

Based on 2012 Canadian AF guidelines, 60.1% of those who should have received anticoagulation were receiving it. In discharged patients meeting de novo criteria for anticoagulation (n = 130), 20.0% (n = 26) were started on anticoagulation and 23.1% (n = 30) on antiplatelets. In patients with CHADS2 score ≥ 2 (n = 61), 26.2% (n = 16) were started on anticoagulation. Warfarin (73.1%) was most commonly prescribed followed by dabigatran (15.4%) and rivaroxaban (11.5%). Age was the only inverse independent predictor for appropriate anticoagulation (OR 0.92 per 5 year of age 95% CI 0.89-0.95, $p < 0.0001$) i.e. older patients were less likely to be anticoagulated. The CHADS2 score was not an independent predictor of appropriate anticoagulation. **Conclusion:** Our study shows a persistent gap in the antithrombotic treatment of ED AF patients irrespective of their risk.

Keywords: atrial fibrillation/flutter, novel anticoagulants, stroke prevention

MP023

Reasons for referral and hospitalization among emergency department patients with syncope

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Introduction: Syncope can be caused by serious life-threatening conditions not obvious during the initial ED assessment leading to wide variations in management. We aimed to identify the reasons for consultations and hospitalizations, outcomes, and the potential cost savings if an outpatient cardiac monitoring strategy were developed. **Methods:** We conducted a prospective cohort study of adult syncope patients at 5 academic EDs over 41 months. We collected baseline characteristics, reasons for consultation and hospitalization, hospital length of stay and average total inpatient cost. Adjudicated 30-day serious adverse events (SAEs) included death, myocardial infarction, arrhythmia, structural heart disease, pulmonary embolism, significant hemorrhage and procedural intervention. We used descriptive statistics with 95% CI. **Results:** Of the 4,064 patients enrolled (mean age 53.1 years, 55.9% female), 3,255 (80.1%) were discharged from the ED, 209 (5.2%) had a SAE identified in the ED, 600 (14.8%) with no SAE were referred for consultation in the ED and 299 (7.4%) were hospitalized: 55.5% of referrals and 55.2% of hospitalizations were for suspected cardiac syncope (46.5% admitted for cardiac monitoring of whom 71.2% had no cause identified). SAE among groups were 9.7% in total; 2.5% discharged by ED physician; 3.4% discharged by consultant from ED; 21.7% as inpatient and 4.8% following discharge from hospital. The mean hospital length of stay for cardiac syncope was 6.7 (95%CI 5.8, 7.7) days with total estimated costs of \$7,925 per patient (95% CI: 7434, 8417). **Conclusion:** Suspected cardiac syncope, particularly arrhythmia, was the major reason for ED referral and hospitalization. The majority of patients hospitalized for cardiac monitoring had no identified cause. An important number of patients suffered SAE, particularly arrhythmias outside the hospital. These findings highlight the need to develop a robust syncope prediction tool and a remote cardiac monitoring strategy to improve patient safety while saving substantial health care resources.

Keywords: cardiac, resource utilization, syncope

MP024

Ultrasound-guided femoral nerve block versus fascia iliaca block for hip fractures in the emergency department: a randomized pilot study

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Introduction: Regional anesthesia has been shown to be an effective pain control strategy for patients presenting with hip fractures in the emergency department. There are two common methods for performing this block: the femoral nerve block (FNB) and the fascia iliaca compartment block (FICB). The objective of this pilot study is to determine whether one of these two ultrasound-guided block techniques provides superior analgesia to emergency department patients with hip fractures. **Methods:** Emergency physicians at a single institution were randomized to the FNB or FICB training groups. Participants completed a 2-hour practical workshop covering the technique, followed by a questionnaire to assess their comfort with the block. They were asked to perform their assigned nerve block on any patient in the ED presenting with a hip or femur fracture. Physician comfort level and patient pain scores using a visual analog scale (VAS) were recorded before and after the nerve block were recorded. Comparisons were performed using Student's t-test and Fisher's exact test. **Results:** A total of 20 physicians were enrolled in the study, 10 in the FNB group and 10 in the FICB group. There were no significant baseline differences between the groups with respect to ultrasound or nerve block experience. Following the training, 100% of participants in both the FNB group and FICB group felt comfortable performing the block. Nerve blocks were performed in 30/51 (58.8%) of eligible patients in the FNB group and 6/11 (54.5%) in the FICB group ($p = 1.0$). On the 10-point VAS, pain scores decreased by a mean of 4.9 (SD 3.5) in the FNB group and 8.3 (SD 2.4) in the FICB group ($p = 0.056$). In practice, physicians felt comfortable performing the FNB in 52.8% of cases, and the FICB in 85.7% of cases ($p = 0.21$). Mean time to completion of the blocks was similar between the two groups (19 vs 18 mins, $p = 0.83$). **Conclusion:** In this pilot study, we found a non-significant trend towards improved analgesia and higher physician comfort with the ultrasound-guided FICB compared with the FNB in patients with hip fractures. We found no differences in time to performing the blocks. These results require confirmation with a larger sample size.

Keywords: ultrasound, regional anesthesia, hip fracture

MP025

Does your patient really need intravenous therapy? A multicenter variation analysis of physician practice in low-acuity presentations

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Introduction: The decision to treat with parenteral therapy may reflect a variable practice pattern among emergency physicians and represent an opportunity to standardize care. Our objective was to describe physician level practice variation for IV therapies in patients with low-acuity presentations and quantify the contribution of IV therapy to prolonging ED LOS. **Methods:** Using administrative data merged with computerized physician order entry information we sampled 48 months of patient variables across four urban EDs (Jan 1, 2014 - Dec 22, 2015). Eligible patients: 1. presented with complaints of abdominal pain, nausea and vomiting or diarrhea or had a discharge diagnosis of cellulitis 2. were in a low acuity category (Canadian Triage and Acuity Scale - CTAS 3 or 4) 3. were triaged to non-stretcher zones of the ED and 4. were not admitted to hospital. The primary outcome was the physician-level variation in the decision to order IV therapies for this patient group; namely one or more of the following: IV fluids, opioid analgesia, antiemetics and antibiotics. Secondary outcomes were a comparison of ED LOS, ED revisits at 7 days and ED revisits resulting in admission at

7 days for the IV and non-IV groups. **Results:** Our analysis included 31 802 patient visits treated by 185 physicians. The average patient age was 37.8 years with 64.3% being female and the majority triaged as CTAS 3 (82.5%). On average 24% of these visits were treated with IV therapies; 90th percentile; 34%. For physicians seeing in excess of 100 cases, the variation in IV therapy use ranged from 1% to 47%. Patients receiving IV therapies demonstrated a 44% greater average LOS (6.2 hours vs 4.3 hours) and those receiving IV therapies had higher 7-day ED revisit rates (12.0% vs 8.8%) as well as 7-day ED revisits resulting in readmission (2.4% vs 1.0%). 'mso-spacerun:yes' > Secondary outcomes were a comparison of ED LOS, ED revisits at 7 days and ED revisits resulting in admission at 7 days for the IV and non-IV groups. **Conclusion:** This is the first study to examine physician preference for the use of IV therapies in a low-acuity population and has demonstrated in excess of a 47-fold variation between both extremes of use. Reducing practice variation in this area of ED care by standardizing indications for IV therapies could result in more rational resource utilization and improved throughput.

Keywords: resource utilization, low-acuity visits, IV therapies

MP026

Implementation of an ED atrial fibrillation and flutter pathway improves rates of appropriate anticoagulation in patients not previously on these medications

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Introduction: Atrial fibrillation and flutter (AFF) are the most common arrhythmias presenting to the emergency department. Without anticoagulation, AFF increases stroke risk; individuals with paroxysmal AFF have a similar prognosis. A coordinated ED AFF electronic order-set and management pathway was developed at our institution. The primary objective of this study was to measure rates of appropriate anticoagulation (AAC) on discharge from the ED for patients presenting with AFF not previously on antithrombotic or anticoagulant medications. Secondary objectives included comparison of the following outcomes pre and post-pathway (PRE & POST): AFF Clinic referral rates, ED return rates, and mortality. **Methods:** This was a retrospective case series of patients presenting to our quaternary care ED with AFF pre and post AFF pathway implementation. Cases were identified using an administrative database covering 120 000 annual ED visits. Trained research assistants and the primary investigator extracted data from the electronic medical record. 20% of all charts were double collected to ensure accuracy ($k = 0.85$). Descriptive variables were described using counts, means, medians and confidence intervals. Chi-square statistics of dependent samples were calculated for the primary outcome. **Results:** We examined 307 cases of AFF presenting to our ED ($n = 130$ PRE; $n = 177$ POST). Demographic variables were similar PRE and POST: mean age (66.0 [95%CI 63.8-68.3] PRE; 65.0 [63.0-67.0] POST), % male (59.2% PRE; 59.3% POST), presenting rhythm (66.2% A.fib [58.0-74.3] A. flutter 29.2% [21.4-37.0] PRE; 61.0% A.fib [53.8-68.1] A. flutter 17.5% [11.9-23.1] POST), and CHADS₂VASC score (2.1 [1.8-2.4] PRE; 1.9 [1.7-2.1] POST). The rate of AAC rose from 39.1% PRE to 77.8% POST ($P < 0.01$). AFF clinic referral rates increased from 16.9% PRE to 25.4% POST (not significant). ED return rates within 30 days for AFF, CHF, major bleeding and CVA were unchanged. 30 day mortality rates were not statistically different (1.5% PRE vs. 2.8% POST). **Conclusion:** The implementation of a

coordinated ED AFF pathway was associated with significant improvements in the proportion of patients discharged with appropriate anticoagulation who had not previously been on antithrombotic or anticoagulant

medications. ED return rates and mortality did not change significantly.

Keywords: atrial fibrillation, anticoagulation, emergency medicine

MP027

Automated cardiopulmonary resuscitation quality data abstraction for complete episodes of out-of-hospital cardiac arrest resuscitation

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Introduction: Cardiopulmonary resuscitation (CPR) quality assurance and research has traditionally been limited to the first five minutes of resuscitation due to significant costs in time, resources and personnel from manual data abstraction. Moreover, CPR quality can be affected during prolonged resuscitations, which represents significant knowledge gaps. The objective of this study was to develop a software program to help automate the abstraction of CPR quality data from electronic defibrillators. **Methods:** We developed a software program to facilitate and help automate data abstraction from electronic defibrillator files for entire resuscitation episodes. Internal validation of the software program was performed on 50 randomly selected cardiac arrest cases with resuscitation durations of up to 60 minutes. CPR quality data variables such as number of ventilations, number of compressions, minute compression rate, minute compression depth, minute compression fraction, minute end-tidal CO₂, were manually abstracted independently by two trained data abstractors and by the automated software program. Error rates and the time needed for data abstraction were measured.

Results: A total of 9826 data points were abstracted. Manual data abstraction resulted in a total of six errors (0.06%) compared to zero errors by the software program. The mean time \pm SD needed for manual data abstraction was 20.3 \pm 2.7 minutes compared to 5.3 \pm 1.4 minutes using the software program ($p = 0.003$). **Conclusion:** Our CPR quality data abstraction software was 100% accurate in abstracting CPR quality data for complete resuscitation episodes and showed a significant reduction in data abstraction duration. This software will enable quality assurance programs and future cardiac arrest studies to evaluate the impact of CPR quality during prolonged resuscitations.

Keywords: cardiopulmonary resuscitation (CPR), quality, emergency medical services (EMS)

MP028

Dynamic changes of prehospital serial 12-lead electrocardiogram for remote diagnosis of suspected ST-segment elevation myocardial infarction

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Introduction: Accurate and efficient interpretation of prehospital 12-lead electrocardiogram (ECG) in patients with suspected ST-segment elevation myocardial infarction (STEMI) can improve outcomes, especially in rural regions. In the Chaudière-Appalaches region, Quebec, a prehospital serial 12-lead ECG monitoring system is used for remote interpretation of ECG abnormalities by emergency physicians via a telemedicine platform, the Unité de Coordination Clinique des Soins Préhospitaliers d'Urgence (UCCSPU). The objective of the study was to evaluate the use of serial monitoring of dynamic ECG changes in patients with suspected STEMI during emergency medical services