

High sensitivity Troponin T in Pediatric patients with Congenital Heart Disease

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Background: High sensitivity troponin T (hsTnT) detects the myocardial injury and predicts poor outcomes in adults with acquired and congenital heart disease (CHD). However, few reports describe the usefulness of hsTnT in pediatric patients (pts) with CHD.

Objective: We sought to determine whether hemodynamic load and hypoxia induce the myocardial injury and the hsTnT as a marker of myocardial injury predict the adverse events such as the cardiac arrest, death, or lethal arrhythmia in pediatric pts with CHD.

Methods: We assessed the hsTnT levels in 86 pts with CHD who underwent cardiac catheterization. We analyzed the relation between the levels of hsTnT and hemodynamic variables and assess the adverse events during follow-up.

Results: Age of pts was 2.8 ± 4.2 yrs. The hsTnT levels were significantly higher in cyanotic CHD (median 0.0161ng/ml) than in non cyanotic CHD (median 0.004ng/ml). Multiple regression analysis showed that hsTnT levels correlated with the ratio of right to left ventricular pressure (RVP/LVP) ($r=0.73$, $P<0.001$) and systemic aortic saturation (SaO₂) ($r=0.69$, $p<0.001$), but not the ratio of pulmonary to systemic flow and pressure (Qp/Qs and Pp/Ps). Median follow up period after the measurement of hsTnT was 2.0 yrs. Four pts occurred adverse events during the follow up period. Pts with elevated hsTnT levels (>0.015) occurred adverse events more frequently than in pts with normal hsTnT (75% vs 26%, $p<0.05$).

Conclusion: Pressure overload to right ventricle and hypoxia induce the myocardial injury. The high levels of hsTnT may predict poor outcomes in pediatric patients with CHD.