

Younger Age at Rastelli May Improve Long-Term Outcomes

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Purpose: The “Rastelli procedure” consists of ventricular septal defect (VSD) closure and an extracardiac ventricular-to-pulmonary artery conduit and is utilized for patients with transposition of the great arteries (TGA) with VSD, common arterial trunk, and VSD with pulmonary atresia. Several recent long-term analyses have noted a lower than expected survival curve for the Rastelli operation. However, we noted that the median age at Rastelli in these series was much older than in our cohort. We conducted a retrospective chart analysis of patients who had a Rastelli procedure at our institution to evaluate the contemporary long-term survival.

Methods: Between 1990 and June, 2014, 113 patients underwent a Rastelli operation. Age at the time of the operation ranged from 17 days to 24 years (mean, 1.4 ± 2.9 years; median: 0.6 years). This median age is substantially younger than the Mayo series (8 years) and the Boston series (3 years). The most common fundamental diagnoses were pulmonary atresia (36%) and common arterial trunk (33%). The remaining diagnoses included: TGA with VSD, tetralogy of Fallot, and double outlet right ventricle. Initial conduits were homografts (64%) and bioprostheses (36%). The median diameter for homografts was 12 mm and 14 mm for bioprostheses. Median postoperative length of stay was 12 days.

Results: Probability of survival is shown in the Figure. There was 1 operative mortality (0.88%). At median follow-up of 8.9 years, there were four late deaths. One-hundred-and-twelve conduit replacements were performed on 86 (76.1%) of the total 113 patients with an average time between initial operation and conduit replacement of 4.8 ± 3.5 years (median, 4.4 years). Sixty-six patients had one conduit replacement, 19 had two replacements, and 2 had three replacements. Postoperative atrioventricular heart block occurred in 5 (4.4%) patients and required implantation of a pacemaker. Ventricular tachycardia occurred in 2 (1.8%) patients and both required implantation of an AICD.

Conclusion: Younger age at the time of Rastelli may be associated with a higher survival rate than observed in other studies. While there is a frequent need for conduit replacement, these procedures may be accomplished with low morbidity and mortality. These results indicate that the Rastelli operation performed in the first year of life has excellent long-term outcomes.

