhanced US using suspensions of stabilized gas microbubbles has become increasingly utilized, especially for evaluating vesicoureteral reflux, abdominal solid organ injury and lesion characterization. This study compared contrast-enhanced colostography (CeCS) with standard fluoroscopic colostography in the evaluation of 14 children (13 boys, 1 girl) ages 1–11 months with anorectal malformation. For both examinations, a Foley catheter was placed into the mucous fistula and sonographic or fluoroscopic contrast agent was instilled. US imaging was performed with anterior and posterior sagittal and perineal approaches using linear- and curved-array transducers. The two studies were concordant regarding anatomical and structural information and presence and location of fistulous connections (11 rectourethral, 2 rectoperineal, 1 without fistula) in 10/14 (71%) children. CeCS detected fistulae in 2/13 that were not seen fluoroscopically. In 2 children, the mucous fistula was too small to catheterize; it was visualized on CeCS in the operating room in one child and on fluoroscopic voiding cystourethrogram (VCUG) in the other. Overall, diagnostic accuracy of fistula detection was 92% for US and 85% for fluoroscopy. There were no adverse events. The US study has the advantage of lack of ionizing radiation exposure, no need for high-pressure injection and portability of equipment.

Management of intussusception in children: a systematic review.

Kelley-Quon LI, Arthur LG, Williams RF et al.
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This systematic review by the American Pediatric Surgical Association Evidence-based Practice Committee aimed to develop recommendations for managing ileocolic intussusception in children. A total of 83 database-identified articles were reviewed and analyzed.

Recommendations and comments included:

1. Administration of antibiotics prior to enema reduction does not decrease post-reduction complications and is therefore unnecessary.
2. A surgeon does not need to be present at enema reduction if a physician capable of abdominal percutaneous decompression and of cardiopulmonary resuscitation is present and surgical care is readily available.
3. Delayed repeat enemas are safe and effective after a first unsuccessful attempt if the child continues to be stable without peritonitis and there was prior partial reduction. Approximately 50% of repeat enemas (up to 3) are successful, resulting in an additional 10% of patients avoiding surgery, with similar perforation and surgical resection rates as for single enemas. The interval between enemas is most often 30 mins to 4 h.
4. These children can be observed in the emergency department (ED) for approximately 4 h after successful reduction and do not need to be admitted, with no difference in the rate of complications. Parents should be evaluated regarding their resources and educated about recurrent symptoms and the importance of returning to the ED if needed. Parents of children older than 2 years should be warned of a possibly slightly increased risk of recurrence.
5. Laparoscopic and surgical reductions have similar complication rates but shorter length of stay for the laparoscopic procedure, suggesting a benefit to an initial less invasive approach. Additionally, the simultaneous application of either saline or air enema reduction during laparoscopic reduction might facilitate the operative reduction. Conversion to open surgery occurs in approximately 17% of children, related to inability to reduce, bowel ischemia, pathological lead point, perforation or poor visualization because of dilated bowel.

6. There are inadequate data to support prophylactic appendectomy during intussusception surgery but this can be considered in the setting of inflammation or ischemia.

Evaluation of an evidence-based guideline to reduce CT use in the assessment of blunt pediatric abdominal trauma.

Gaffley M, Neff LP, Sieren LM et al.
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Trauma is the leading cause of death in children, and CT is widely used for evaluating abdominal trauma in spite of concerns regarding ionizing radiation exposure. This study included 998 children younger than 15 years presenting to the emergency department (ED) with blunt abdominal trauma over a 10-year period. The first 5 years constituted a control group. During the second 5 years, a previously validated evidence-based assessment guideline aimed at decreasing CT utilization was instituted. Evaluation included mental status, abdominal examination, focused assessment sonography for trauma (FAST), liver enzymes, hemoglobin and urinalysis. Children with normal initial findings were observed with serial abdominal exams and follow-up complete blood count testing (CBC). Comparison of the pre- and post-guideline groups showed similar demographics and no difference in injury severity scores. In the control group, 48.3% of children underwent CT scans; 36.8% underwent CT after guideline implementation. ED length of stay was slightly longer in the post-guideline group (3.4 h vs. 4.0 h). The need for surgical intervention was low and did not differ significantly between the groups (1.3 vs. 2.4%, $P=0.2$). No missed abdominal injuries were identified in either group.

Abstracted by: Beverley Newman
E-mail: bev.newman@stanford.edu

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