optimal care and guidance on cardioversion and rapid discharge of patients with AAFF. We sought to assess the impact of implementing the Checklist into large Canadian EDs. **Methods:** We conducted a pragmatic stepped-wedge cluster randomized trial in 11 large Canadian ED sites in five provinces, over 14 months. All hospitals started in the control period (usual care), and then crossed over to the intervention period in random sequence, one hospital per month. We enrolled consecutive, stable patients presenting with AAFF, where symptoms required ED management. Our intervention was informed by qualitative stakeholder interviews to identify perceived barriers and enablers for rapid discharge of AAFF patients. The many interventions included local champions, presentation of the Checklist to physicians in group sessions, an online training module, a smartphone app, and targeted audit and feedback. The primary outcome was length of stay in ED in minutes from time of arrival to time of disposition, and this was analyzed at the individual patient-level using linear mixed effects regression accounting for the stepped-wedge design. We estimated a sample size of 800 patients. **Results:** We enrolled 844 patients with none lost to follow-up. Those in the control (N = 316) and intervention periods (N = 528) were similar for all characteristics including mean age (61.2 vs 64.2 yrs), duration of AAFF (8.1 vs 7.7 hrs), AF (88.6% vs 82.9%), AFL (11.4% vs 17.1%), and mean initial heart rate (119.6 vs 119.9 bpm). Median lengths of stay for the control and intervention periods respectively were 413.0 vs. 354.0 minutes ($P < 0.001$). Comparing control to intervention, there was an increase in: use of antiarrhythmic drugs (37.4% vs 47.4%; $P < 0.01$), electrical cardioversion (45.1% vs 56.8%; $P < 0.01$), and discharge in sinus rhythm (75.3% vs. 86.7%; $P < 0.001$). There was a decrease in ED consultations to cardiology and medicine (49.7% vs 41.1%; $P < 0.01$), but a small but insignificant increase in anticoagulant prescriptions (39.6% vs 46.5%; $P = 0.21$). **Conclusion:** This multicenter implementation of the CAEP Best Practices Checklist led to a significant decrease in ED length of stay along with more ED cardioversions, fewer ED consultations, and more discharges in sinus rhythm. Widespread and rigorous adoption of the CAEP Checklist should lead to improved care of AAFF patients in all Canadian EDs.
Keywords: atrial fibrillation, implementation, quality improvement

LO05

Rate of prescription of oral anticoagulation in patients presenting with new onset atrial fibrillation/flutter

E. Hatam, BSc, MD, G. Ghate, BSc, MD, M. Columbus, BSc, PhD, C. Garvida, BSc, K. Van Aarsen, BSc, MSc, Western University, London, ON

Introduction: Atrial fibrillation (AF) and atrial flutter (AFL) are two common arrhythmias that present to the emergency department (ED) and are a major risk factor for stroke. The 2014 Canadian Cardiovascular Society (CCS) guidelines recommend starting oral anticoagulation (OAC) upon ED discharge for patients with CHADS65 scores of ≥1 to reduce stroke risk. The goal of this study was to identify whether the ED patient population presenting with new onset AF/AFL with CHADS65 ≥ 1 are appropriately initiated on OAC by ED physicians. **Methods:** This was a retrospective chart review (Jan-Dec 2017) of ED visits at two academic hospitals in Ontario. The year 2017 was chosen to allow for adequate time from the publishing of the CCS guidelines for uptake into clinical practice. Inclusion criteria: patients with a new diagnosis of AF/AFL who are discharged by ED physicians. Exclusion criteria: patients with a history of AF/AFL, already on OAC, admitted to hospital, presenting with arrhythmia other than AF/AFL, and charts without adequate information to calculate CHADS65 score. Charts were reviewed in detail to assess CHADS65 score, ED physician decision to prescribe OAC, referral rates to outpatient clinics and timing of follow up. **Results:** A total of 1272 charts were reviewed. 1124 were excluded. 148 charts were identified as patients with new onset AF/AFL presenting to the ED who were discharged by ED physicians. 24/148 (16%) were appropriately prescribed OAC. 124/148 (84%) were not prescribed OAC. Of these 40/124 (32%) were CHADS65 0 while the other 84/124 (67%) were CHADS65 ≥ 1 who should have been considered for OAC. Further review determined that 78/84 (92%) were referred to outpatient clinics for the decision regarding OAC with the mean (SD) number of days to follow up being 11(±15). Importantly 1/84 (1.2%) returned prior to their scheduled appointment with a stroke. Only 6/84 (7%) had no follow up arranged. **Conclusion:** Overall, we found that the rate of OAC prescription by ED physicians for patients being discharged with a new diagnosis of AF/AFL with a CHADS65 score ≥1 was 16%. This is despite the CCS 2014 recommendation of starting OAC for all patients with a CHADS65 score ≥1. It appears that ED physicians are continuing to defer the decision to prescribe OAC to outpatient clinics. Further projects can explore barriers to application of the CCS guidelines and create knowledge translation tools.
Keywords: atrial fibrillation, atrial flutter, oral anticoagulation

LO06

Development of practice recommendations for ED management of syncope by mixed methods

V. Thiruganasambandamoorthy, MSc, M. Taljaard, PhD, N. Hudek, PhD, J. Brehaut, PhD, B. Ghaedi, MSc, P. Nguyen, BSc, M. Sivilotti, MD, MSc, A. McRae, MD, PhD, J. Yan, MD, MSc, R. Ohle, MD, C. Fabian, MD, N. Le Sage, MD, PhD, E. Mercier, MD, MSc, M. Hegdekar, MD, P. Huang, MD, M. Nemnom, MSc, A. Krahn, MD, P. Archambault, MD, J. Presseau, PhD, I. Graham, PhD, B. Rowe, MD, MSc, University of Ottawa, Department of Emergency Medicine, Ottawa, ON

Introduction: Emergency department (ED) syncope management is extremely variable. We developed practice recommendations based on the validated Canadian Syncope Risk Score (CSRS) and outpatient cardiac monitoring strategy with physician input. **Methods:** We used a 2-step approach. Step-1: We pooled data from the derivation and validation prospective cohort studies (with adequate sample size) conducted at 11 Canadian sites (Sep 2010 to Apr 2018). Adults with syncope were enrolled excluding those with serious outcome identified during index ED evaluation. 30-day adjudicated serious outcomes were arrhythmic (arrhythmias, unknown cause of death) and non-arrhythmic (MI, structural heart disease, pulmonary embolism, hemorrhage)]. We compared the serious outcome proportion among risk categories using Cochran-Armitage test. Step-2: We conducted semi-structured interviews using observed risk to develop and refine the recommendations. We used purposive sampling of physicians involved in syncope care at 8 sites from Jun-Dec 2019 until theme saturation was reached. Two independent raters coded interviews using an inductive approach to identify themes; discrepancies were resolved by consensus. **Results:** Of the 8176 patients (mean age 54, 55% female), 293 (3.6%; 95%CI 3.2-4.0%) experienced 30-day serious outcomes; 0.4% deaths, 2.5% arrhythmic, 1.1% non-arrhythmic outcomes. The serious outcome proportion significantly increased from low to high-risk categories ($p < 0.001$; overall 0.6% to 27.7%; arrhythmic 0.2% to 17.3%; non-arrhythmic 0.4% to 5.9% respectively).

https://doi.org/10.1017/cem.2020.62 Published online by Cambridge University Press

C-statistic was 0.88 (95%CI0.86–0.90). Non-arrhythmia risk per day for the first 2 days was 0.5% for medium-risk, 2% for high-risk and very low thereafter. We recruited 31 physicians (14 ED, 7 cardiologists, 10 hospitalists/internists). 80% of physicians agreed that low risk patients can be discharged without specific follow-up with inconsistencies around length of ED observation. For cardiac monitoring of medium and high-risk, 64% indicated that they don't have access; 56% currently admit high-risk patients and an additional 20% agreed to this recommendation. A deeper exploration led to following refinement: discharge without specific follow-up for low-risk, a shared decision approach for medium-risk and short course of hospitalization for high-risk patients. **Conclusion:** The recommendations were developed (with online calculator) based on in-depth feedback from key stakeholders to improve uptake during implementation.

Keywords: practice recommendation, risk-stratification, syncope

LO07

Procainamide for the acute management of atrial fibrillation and flutter in the emergency department: a systematic review

F. Tran, BN, D. Junqueira, MSc, PhD, PharmD, M. Tan, MSc, BScOT, MSc, MLIS, B. Rowe, MD, MSc, University of Alberta, Edmonton, AB

Introduction: Management of acute atrial fibrillation or flutter (AFF) in the emergency department (ED) can be performed with chemical or electrical cardioversion. Procainamide is the most common chemical agent used in Canada; however, there is substantial practice variation. The objective of this systematic review was to provide comparative evidence on return to normal sinus rhythm (NSR) and adverse events to better support clinical decisions. **Methods:** Systematic search of five electronic databases and grey literature. Randomized controlled trials (RCTs) and prospective controlled cohort studies including adults (≥17 years) with recent-onset of AFF comparing intravenous procainamide with other cardioversion strategies (e.g., electrical cardioversion, placebo or other antiarrhythmic drugs) were eligible. Two independent reviewers performed study selection and data extraction. Relative risks (RR) with 95% confidence intervals (CIs) were calculated using a random-effects model. The protocol was registered with PROSPERO (CRD42019142080). **Results:** From 4060 potentially relevant citations, 7 studies were considered eligible and three RCTs and two cohort studies included in the analysis. Procainamide was less effective in promoting return to NSR at 1st attempt compared to other chemical (RR 0.76; 95% CI: 0.65 to 0.90) and electrical (RR 0.58; 95% CI: 0.53 to 0.64) options. Electrical cardioversion was more effective in restoring NSR compared to procainamide when used as 2nd attempt in one RCT (RR 0.46; 95% CI: 0.23 to 0.92). Pre-specified serious adverse events were assessed and reported by two studies showing that hypotension was more common in patients receiving procainamide in comparison with electrical cardioversion (RR 20.57; 95% CI: 1.59 to 265.63). Treatment discontinuation due to adverse events was infrequently reported with only two studies reporting that no patients withdrew from the study following treatment with procainamide. The remaining studies provided incomplete data reporting on adverse events. **Conclusion:** Shared decision-making for patients with acute AFF in the ED requires knowledge of the effectiveness and safety of comparative interventions. Overall, procainamide is less effective than other chemical options and electrical cardioversion strategies to restore NSR. Evidence shows that hypotension is a concern when procainamide is administered; however, the overall adverse events information provided from the studies is suboptimal.

Keywords: atrial fibrillation, cardioversion, procainamide

LO08

A randomized, controlled comparison of electrical versus pharmacological cardioversion for emergency department patients with atrial flutter

I. Stiell, MD, MSc, M. Sivilotti, MD, M. Taljaard, PhD, D. Birnie, MD, A. Vadeboncoeur, MD, C. Hohl, MD, MHSc, A. McRae, MD, PhD, B. Rowe, MD, MSc, R. Brison, MD, MPH, V. Thiruganasambandamoorthy, MSc, MBBS, L. Macle, MD, B. Borgundvaag, MD, PhD, J. Morris, MD, MSc, E. Mercier, MD, MSc, C. Clement, J. Brinkhurst, BA, E. Brown, BSc, M. Nemnom, MSc, G. Wells, PhD, J. Perry, MD, MSc, University of Ottawa, Department of Emergency Medicine, Ottawa, ON

Introduction: For rhythm control of acute atrial flutter (AAFL) in the emergency department (ED), choices include initial drug therapy or initial electrical cardioversion (ECV). We compared the strategies of pharmacological cardioversion followed by ECV if necessary (Drug-Shock), and ECV alone (Shock Only). **Methods:** We conducted a randomized, blinded, placebo-controlled trial (1:1 allocation) comparing two rhythm control strategies at 11 academic EDs. We included stable adult patients with AAFL, where onset of symptoms was <48 hours. Patients underwent central web-based randomization stratified by site. The Drug-Shock group received an infusion of procainamide (15mg/kg over 30 minutes) followed 30 minutes later, if necessary, by ECV at 200 joules x 3 shocks. The Shock Only group received an infusion of saline followed, if necessary, by ECV x 3 shocks. The primary outcome was conversion to sinus rhythm for ≥30 minutes at any time following onset of infusion. Patients were followed for 14 days. The primary outcome was evaluated on an intention-to-treat basis. Statistical significance was assessed using chi-squared tests and multivariable logistic regression. **Results:** We randomized 76 patients, and none was lost to follow-up. The Drug-Shock (N = 33) and Shock Only (N = 43) groups were similar for all characteristics including mean age (66.3 vs 63.4 yrs), duration of AAFL (30.1 vs 24.5 hrs), previous AAFL (72.7% vs 69.8%), median CHADS2 score (1 vs 1), and mean initial heart rate (128.9 vs 126.0 bpm). The Drug-Shock and Shock only groups were similar for the primary outcome of conversion (100% vs 93%; absolute difference 7.0%, 95% CI -0.6;14.6; P = 0.25). The multivariable analyses confirmed the similarity of the two strategies (P = 0.19). In the Drug-Shock group 21.2% of patients converted with the infusion. There were no statistically significant differences for time to conversion (84.2 vs 97.6 minutes), total ED length of stay (9.4 vs 7.5 hours), disposition home (100% vs 95.3%), and stroke within 14 days (0 vs 0). Premature discontinuation of infusion (usually for transient hypotension) was more common in the Drug-Shock group (9.1% vs 0.0%) but there were no serious adverse events. **Conclusion:** Both the Drug-Shock and Shock Only strategies were highly effective and safe in allowing AAFL patients to go home in sinus rhythm. IV procainamide alone was effective in only one fifth of patients, much less than for acute AF.

Keywords: atrial flutter, cardioversion

https://doi.org/10.1017/cem.2020.62 Published online by Cambridge University Press