Junctional Ectopic Tachycardia after Pediatric Cardiac Surgery: Single-Center Experience from Turkey

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Background and Objectives: Junctional ectopic tachycardia (JET) that significantly increase morbidity in postoperative period is serious complication that can be seen after surgery for congenital heart diseases. The aim of this study was to determine the incidence and risk factors for JET after pediatric cardiac surgery and to assess the effect of JET on patients’ outcome.

Patients and Methods: From January 2010 to August 2012, 623 pediatric patients who underwent cardiac surgery were enrolled in this study. Data were collected retrospectively. Patients who have arrhythmias preoperatively, who cannot have available data and who were referred to another clinic postoperatively were excluded. JET was defined as a narrow complex tachycardia with atrioventricular (AV) dissociation and that ventricular rate is higher than atrial rate. AV dissociation was confirmed in most of the patients using atrial pacing wires.

Results: The mean age at procedure was 32±50 months, the mean weight was 11.7±12.9 kg. We identified 33 patients with JET (33/623, 5.2%). Compared to patients have no arrhythmias, patients who have developed JET were significantly young (14.6±29.5 vs. 33.5±51 months), have had lower body weight (7±5.2 vs. 11.8±13.1 kg), have a higher inotropic score (14.8±11.4 vs. 8.7±10.9). JET developed most frequently after atrioventricular septal defect (AVSD) repair (9/43, 20%) and tetralogy of Fallot repair (11/81, 13.5%) in our series. JET is not associated with electrolyte levels, surgery close to the AV node or Risk Adjustment for Congenital Heart Surgery (RACHS) score. Multivariate logistic regression analysis showed that the duration of cardiopulmonary bypass (CPB) is significant predictor of postoperative JET [odds ratio, 1.007 (confidence interval, 1.002-1.011): p=0.02]. Furthermore the use of dopamine is another risk factor for JET [odds ratio, 8 (confidence interval, 1.01-64.5): p=0.049)]. JET is associated with prolonged mechanic ventilation time, prolonged PCICU and hospital stay.

Conclusion: JET is most frequently seen after AVSD and tetralogy of Fallot repair. The highest risk factors for development of JET are the use of CPB, the duration of CPB and the use of dopamine in postoperative period.