THE USE OF TROPOININ IN PEDIATRIC MYOCARDITIS
Eini, Zeev Mordechai¹; Sivarajan, Ben²
¹Hospital for Sick Kids, PICU, Toronto, Canada; ²Hospital for Sick Kids, CCCU, Toronto, Canada

Introduction: Early differentiation of pediatric acute myocarditis (PAM) from other forms of pediatric critical illness can be difficult. The value of cardiac troponin T (cTnT) in discriminating between acute myocarditis and other common causes of pediatric critical illness is unreported in this population.

Objectives: To compare troponin T levels at the first day of admission between myocarditis patients to critically ill patients without myocarditis admitted to the PICU

Methods: In a single center study from 2000 - 2012, we identified patients with a diagnosis of PAM and had cTnT levels measured (study group). We compared this group to critically ill patients who did not have PAM, but had cTnT levels performed as part of their initial evaluation (control group). The diagnosis of PAM was based on echo assessment of left ventricular (LV) dysfunction without LV dilatation. The control group consisted of patients with septic shock or multi-trauma admitted to the intensive care unit. Patients with cardiomyopathy, congenital cardiac disease or those sampled only after cardiac arrest were excluded from the study. We compared cTnT taken during the initial 24 hours of admission in the study group to the first admission cTnT measured in the control group. As cTnT ranges are dependent on age, we described the cutoff values as multiples of the upper limit of the normal range (MULN). The primary outcomes were the test characteristics of cTnT and cutoffs for optimal sensitivity for PAM.

Results: There were 38 patients in the study group and 96 patients in the control group (median age 14.3 vs 9.8 y; p=ns) whose cTnT levels were compared. Study patients had greater median (25th %ile, 75th %ile) cTnT levels than controls [107 (57, 212) vs 1 (1, 11); p<0.0001]. The receiver operator characteristic curve for cTnT in PAM had a mean (95% CI) area under the curve of 0.94 (0.88, 0.97). The optimal MULN cutoff was 22 resulting in a sensitivity, specificity, positive predictive value and negative predictive value respectively of 82 (65-92)% , 89 (80-94)% , 26 (13-42)% and 92 (85-97)% . Use of an MULN of 5 resulted in a sensitivity, specificity, positive predictive value and negative predictive value respectively of 100 (90-100)%, 66 (55-75)% , 46 (34-59)% and 100 (94-100)% .