those given rate control medications, 9.1% suffered adverse events and only 55.6% had a final ED heart rate ≤100 bpm. Inappropriate use of rate control medications was found in 44.8% of cases, specifically inappropriate choice of agent (4.5%), inappropriate route of administration (26.9%), over-dosed (2.4%), under-dosed (5.2%), and inadequate timing (5.6%). **Conclusion**: We demonstrated that for rapid AF patients not receiving cardioversion, most cases were secondary to a medical cause and of those receiving rate control, there were a concerning number of adverse events related to inappropriate choice of agent, route of administration, dosage, and timing. Moving forward, better awareness of the CAEP AF Guidelines by ED physicians will ensure safer use of rate control agents for rapid AF patients.
Keywords: atrial fibrillation, emergency department, rate control

MP46

Creatine kinase in the emergency department: antiquated relic or useful adjunct in diagnosis of NSTEMI: A systematic review

D. Beamish, T. Maniuk, MD, M. Mukarram, MPH, MBBS, V. Thiruganasambandamoorthy, MSc, MBBS, University of Ottawa, Department of Emergency Medicine, Ottawa, ON

Introduction: The diagnosis of non-ST elevated myocardial infarction (NSTEMI) depends on a combination of history, ECG and cardiac biomarkers. Many hospitals continue to automatically order less sensitive and specific biomarkers such as Creatine Kinase (CK) alongside cardiac Troponin (cTn) as part of an extended panel of bloodwork for work-up of patients with suspected NSTEMI. **Methods**: We undertook a systematic review to assess the usefulness of CK measurements in addition to cTnI in NSTEMI diagnosis. Medline, EMBASE and Cochrane databases were searched from 1995 until May 31, 2018. We added additional articles after reviewing the reference list of pertinent articles and consulting experts. A total of 1123 papers were screened, of which 8 were included in the final analysis. These papers all compared CK and troponin (TnI) testing in the diagnosis of NSTEMI. **Results**: Of the 8 papers included in the analysis none showed CK having a greater sensitivity or specificity than the TnI assays. Furthermore, no paper originally published evidence of CK diagnosing NSTEMI when Troponin was negative. One author, when contacted, described 10% of patients diagnosed with NSTEMI as having discordant data (eg. +CK, -Troponin). However, the outcome data such as angiography and echocardiography were not available for these patients, making definitive diagnosis unclear. **Conclusion**: Troponin has consistently shown to have greater sensitivity and specificity than CK in the diagnosis of NSTEMI with CK adding no improvements in diagnosis. We believe CK should not be used in the emergency department work-up for NSTEMI diagnosis.
Keywords: acute coronary syndrome, creatine kinase, non-ST elevated myocardial infarction

MP47

A systematic review of local complications from central and peripheral administration of vasopressors in the pediatric population

R. Sadoway, BA, MD, O. Loubani, MD, J. Foster, MD, R. Parker, MLS, Dalhousie University, Halifax, NS

Introduction: Vasopressors are routinely utilized to treat systemic shock, a significant source of morbidity and mortality in the pediatric population. Local tissue ischemia has been classically implicated with peripheral use of these medications. However, peripheral administration (PVC) has theoretical benefits, and avoids many of the risks associated with central venous catheter (CVC) placement. There appears to be paucity of literature in pediatrics examining this subject. We conducted a systematic review investigating local tissue complications and extravasations of both PVC and CVC administration in the pediatric population. Specifically we examined the type of vasopressor used, the site used, the duration of the infusion, and finally the overall outcome for patients. **Methods**: A systematic search was conducted using PubMed, Embase, Cochrane, and CINAHL databases. Terms for IV administration, specific vasopressor use, complication of interest, and pediatric population were combined. We included studies that satisfied our predetermined criteria. All search results were imported into Covidence software where the primary author conducted an initial title and abstract review. Papers that met the pre-identified criteria were selected for full text review. Papers selected for full text review were independently reviewed by two of the authors. Agreement between the authors was measured utilizing a κ statistic. **Results**: Our search yielded 14784 results, of which 237 were assessed for full text review. The κ between the authors is pending. 13 studies were selected for final inclusion. There were 14 patients with 15 total events. 13 were from PVC use while 2 occurred with CVC's. 11 of the 13 complications associated with PVC administration occurred through extravasation, with 2 events from local ischemia. 9 children were administered dopamine, 1 norepinephrine, and 14 were on multiple vasopressors. 3/13 events were "proximal" or occurring at or above the AC or popliteal fossa while 10/13 events were "distal". The average time to ischemic injury or extravasation peripherally was 56.1 hours with a range of 1.5 to 360 hours. 9 of the total patients did not have any long-term sequelae. One patient had toe amputations, while two others died because of illness. One CVC patient died as a result extravasation leading to asphyxiation. **Conclusion**: There is a lack of significant literature reporting serious adverse events related to peripheral or central administration of vasopressors in the pediatric population.
Keywords: ischemia, pediatrics, vasopressors

MP48

White blood cells count and C-reactive protein performance to identify severe bacterial infection in the fever without a source workup of infants 22 to 60 days old

G. Gravel, MD, K. Vachon, M. Giguère, L. Lajeunesse, J. Morin, J. Ouellet-Pelletier, MD, R. Turgeon, MD, S. Berthelot, MD, Université Laval, Québec, QC

Introduction: Identification of severe bacterial infections (SBI) among infants presenting to the emergency department (ED) for fever without a source (FWS) remains challenging. Controversies persist on the usefulness of blood biomarkers, especially when used for assessing infants 22 to 60 days old. Although C-reactive protein (CRP) and white blood cells count (leucocytes) are commonly prescribed, this practice relies on poor and conflicting evidence. Our objective was to determine the performance of those two markers at identifying SBI. **Methods**: This is a sub-analysis of an ongoing retrospective cohort study conducted in an academic pediatric ED in Quebec City, that aims to determine whether a lumbar puncture should routinely be performed in the FWS workup of 22 to 60 days old infants. All consecutive charts of eligible febrile infants were reviewed. Premature infants (<37 weeks), as well as infants with chronic diseases, immunodeficiency, previous antimicrobial therapy, in-dwelling