

were viable pregnancies. Of the 31 studies ($n = 10998$) that reported ectopic, 1661 patients were diagnosed with ectopic pregnancy. In 35 studies ($n = 6003$) that reported mean and SD, the levels were higher in viable (26.7 ± 11.2 ng/ml) than non-viable (9.5 ± 5.9 ng/ml; $p < 0.001$) or ectopic pregnancy (9.5 ± 6.8 ng/ml ($p < 0.001$)). The pooled diagnostic characteristics at different cut-off values were: < 6.3 ng/mL (9 studies; $N = 6033$) sensitivity 65.0% (95% CI 63.5, 66.5), specificity 97.3% (95% CI 95.5, 98.5), PPV 99.4% (95% CI 99.1, 99.7) and NPV 27.4 (95% CI 26.6, 28.4); < 10 ng/mL (12 studies with 5743 participants) sensitivity 65.0% (95% CI 63.5, 66.5), specificity of 97.3% (95% CI 95.5, 98.5), PPV 99.4% (95% CI 99.1, 99.7) and NPV 27.4% [95% CI 26.5, 29.4]; 11–20 ng/mL (24 studies with 7141 participants) sensitivity 77.3% (95% CI 76.2, 78.4), specificity 64.6% (95% CI 63.2, 65.9), PPV 73.2% [95% CI 72.3, 73.9) and NPV 69.5% (95% CI 70.7, 72.5). There was low risk of bias for patient selection, index test and low concern regarding applicability. The highest risk (82% of studies) was due to outcome ascertainment bias due to non-blinding of index and additional tests. **Conclusion:** A single progesterone value is useful in predicting viability of pregnancy among symptomatic patients.

Keywords: ectopic pregnancy, pregnancy viability, progesterone

LO47

Hematochezia in children with acute gastroenteritis in the emergency department: clinical phenotype, etiologic pathogens, and resource utilization

M. Böhrer, BSc, MD, E. Fitzpatrick, MN, K. Hurley, MD, J. Xie, MD, MPH, B. Lee, MD, X. Pang, PhD, L. Chui, PhD, P. Tarr, MD, S. Ali, MDCM, O. Vanderkooi, MD, S. Freedman, MDCM, MSc, Dalhousie University / IWK Health Centre, Halifax, NS

Introduction: Acute bloody diarrhea obligates rapid and accurate diagnostic evaluation; few studies have described such cohorts of children. **Methods:** We conducted a planned secondary analysis employing the Alberta Provincial Pediatric EnTeric Infection TEam (APPETITE) acute gastroenteritis study cohort to describe the characteristics of children with acute bloody diarrhea, compared to a cohort of children without hematochezia. Children < 18 years of age presenting to 2 pediatric tertiary care emergency departments (EDs) in Alberta, with ≥ 3 episodes of diarrhea and/or vomiting in the preceding 24 hours and < 7 days of symptoms were consecutively recruited. Stools were tested for 17 viruses, bacteria and parasites. Primary outcomes were clinical characteristics and pathogens identified. Secondary outcomes included interventions and resource utilization. **Results:** Of 2257 children enrolled between October 2015 and August 2018, hematochezia before or at the index ED visit was reported in 122 (5.4%). Compared to children with nonbloody diarrhea, children with hematochezia had longer illness duration [59.5 vs. 41.5 hrs, difference 10.6, 95% CI 3.5, 19.9], more diarrheal episodes in a 24-hour period [8 vs. 5, difference 3, 95% CI 2, 4], and less vomiting [55.7% vs. 91.1%; difference -35.3%; 95% CI -44.7, -26.3]. They received more intravenous fluids [32.0% vs. 18.3%; difference 13.7%, 95% CI 5.5, 23.0], underwent non-study stool testing [53.7% vs. 4.8%; difference 49.0%, 95% CI 39.6, 58.0], experienced longer ED visits [4.1 vs. 3.3 hours, difference 0.9, 95% CI 0.3, 1.0] and were more likely to have repeat healthcare visits within 14 days [54.8% vs. 34.2%; difference 20.6%, 95% CI 10.8, 30.1]. A bacterial enteric pathogen was found in 31.9% of children with hematochezia versus 6.6% without bloody diarrhea (difference 25.4%, 95% CI

17.2, 34.7). In children with hematochezia, the most commonly detected bacteria were *Salmonella* spp. ($N = 15$), Shiga toxin-producing *E. coli* ($N = 9$), *Campylobacter* spp. ($N = 7$), and *Shigella* spp. ($N = 5$). Viruses were detected in 32.8% of children with bloody diarrhea, most commonly adenovirus ($N = 15$), norovirus ($N = 14$), sapovirus ($N = 8$) and rotavirus ($N = 7$). **Conclusion:** Children with hematochezia differed clinically from those without hematochezia and required more healthcare resources. While bacterial etiologies are common, several viruses were also detected.

Keywords: acute bloody diarrhea, enteric pathogens, paediatrics

LO48

Pediatric cannabinoid hyperemesis syndrome in the emergency department: a 5-year retrospective review

D. Foster, BSc, K. Van Aarsen, MSc, J. Yan, MD, MSc, J. Teefy, MD, T. Lynch, MD, Schulich School of Medicine and Dentistry, Western University, London, ON

Introduction: Cannabinoid Hyperemesis Syndrome (CHS) in pediatric patients is poorly characterized. Literature is scarce, making identification and treatment challenging. This study's objective was to describe demographics and visit data of pediatric patients presenting to the emergency department (ED) with suspected CHS, in order to improve understanding of the disorder. **Methods:** A retrospective chart review was conducted of pediatric patients (12–17 years) with suspected CHS presenting to one of two tertiary-care EDs; one pediatric and one pediatric/adult (combined annual pediatric census 40,550) between April 2014–March 2019. Charts were selected based on discharge diagnosis of abdominal pain or nausea/vomiting with positive cannabis urine screen, or discharge diagnosis of cannabis use, using ICD-10 codes. Patients with confirmed or likely diagnosis of CHS were identified and data including demographics, clinical history, and ED investigations/treatments were recorded by a trained research assistant. **Results:** 242 patients met criteria for review. 39 were identified as having a confirmed or likely diagnosis of CHS (mean age 16.2, SD 0.85 years with 64% female). 87% were triaged as either CTAS-2 or CTAS-3. 80% of patients had cannabis use frequency/duration documented. Of these, 89% reported at least daily use, the mean consumption was 1.30g/day (SD 1.13g/day), and all reported ≥ 6 months of heavy use. 69% of patients had at least one psychiatric comorbidity. When presenting to the ED, all had vomiting, 81% had nausea, 81% had abdominal pain, and 30% reported weight loss. Investigations done included venous blood gas (30%), pregnancy test in females (84%), liver enzymes (57%), pelvic or abdominal ultrasound (19%), abdominal X-ray (19%), and CT head (5%). 89% of patients received treatment in the ED with 81% receiving anti-emetics, 68% receiving intravenous (IV) fluids, and 22% receiving analgesics. Normal saline was the most used IV fluid (80%) and ondansetron was the most used anti-emetic (90%). Cannabis was suspected to account for symptoms in 74%, with 31% of these given the formal diagnosis of CHS. 62% of patients had another visit to the ED within 30 days (prior to or post sentinel visit), 59% of these for similar symptoms. **Conclusion:** This study of pediatric CHS reveals unique findings including a preponderance of female patients, a majority that consume cannabis daily, and weight loss reported in nearly one third. Many received extensive workups and most had multiple clustered visits to the ED.

Keywords: cannabinoid hyperemesis syndrome, nausea and vomiting, pediatrics

LO49

Digital technology distraction for acute pain in children: a meta-analysis

M. Gates, PhD, L. Hartling, PhD, J. Shulhan-Kilroy, MSc, T. MacGregor, MA, S. Guitard, MSc, A. Wingert, MPH, R. Featherstone, MLIS, B. Vandermeer, MSc, N. Poonai, MD, MSc, J. Kircher, MD, S. Perry, MN, T. Graham, MD, MSc, S. Scott, PhD, S. Ali, MD CM, University of Alberta, Edmonton, AB

Introduction: Digital distraction is being integrated into pediatric pain care, but its efficacy is currently unknown. We conducted a systematic review to determine the effect of digital technology distraction on pain and distress for children experiencing acutely painful conditions or medical procedures. **Methods:** We searched eight online databases (MEDLINE, Embase, Cochrane Library, CINAHL, PsycINFO, IEEE Xplore, Ei Compendex, Web of Science), grey literature sources, scanned reference lists, and contacted experts for quantitative studies where digital technologies were used as distraction for acutely painful conditions or procedures in children. Study selection was performed by two independent reviewers with consensus. One reviewer extracted relevant study data and another verified it for accuracy. Appraisal of risk of bias within studies and the certainty of the body of evidence were performed independently in duplicate, with the final appraisal determined by consensus. The primary outcomes of interest were child pain and distress. **Results:** Of 3247 unique records identified by the search, we included 106 studies ($n = 7820$) that reported on digital technology distractors (e.g., virtual reality; videogames) used during common procedures (e.g., venipuncture, minor dental procedures, burn treatments). We located no studies reporting on painful conditions. For painful procedures, digital distraction resulted in a modest but clinically important reduction in self-reported pain (SMD -0.48, 95% CI -0.66 to -0.29, 46 RCTs, $n = 3200$), observer-reported pain (SMD -0.68, 95% CI -0.91 to -0.45, 17 RCTs, $n = 1199$), behavioural pain (SMD -0.57, 95% CI -0.94 to -0.19, 19 RCTs, $n = 1173$), self-reported distress (SMD -0.49, 95% CI -0.70 to -0.27, 19 RCTs, $n = 1818$), observer-reported distress (SMD -0.47, 95% CI -0.77 to -0.17, 10 RCTs, $n = 826$), and behavioural distress (SMD -0.35, 95% CI -0.59 to -0.12, 17 RCTs, $n = 1264$) compared to usual care. Few studies directly compared different distractors or provided subgroup data to inform applicability. **Conclusion:** Digital distraction provides modest pain and distress reduction for children undergoing painful procedures; its superiority over non-digital distractors is not established. Healthcare providers and parents should strongly consider using distractions as a pain-reduction strategy for children and teens during common painful procedures (e.g., needle pokes, dental fillings). Context, child preference, and availability should inform the choice of distractor.

Keywords: digital technology, distraction, pain

LO50

Pain free laceration repairs using intra-nasal ketamine: DosINK 2 clinical trial

S. Rached-Dastous, MD, E. D. Trotter, MD, Y. Finkelstein, BSc, MD, B. Bailey, BSc, MD, MSc, C. Marquis, MSc, BPharm, D. Lebel, MSc, M. Desjardins, MD, SickKids Hospital, Toronto, ON

Introduction: Lacerations are common in children presenting to the emergency department (ED). They are often uncooperative when sutures are needed and may require procedural sedation. Few studies have evaluated intranasal (IN) ketamine for procedural sedation in children, with doses from 3 to 9 mg/kg used mostly for dental

procedures. In a previous dose escalation trial, DosINK-1, 6 mg/kg was found to be the optimal IN ketamine dose for procedural sedation for sutures in children. In this trial, we aim to further evaluate the efficacy of this dose. **Methods:** We conducted a multicentre single-arm clinical trial. A convenience sample of 30 uncooperative children between 1 and 12 years (10 to 30 kg) with no cardiac or kidney disease, active respiratory infection, prior administration of opioid or sedative agents received 6 mg/kg of IN ketamine using an atomizer for their laceration repair with sutures in the ED. The primary outcome was defined as the proportion (95% CI) of patients who achieved an adequate procedural sedation evaluated with the PERC/PECARN consensus criteria. **Results:** Thirty patients were recruited from April 2018 to November 2019 in 2 pediatric ED. The median age was 3.2 (interquartile range(IQR), 1.9 to 4.7) years-old with laceration of more than 2 cm in 20 (67%) patients and in the face in 21 (70%) cases. Sedation was effective in 18 out of 30 children 60% (95%CI, 45 to 80), was suboptimal in 6 patients (20%) with a procedure completed with minimal difficulties, and unsuccessful in the remaining 6 (20%), all without serious adverse event. Similarly, 21/30 (70%) physicians were willing to reuse IN ketamine at the same doses and 25 parents (83%) would agree to the same sedation in the future. Median time to return to baseline status was 58 min (IQR, 33 to 73). One patient desaturated during the procedure and required transitory oxygen and repositioning. After the procedure, 1 (3%) patient had headache, 1 (3%) patient had nausea, and 2 (7%) patients vomited. **Conclusion:** A single dose of 6 mg/kg of IN Ketamine for laceration repair with sutures in uncooperative children is safe and facilitated the procedure in 60% (95%CI, 45 to 80) of patients, was suboptimal in 20% and unsuccessful in 20% of patients. As seen with IV ketamine, an available additional dose of IN ketamine for some children if needed could potentially increase proportion of successful sedation. However, the safety and efficacy of repeated doses needs to be addressed.

Keywords: intranasal ketamine, pediatrics, procedural sedation

LO51

Emergency department use by pregnant women: a population-based study within a universal healthcare system

C. Varner, MD, MSc, A. Park, MSc, D. Little, BSc, J. Ray, MD, MSc, Mount Sinai Hospital - University of Toronto, Toronto, ON

Introduction: Emergency Department (ED) utilization during pregnancy may be common, but data specific to universal healthcare systems like Canada are lacking, where pregnancy care is supposed to be standardized. The objective of this study was to quantify and characterize ED utilization among all Ontarian women who had a recognized pregnancy, including by trimester and within 42 days after pregnancy, and further stratified by pregnancy outcome. **Methods:** Utilizing provincial administrative health databases, this retrospective population-based cohort study included all recognized pregnancies in Ontario conceived between April 1, 2002 and March 31, 2017. Peri-pregnancy ED utilization was defined as any ED visit from 0-42 weeks' gestation, or within 42 days after the end of pregnancy. Modified Poisson regression was used to generate relative risks (RR) and 95% confidence intervals (CI) for the outcome of any peri-pregnancy ED utilization in association with maternal characteristics. **Results:** Peri-pregnancy ED utilization occurred among 1,075,991 of 2,728,236 recognized pregnancies (39.4%), including among 35.8% of livebirths, 47.3% of stillbirths, 73.7% of miscarriages, and 84.8% of threatened abortions. There were 22,802 (0.84%) ectopic