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Introduction: Delirium is an acute state of mental confusion that is a frequent complication in older adults with a hip fracture, and is often unrecognized by clinicians in the emergency department (ED). It is associated with prolonged hospitalization, functional decline, hospital readmission, and death. The Identification of Seniors At Risk (ISAR) and Confusion Assessment Method (CAM) are two standardized tools designed to facilitate prompt screening and detection of functional decline and delirium respectively amongst adults 65 and older. The objective of this study was to determine the ED usage and utility of ISAR and CAM assessment tools in identifying hip fracture patients at risk for developing delirium. **Methods:** This was a retrospective chart review of patients aged 65 and older, presenting to an academic ED (annual census 60,000) with a discharge diagnosis of hip fracture from January 1st 2014 to July 31st 2015. At this institution, both the ISAR and CAM are included in the standard ED nursing documentation and are intended to be completed for all patients over 65 years of age. **Results:** Of the 243 hip fracture cases included in this study, the ISAR and CAM scores were completed for 131 (53.9%) and 69 (28.4%) patients, respectively. There were 43 (17.7%) cases of recorded in-hospital acute delirium. Of the delirium cases, 20 (46.5%) had an ISAR assessment. Patients with an ISAR score of ≥ 3 were more likely to experience delirium compared to those with lower ISAR scores (28.3% vs 8.3%; Δ 20.0%, 95% CI: 6.6%, 34.9%). Of the 43 patients with delirium, 11 (25.6%) had a CAM score recorded. Patients with a positive CAM score (meeting 3 of 4 criteria in the diagnostic algorithm) were more likely to experience delirium compared to those with negative CAM scores (66.7% vs 11.1%; Δ 55.6%, 95% CI: 17.5%, 79.9%). **Conclusion:** Vigilant efforts are needed to ensure these screening tools are applied for all patients over the age of 65 presenting to the ED to improve the recognition and early management of delirium. Future research should focus on initiatives to improve delirium screening compliance by ED personnel.

Keywords: hip fracture, delirium, screening tools

LO055

Increased utilization of Bier block for pediatric forearm fracture reduction following simulation and web-based training

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Introduction: Bier block (BB) regional intravenous anesthesia is a safe and effective alternative to procedural sedation for analgesia during forearm fracture reductions, yet BB remains infrequently utilized in the Pediatric Emergency Department (PED). No standardized methods of BB training have previously been described. The objectives of this study were to evaluate comfort and level of experience with BB in the PED, and to determine if a multimodal instructional course increases these from baseline and translates to increased utilization of this technique. **Methods:** A novel interdisciplinary simulation and web-based training course was developed to teach the use of BB for forearm fracture reduction at a tertiary PED. Participants were surveyed pre/post training, and at 2- and 6-months regarding their comfort with and willingness to use BB. In parallel, we prospectively assessed the clinical utilization of BB in the PED during the 24-month period immediately following course completion. **Results:** Course participation included 38 members of the PED (N = 26 physicians, 12 nurses), and survey response rate was 100% at all time points. Respondents reported that course participation increased both their comfort (10% pre vs. 89% post-training, $p < 0.001$) and willingness (51% pre vs. 95% post-training, $p < 0.001$) to use BB for forearm fracture reduction, an effect that was sustained at 6-months following course completion (66% and 92%, respectively, $p < 0.001$ for both). Before course attendance, only 6% of respondents indicated that they had ever used BB in a PED setting, and all participants indicated that the course addressed their learning objectives. In clinical practice, there were no BB performed prior to course administration. We observed a consistent and sustained increase in the clinical utilization of BB, with 39% of all PED forearm reductions performed using BB at 24-months post-course completion (114 BB, 17 unique physicians). **Conclusion:** A combined simulation and web-based training course increased comfort and willingness to use BB and was associated with increased utilization of this technique for forearm fracture reduction in the PED.

Keywords: intravenous regional anesthesia, procedural sedation

LO056

Perceptions and provision of analgesia for acutely painful conditions in children: a multi-centre prospective survey of caregivers

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Introduction: The suboptimal management of children's pain in the emergency department (ED) is well described. Although surveys of physicians show improvements in providing analgesia, institutional audits suggest otherwise. One reason may be patient refusal. Our objectives were to determine the proportion of caregivers that offered analgesia prior to arrival to the ED, accept analgesia in the ED, and identify reasons for withholding analgesia. Our results will inform knowledge translation initiatives to improve analgesic provision to children. **Methods:** A novel survey was designed to test the hypothesis that a large proportion of caregivers withhold and refuse analgesia. Over a 16-week period across two Canadian paediatric EDs, we surveyed caregivers of children aged 4-17 years with an acutely painful condition (headache, otalgia, sore throat, abdominal pain, or musculoskeletal injury). The primary outcome was the proportion of caregivers who offered analgesia up to 24 hours prior to ED arrival and accepted analgesia in the ED. **Results:** The response rate was 568/707 (80.3%). The majority of caregivers were female (426/568, 75%), aged 36 years or older (434/568, 76.4%), and had a post-secondary education (448/561, 79.9%). Their children included 320 males and 248 females with a mean age of 10.6 years. Most (514/564, 91.1%) reported being "able to tell when their child was in pain". On average, children rated their maximal pain at 7.4/10. A total of 382/561 (68.1%) caregivers did not offer any form of analgesia prior to arrival. Common reasons included lack of time (124/561, 22.1%), fear of masking signs and symptoms (74/561, 13.2%) or the seriousness of their child's condition (72/561, 12.8%), and lack of analgesia at home (71/561, 12.7%). Analgesia was offered to 328/560 (58.6%) children in the ED and 283/328 (72.6%) caregivers accepted. The most common reason for not accepting analgesia was child refusal (20/45, 44.4%). **Conclusion:** Most caregivers do not offer analgesia to their child prior to arriving in the ED despite high levels of pain and an awareness of it. Despite high rates of acceptance of analgesia in the ED, misconceptions are common.

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Knowledge translation strategies should dispel caregiver misconceptions, and highlight the impact of pain on children and the importance of analgesia at home.
Keywords: pain management, analgesia, knowledge translation

LO057

Association between metoclopramide treatment in the ED for concussion and persistent post-concussion headaches: a propensity score matching analysis

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Introduction: There is a paucity of pediatric literature regarding effective treatment for post-concussion headache. The objective of this study was to assess whether metoclopramide treatment in the Emergency Department (ED) within 48 hours of injury was associated with reduced persistent headache symptoms post-concussion at 1-week and 1-month post-injury. **Methods:** Children aged 8-18 years with acute concussion were enrolled across 9 EDs of the Pediatric Emergency Research Canada network in a prospective cohort study [Predicting and Preventing Post-concussive Problems in Paediatrics (5P)] from August 2013 to June 2015. Treatments administered in ED (including metoclopramide) were collected using standardized forms. Self-report symptom questionnaires were rated at baseline, at 7 and 28 days follow-up using the validated Post-Concussion Symptom Inventory (PCSI). Propensity scores for treatment with metoclopramide were calculated using a multivariate logistic regression model including confounders. Intervention and control groups were matched 1:4 on the logit of the propensity scores using a greedy algorithm and nearest-neighbour approach. The primary outcome was headache persistence at one-month. **Results:** 2095 patients met inclusion criteria and completed baseline assessment. At 1 and 4 weeks respectively, 54% (963/1808) and 26% (456/1780) of participants completing follow-up had persistent headache symptoms. 50 metoclopramide treated participants were propensity score matched to 234 controls (1:4 matching). At 4 weeks, no statistically significant difference in persistent headache symptoms was observed between the treatment and propensity score matched control groups (OR: 0.67; 95% CI: 0.33-1.36, $p = 0.26$). There was also no statistically significant difference between the groups at 1-week post-concussion (OR 0.58; 95% CI: 0.32-1.05, $p = 0.07$). **Conclusion:** This secondary analysis was unable to detect a statistically significant association between acute ED treatment with metoclopramide and reduced medium and long-term headache symptoms post-concussion. Nevertheless, the 1-week results hold promise, but require a well-powered RCT to fully address confounding issues to determine the benefit of metoclopramide post-concussion.
Keywords: concussion, headache, propensity analysis

LO058

Reducing unnecessary coagulation studies in suspected cardiac chest pain patients

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Introduction: In light of escalating health care costs, initiatives such as Choosing Wisely have been advocating the need to "reduce unnecessary or wasteful medical tests, treatments and procedures". We have identified coagulation studies as one of those low cost, but frequently ordered items, where we can decrease unnecessary testing and costs by leveraging our Computerized Practitioner Order Entry (CPOE). Considerable evidence exists to suggest a low yield of doing coagulation studies (herein defined as PTT AND INR's) in suspected cardiac chest pain patients (SCCP). **Methods:** Using administrative data merged with CPOE we extracted data 90 days pre- and 90 post-intervention (Pre-intervention: May 20, 2015 to August 19th 2015, Post-intervention: August 20th, 2015 to November 18th 2015). The setting for the study is a large urban center (4 adult ED's with an annual census of over 320,000 visits per year). Our CPOE system is fully integrated into the ED patient care. The intervention involved modifying the nursing CPOE to remove the pre-selected coagulation studies in SCCP and providing education around appropriate usage of coagulation studies. Patients were included in the study if the bedside nurse or physician felt 1. the chest pain may be cardiac in nature and 2. Labs were ordered. The primary outcome was to compare the number of coagulation studies ordered pre and post-intervention. **Results:** Our analysis included 10,776 patients that were included in an SCCP pathway as determined by the CPOE database. Total number of visits in these two phases were similar (73,551 pre and 72, 769 post). In the pre-intervention phase, 5255 coagulation studies were done (4246 ordered by nursing staff and 1009 studies ordered by ED physicians). In the post-intervention phase, 1464 coagulation studies were ordered (1211 by nursing staff and 253 additional tests were ordered by ED physicians). With our intervention, we identified a net reduction of 3791 coagulation studies in our post-intervention phase for a reduction of 72.14% reduction ($p = < 0.0001$) At a cost of 15.00$ (CDN$ at our center), we would realize an estimated cost -savings of 56,865$ for this intervention over a 90 day period. **Conclusion:** We have implemented a simple, sustainable, evidence based intervention that significantly minimizes the use of unnecessary coagulation studies in patients presenting with SCCP.
Keywords: chest pain, coagulation, decision support

LO059

CT head scans yield no relevant findings in patients presenting to the emergency department with bizarre behavior

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Introduction: The standard approach between Emergency Departments (EDs) and Psychiatric Emergency Services is to medically "clear" a stable patient of organic pathology prior to psychiatric consultation. Medical clearance involves neuroimaging, typically in the form of a computed tomography (CT) head scan. This study examines the clinical impact of ordering CT head scans for patients presenting with bizarre behaviour. **Methods:** A 5-year retrospective chart review was conducted at 3 academic, urban ED sites. Inclusion criteria were patients ≥18 years of age triaged as "mental health - bizarre behavior" (defined as deviating from normal cognitive behaviour with no obvious cause) with a CT head scan ordered while under the care of the ED. Exclusion criteria were focal neurologic deficits on exam, alternative medical etiology (i.e. delirium, trauma) and/or pre-existing CNS disease. Demographic, administrative, and neuroimaging data were extracted with 10% of charts independently reviewed by a staff Emergency Physician for inter-rater reliability. **Results:** 270 cases met study criteria. CT results were unavailable in 3, leaving 267 cases studied. The population demographics were: 49% percent female, average age 51 years old, 28% homeless, 59% arrived by police and/or ambulance. CT head results demonstrated 1 (0.4%) case with possible acute findings on CT. 108 (40%) had incidental findings (i.e. cerebral atrophy, small hypodensities), none of which impacted clinical management. Average time to physician assessment was 1 hour 58 minutes (sd 1:17) and time