

C-statistic was 0.88 (95% CI 0.86–0.90). 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**

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**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 ( $\geq 17$  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**

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**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 x3 shocks. The Shock Only group received an infusion of saline followed, if necessary, by ECV x3 shocks. The primary outcome was conversion to sinus rhythm for  $\geq 30$  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