5-2019

Reversal and Repletion Strategies Related to Oral Anticoagulation in United States Emergency Departments

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Recommended Citation

Pollack CV, Peacock WF, Jahromi B, Bernstein RA, Clark CL, et al. Reversal and repletion strategies related to oral anticoagulation in United States Emergency Departments. Acad Emer Med 2019; 26:S160.

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standard care versus standard care alone, for participants presenting to the ED with palpitations and pre-syncope with no obvious cause evident at initial consultation.

Methods: Multi-centre open label, randomised controlled trial.Participants ≥16 years old presenting to 10 United Kingdom hospital EDs were included. Participants were randomized to either (a) intervention group; standard care plus the use of a smartphone-based event recorder or (b) control group; standard care alone. Primary endpoint was symptomatic rhythm detection rate at 90 days. Trial registration number NCT02783898 (ClinicalTrials.gov).

Results: 243 participants were recruited over an 18-month period. A symptomatic rhythm was detected at 90 days in 69 (n=124; 55.6%; 95% Confidence Interval; CI 46.9-64.4%) participants in the intervention group versus 11 (n=116; 9.5%; 95% CI 4.2-14.8) in the control group (Relative Risk; RR 5.9, 95% CI 3.3-10.5; $p < 0.0001$). Mean time to symptomatic rhythm detection in the intervention group was 9.5 days (SD 16.1, range 0-83) versus 42.9 days (SD 16.0, range 12-66; $p < 0.0001$) in the control group. Commonest symptomatic rhythms detected were sinus rhythm, sinus tachycardia and ectopic beats. A symptomatic cardiac arrhythmia was detected at 90 days in 11 (n=124; 8.9%; 95% CI 3.9-13.9%) participants in the intervention group versus 1 (n=116; 0.9%; 95% CI 0.0-2.5%)in the control group (RR 10.3, 95% CI 1.3-78.5; p=0.006).

Conclusion: Use of a smartphone-based event recorder increased the number of patients in whom an Electrocardiogram (ECG) was captured during symptoms over five fold to more than 55% at 90 days. This safe, non-invasive and easy to use device should be considered part of on-going care to all patients presenting acutely with unexplained palpitations or pre-syncope.

415 The Utility of Point-of-Care Cardiac Echocardiogram for Non-ST-Segment Elevation Myocardial Infarction

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Background: Early detection and intervention of acute coronary occlusion (ACO) in patients presenting to the Emergency Department (ED) with non-ST-elevation myocardial infarction (NSTEMI) has been associated with improved outcomes. Guidelines recommending emergent angiography (eAngio) for patients with NSTEMI and persistent, refractory symptoms have led to over-utilization of this procedure. ED echocardiography (eEcho) has emerged as a potential discriminator of ACO. Our objective was to assess factors associated with higher likelihood of predicting ACO in NSTEMI and to develop an algorithm which will reduce over-utilization of eAngio.

Methods: A retrospective, cohort study of patients presenting to the ED of an urban, university-affiliated community hospital with NSTEMI from January 1, 2017 to June 31, 2018.Inclusion criteria included any adult patient with a first-time, primary diagnosis of NSTEMI without signs or symptoms of very-high risk features. Patients with documented prior MI, CHF or conditions that interfere with regional wall motion abnormality (RWMA) were excluded. Variables included patient demographics, PMH, ECG, serum troponin, TIMI score and eEcho. The main outcome variable was the presence of ACO on eAngio. Descriptive statistics are reported. We performed univariate analysis, as well as a multivariate logistic regression to develop our prediction model.

Results: Sixty-two NSTEMI patients were included in our study with 60% males. The mean age was 57.5 ±3.05 and the mean troponin I was 4.35 ±2.61. Of all the patients in the study, 32% had RWMA on eEcho and 65% had ACO on eAngio. Logistic regression analysis identified the independent variables useful for predicting ACO on eAngio as age, RWMA, and TIMI score. The model overall fit was highly significant (p-value = 0.0016) with Cox and Snell R^2= 0.380 and Nagelkerke R^2= 0.51. The model's accuracy was estimated to be 81%, with specificity of 87% and sensitivity of 76% resulting in AUC = 0.869

Conclusion: We demonstrate a novel role for eEcho in the ED for the management of NSTEMI patients. Although, the positive predictive value of RWMA alone in predicting ACO was limited, eEcho when combined with demographic attributes and risk factors may prove to be of value in developing a cost-efficient approach to determining the need for eAngio in NSTEMI patients.

416 Reversal and Repletion Strategies Related to Oral Anticoagulation in United States Emergency Departments

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Background: The Safety of Oral Anticoagulants Registry (SOAR) aims to describe the diversity in presentation and treatment strategies in patients with oral anticoagulant (OAC)-related acute hemorrhage (AH) or bleeding concern (BC; defined as OAC-driven treatment for, or delay to, a procedure, or prolonged observation) presenting to the emergency department. In this secondary analysis we report on patients receiving reversal or clotting factor repletion therapy.

Methods: SOAR is a prospective, observational study of OAC-treated patients presenting with AH or BC requiring acute intervention. 31 US hospitals participated.

Results: Of 1513 patients enrolled, the OAC was warfarin in 37.3% or a direct OAC (DOAC) in 63% (13% dabigatran, 50% FXa inhibitors). Mean age was 71.1 years and 53% were male. The most common indications for OAC were atrial fibrillation (AF) and venous thromboembolism, but other indications included prosthetic heart valve, heart failure, post-MI, and post-stroke not AF-related. Overall, 78% had AH (19% of which were life-threatening) and 22% had BC; 42% required red blood cell transfusion. Mortality was higher for AH (7.3%) than for BC (5.5%), but length of stay (4.5+/-7.4 for AH and 4.1+/-6.6 days for BC [median+/-SD]) were similar. Factor repletion with fresh frozen plasma (FFP), prothrombin complex concentrate (PCC), a single factor, or a combination of these was given to 42% of AH and 28% of BC patients. In patients on dabigatran, the specific reversal agent idarucizumab was given in 57% of AH (9% also received FFP and 3% PCC) and 43% of BC (2% also received FFP; none received PCC). Four anti-FXa-treated patients with AH were treated with andexanet alfa, which became available shortly before the conclusion of enrollment. Meanwhile, factor repletion was administered to 43% of AH patients on apixaban or rivaroxaban. In patients on warfarin, 23% of AH and 20% of BC did not receive vitamin K, while, in contrast, vitamin K was given to 9% and 7% of dabigatran and anti-FXa patients with AH, respectively, and to 12% of anti-FXa-treated patients with BC.

Conclusion: Emergency physicians commonly treat anticoagulated patients with factor repletion or specific reversal agents when faced with AH or BC. Vitamin K is not completely utilized in warfarin-treated patients and is used unnecessarily in DOAC-treated patients.