

and malrotation with strong performance (C-statistic 0.88) and was named the Calgary Kids' Hand Rule (CKHR). **Methods:** A prospective cohort study was conducted at the Alberta Children's Hospital from April 1 until December 31, 2019. Eligible patients included children 17 years and younger with a radiographically confirmed hand fracture. Both emergency physicians and plastic surgeons completed independent CKHR forms for each new hand fracture. The fracture was predicted as "complex" if any one of the six predictors were present on the form. If none of the six predictors were present, the predicted outcome was "simple". The observed outcome was "complex" if the fracture required surgery, closed reduction, or four or more appointments with a plastic surgeon at three months follow-up. All other fractures were observed outcome "simple". The classification performance of the CKHR was assessed via sensitivity, specificity, and C-statistic. The kappa coefficient for inter-rater reliability between emergency physicians and plastic surgeons was calculated for each predictor. **Results:** To date, 102 pediatric hand fractures have been included in this prospective cohort study. Of the 74 observed simple fractures, 49 were predicted as "simple" and 25 were predicted as "complex". Of the 28 observed "complex" fractures, 25 were predicted as "complex" and 3 were predicted as "simple". These findings correspond to a sensitivity of 89%, specificity of 66%, and a C-statistic of 0.78. Of the 3 observed "complex" fractures that were predicted as "simple", i.e. the 3 false negatives, one was a Seymour fracture of the fourth distal phalanx for which the emergency physician did not tick any boxes on the form. Upon further investigation, we learned that the physician had commented that the fracture was open, thus alluding to their acknowledgement of the predictor "open fracture" as being present). This fracture went on to require surgery. The second false-negative fracture was a non-displaced, intra-articular fracture of the fourth metacarpal head that required multiple appointments with the plastic surgeon. The third false-negative fracture was a non-displaced Salter-Harris II fracture of the thumb proximal phalanx without malrotation that received a closed reduction by the emergency physician. The kappa coefficient for inter-rater reliability between emergency physician and plastic surgeon evaluation of predictors varied by predictor from fair to almost perfect agreement. Condylar involvement had the highest kappa coefficient (kappa = 0.85) followed by malrotation (kappa = 0.65) and dislocation (kappa = 0.64). The predictors with the lowest kappa coefficients were displacement (kappa = 0.42), open fractures (kappa = 0.50), and angulation (kappa = 0.53). **Conclusion:** The Calgary Kids' Hand Rule had a sensitivity of 89% in a prospective cohort of pediatric hand fractures referred to the Alberta Children's Hospital. The sensitivity could likely be improved with knowledge translation and specific education regarding use of the prediction tool. Emergency physicians and plastic surgeons displayed the lowest inter-rater reliability when assessing displacement, open fractures, and angulation. These predictors may represent areas of future research and physician education to delineate and decrease the discordance between emergency physicians and plastic surgeons.

Keywords: hand, pediatrics, prediction model

P088

Dextrose 50% versus dextrose 10% or dextrose titration for the treatment of out-of-hospital hypoglycemia; a systematic review and meta-analysis

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Introduction: Paramedics commonly administer intravenous dextrose to severely hypoglycemic patients. Typically, the treatment provided is a 25g ampule of 50% dextrose (D50). This dose of D50 is meant to ensure a return to consciousness. However, this dose may be unnecessary and lead to harm or difficulties regulating blood glucose post treatment. We hypothesize that a lower dose such as dextrose 10% (D10) or titrating the D50 to desired level of consciousness may be optimal and avoid adverse events. **Methods:** We systematically searched Medline, Embase, CINAHL and Cochrane Central on June 5th 2019. PRISMA guidelines were followed. The GRADE methods and risk of bias assessments were applied to determine the certainty of the evidence. We included primary literature investigating the use of intravenous dextrose in hypoglycemic diabetic patients presenting to paramedics or the emergency department. Outcomes of interest were related to the safe and effective reversal of symptoms and blood glucose levels (BGL). **Results:** 660 abstracts were screened, 40 full text articles, with eight studies included. Data from three randomized controlled trials and five observational studies were analyzed. A single RCT comparing D10 to D50 was identified. The primary significant finding of the study was an increased post-treatment glycemic profile by 3.2 mmol/L in the D50 group; no other outcomes had significant differences between groups. When comparing pooled data from all the included studies we find higher symptom resolution in the D10 group compared to the D50 group; at 99.8% and 94.9% respectively. However, the mean time to resolution was approximately 4 minutes longer in the D10 group (4.1 minutes (D50) and 8 minutes (D10)). There was more need for subsequent doses in the D10 group at 23.0% versus 16.5% in the D50 group. The post treatment glycemic profile was lower in the D10 group at 5.9 mmol/L versus 8.5 mmol/L in the D50 group. Both treatments had nearly complete resolution of hypoglycemia; 98.7% (D50) and 99.2% (D10). No adverse events were observed in the D10 group (0/871) compared to 12/133 adverse events in the D50 group. **Conclusion:** D10 may be as effective as D50 at resolving symptoms and correcting hypoglycemia. Although the desired effect can take several minutes longer there appear to be fewer adverse events. The post treatment glycemic profile may facilitate less challenging ongoing glucose management by the patients.

Keywords: emergency medical services, hypoglycemia, prehospital

P089

Reducing preventable patient transfers from long-term care facilities to emergency departments: a scoping review

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Introduction: Emergency Department (ED) crowding is an international health system issue that is worsening. Further, ED crowding and "hallway medicine" has been identified as one of the most significant healthcare challenges currently facing Canadians. One contributor is preventable transfers from long-term care facilities (LTCFs) to Emergency Departments (EDs). In Canada, there were 63,752 LTCF patient transfers to the ED in 2014, with 24% (15,202) of them due to potentially preventable conditions. Each preventable transfer exposes patients to transport and hospital-related complications, and costs the healthcare system thousands of dollars. There have been many proposed and studied interventions aimed at alleviating the issue, but few attempts to assess and evaluate different interventions across institutions in a systematic manner. **Methods:** A scoping review of the literature using three electronic databases was conducted. A scoping