

P014**Does a positive Dix-Hallpike rule out a central cause of vertigo?**

O. Bodunde, BSc, A. Regis, BSc, R. LePage, BSc, Z. Turgeon, BSc, R. Ohle, MBChB, MA, Northern Ontario School of Medicine, Sudbury, ON

Introduction: Dizziness is a common presentation in emergency departments (ED), accounting for 2-3% of all visits. The majority are due to benign causes the most common of which is benign paroxysmal positional vertigo (BPPV). The Dix-Hallpike maneuver is used to diagnose BPPV with an affected posterior semicircular canal. A positive Dix-Hallpike exam should lead physicians to exclude central causes for a patient's symptoms and confirm no need for further imaging. The purpose of our study was to verify the accuracy of the Dix-Hallpike maneuver for ruling out a central cause of dizziness. **Methods:** We performed a medical records review of adult patients with dizziness/vertigo presenting to a tertiary care ED (September 2014 and March 2018). We included those with a suspicion for BPPV and underwent a Dix-Hallpike maneuver. We excluded patients who presented with dizziness for longer than two weeks, syncope, systolic hypotension <90 or a GCS <15. Individual patient data were linked with the Institute of Clinical Evaluation Science (ICES) database. Our outcome was a central cause defined as: ischemic stroke (IS), brain tumour, intra cerebral haemorrhage (ICH), or multiple sclerosis (MS) diagnosed on either neurology assessment, computed tomography, magnetic resonance imaging, or diagnostic codes related to central causes found within ICES. **Results:** 3109 patients were identified of these 469 patients underwent a Dix-Hallpike manoeuvre. Central causes of dizziness accounted for 1.1% of all diagnoses. Probability of a central cause for dizziness in those with a positive Dix-Hallpike was 1.3%(3/229). Only 85(18.1%) patients were appropriate for the Dix-Hallpike(intermittent, position-evoked vertigo without any neurological deficits). In appropriate patients the prevalence of central cause of dizziness was 3%(1/31). This patient had > 3 risk factors for stroke (age > 65, hypertension, diabetes, ischemic heart disease). A positive Dix-Hallpike in appropriate patients with <3 risk factors for stroke was 100% (95%CI 88.8% -100%) sensitive in ruling out a central cause for dizziness. **Conclusion:** The Dix-Hallpike manoeuvre is performed on a large number of inappropriate patients. When performed on appropriate patients with <3 risk factors for stroke a positive Dix-Hallpike can rule out a central cause of vertigo. Educating physicians as to the appropriate patient population could reduce unnecessary imaging and improve diagnostic accuracy.

Keywords: clinical examination, Dix Hallpike, vertigo

P015**A phase IV protocol for a real world study on the use of low dose methoxyflurane (PENTHROX™) for the treatment of moderate to severe trauma pain in the Canadian emergency department (ADVANCE-ED)**

S. Campbell, MBChB, L. Belle Blagrove, BSc, P. Piraino, PhD, S. Dhani, PhD, Dalhousie University, Halifax, NS

Introduction: Pain is a significant driver of demand in emergency care and 65% of adult patients with trauma also report moderate to severe pain. Inhaled low dose methoxyflurane (MEOF) a rapid-acting patient administered inhalational analgesic was recently approved in Canada for the short-term relief of moderate to severe acute pain associated with trauma or interventional medical procedures in

conscious adult patients. This study will generate real-world evidence to complement the global clinical development program through evaluation of the effectiveness of MEOF in Canadian emergency departments. **Methods:** This is a phase IV, prospective open label, multi-centre study. Approximately 100 adult (≥ 18 yrs) patients with moderate to severe acute pain (NRS0-10 ≥ 4) associated with single system trauma will be enrolled at 5-10 EDs across Canada. Patients will receive a single treatment of up to 2 x 3 mL MEOF (2nd 3 mL to be provided only upon request), self-administered by the patient under medical supervision. Rescue medication will be permitted at any time, if required. **Results:** Planned Assessments and Outcome **Measures:** Pain will be assessed using the NRS0-10 at 4 time points: screening/triage, 5 minutes and 20 minutes post-start of administration (STA) of MEOF, and when ready for discharge. Secondary assessments will include the speed of action of analgesia (from STA of MEOF); patient and physician satisfaction with treatment (as assessed through Global Medical Performance (GMP) at 20 minutes post-STA and when ready for discharge); patient and physician fulfilment of pain relief expectations (assessed when ready for discharge); use of rescue medication and treatment-emergent adverse events. Exploratory outcomes will include the time to disposition, time to readiness for discharge and responder analysis. The primary outcome measure will be the change in pain intensity over 20 minutes from the start of administration of MEOF as measured on the NRS0-10. **Conclusion:** We report on the methodology of a phase IV, prospective open label, multi-centre study, evaluating the use of MEOF for the management of acute traumatic pain in Canadian Emergency Departments.

Keywords: low-dose methoxyflurane, real-world evidence, trauma

P016**Utilization and outcomes of children presenting to an emergency department by ambulance**

Z. Cantor, BA, M. Aglipay, BSc, MSc, A. Plint, MD, MSc, Children's Hospital of Eastern Ontario, Ottawa, ON

Introduction: Children account for a low proportion of paramedic transports. Evidence suggests that many pediatric transports are of low acuity, but there are few studies comparing these patients to those that self-present to the ED. Our primary objective was to determine if illness severity was associated with presentation by ambulance among pediatric patients. **Methods:** We undertook a single centre, retrospective cohort study at a tertiary care pediatric centre. All patients presenting to the ED in 2015 by any route other than air ambulance were eligible. Patients were divided into 2 groups based on the route of presentation – ambulance or self-presentation. The primary outcome was disposition decision; the secondary outcome was CTAS level. To determine whether patient discharge disposition or CTAS was associated with method of arrival, we conducted generalized estimating equations (GEE) to account for correlation within patients with multiple ED visits. **Results:** Of the 69,092 visits, 69,034 were eligible and analyzed. Of those, 4478 arrived by ambulance, while 64,556 self-presented. Those arriving by ambulance had a median age of 10 years [IQR: 2-5 years] vs. 4 years [IQR: 1.75-10 years] in the self-presenting group, and were 52.6% male (vs. 52.8%). Two percent of the ambulance cohort were admitted to the ICU (vs. 0.2%), and 16.6% were admitted to the ward (vs. 5%). Patients presenting by ambulance had higher CTAS scores – 5.3% CTAS 1 (vs. 0.3%), 16.4% CTAS 2 (vs. 7.0%), 61.2% CTAS 3 (vs. 45.8%), and 17.1% CTAS 4-5 (vs. 46.9%). The odds of arriving by

ambulance were 10.2 x higher for patients admitted to the ICU (OR = 10.2, 95%CI: 7.9 to 13.3) vs. those discharged home. The odds of arriving by ambulance was 64.2 x (OR = 64.2, 95% CI: 48.6 to 84.7) higher for patients CTAS 1 patients vs. CTAS 5 patients. The top 3 complaints among ambulance patients were respiratory (22.7%), orthopedic (14.7%), and general/minor (10.3%). Among self-presenting patients, the top three were general/minor (22.5%), respiratory (18.0%), and gastrointestinal (15.7%). **Conclusion:** Children presenting to the ED via ambulance are at higher risk for admission to the ward and critical care unit. It is important that EMS staff responsible for transporting children be well trained in managing critically ill children. Given the low proportion of pediatric transports, consideration must be given to how best to train EMS services in managing these children.

Keywords: emergency medical services, paediatrics, prehospital

P017

Impact of the use of a checklist for transcutaneous cardiac pacing on competency of junior residents undergoing an advanced cardiac life support course

K. Chabot, MD, J. Morris, MD, MSc, R. Perron, C. Ranger, MD, M. Paradis, MD, P. Drolet, MD, J. Cliche, MD, L. Londei-Leduc, MD, A. Robitaille, MD, Université de Montréal, Montreal, QC

Introduction: Transcutaneous cardiac pacing (TCP) is recommended for the treatment of symptomatic bradycardia, a life-threatening condition. Although TCP is taught in ACLS (advanced cardiac life support) courses, it is a difficult skill to master for junior residents. The main objective of this study is to measure the impact of having access to a checklist on successful TCP implementation. Our hypothesis was that the availability of a CL would improve performance of junior residents in the management of symptomatic bradycardia by facilitating TCP. **Methods:** We conducted a prospective, randomized, single-site study. First-year residents entering post-graduate programs and taking a mandatory ACLS course were enrolled. Students had didactic sessions on the management of symptomatic bradycardia followed by hands-on teaching on a low-fidelity manikin (ALS® simulator, Laerdal) using a CL conceived for this project as a teaching tool. Study participants were then assessed with a simulation scenario requiring TCP. Participants were randomly assigned to groups with and without CL accessibility. Performances were graded on six critical tasks. The primary outcome was the successful use of TCP, defined as having completed all tasks. Participants then completed a post-test questionnaire. Sample size estimation was based on a previous project (Ranger et al., 2018). Accepting an alpha error of 0.05 and a power of 80%, 45 participants in each group would permit the detection of 26.5% in performance gain. **Results:** Of 250 residents completing the ACLS course in 2017, 85 voluntary participants were randomized to a control group (no CL available during testing, n = 42) or an experimental group (CL available during testing, n = 43). Six participants in the experimental group adequately used TCP compared to five participants in the control group (p = 0.81, chi-squared test). Out of the 43 participants who had access to the CL, only 2 (5%) used it. Reasons why the CL was infrequently used were stated as the following: 24 participants (56%) mentioned not realizing it was available, 8 (19%) considered it was of little to no utility and 5 (19%) forgot a CL existed. **Conclusion:** Availability of a checklist previously used during simulation teaching did not increase junior residents' capacity to correctly apply TCP. Non-recognition of CL availability and decreased

perceived need for it were the main reasons for marginal use. Our results suggest that there are many limiting factors to CL effectiveness.

Keywords: bradycardia, checklist, simulation

P018

How to get your departmental web content to work for you: one department's experience with free open access medical education

K. Chandra, BSc, MD, D. Lewis, MBChB, BS, P. Atkinson, MBChB, MA, Dalhousie University, Saint John, NB

Innovation Concept: Free open access medical education (FOAM) is a quickly growing field. While there is an abundance of resources online, and on social media, the quality of those resources should always be questioned and reviewed. Furthermore, as medical learners progress in their training, they become lead consumers and producers of FOAM. Our educational innovation concept was the introduction of two FOAM streams into our residency program to assist learners to produce their own content with mentorship from our emergency medicine faculty. **Methods:** Medical students and residents training in the emergency department were encouraged to submit content to either our department website in the form of a clinical PEARL, or a research paper to the departmental Cureus online journal. All website content was reviewed by an attending physician and all Cureus content was submitted for further peer review and publication if approved. All published content was shared on social media through our department's Twitter account. A select number of residents were also mentored in reviewing and editing FOAM content and publishing it to our departmental website. **Curriculum, Tool or Material:** sjrhem.ca is the Saint John Regional Hospital Department of Emergency Medicine's website. A portion of the website is dedicated to posts arising from departmental rounds, case reviews as well as posts from learners in the form of clinical PEARLS. They are designed as succinct and informative clinical summaries and allow learners to share their content to a wider audience online. Cureus.com is an online journal of medical science, with a dedicated Dalhousie Emergency Medicine Channel. The editors are local emergency medicine faculty and senior residents, while reviewers are independent. In the last year, the clinical pearls received 5672 views, and the Cureus channel received 1143 content views. **Conclusion:** Feedback from learners regarding publication of their own FOAM has been positive and has allowed them to share their content to a much wider audience through our Departmental Website, Cureus Channel and Twitter stream. Furthermore, we are helping to prepare residents to produce their own high quality content, allowing our FOAM program to grow.

Keywords: free open access medical education (FOAM), innovations in EM education

P019

Examining non-suicidal self injury at a Canadian pediatric emergency department

J. Cherry, MD, MSc, K. Hurley, MD, MHI, D. Lovas, MD, A. LeBouthillier, BScN, N. Williams, K. Kennedy, E. Fitzpatrick, BSc, MN, IWK Health Centre/Dalhousie University, Halifax, NS

Introduction: Adolescents who present to emergency departments (ED) following intentional injuries present a challenge in terms of ascertaining their intent and risk for future self-injurious or suicidal behaviour. Our ED has seen an 80% increase in visits for mental