Biventricular Repair in Aortic Atresia or Severe Left Ventricular Outflow Tract Obstruction – Yasui Operation

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Introduction: The Yasui operation is a rare surgical procedure, which may be employed to perform biventricular repair in patients with severe LVOTO as well as AA with VSD. We analyze the results of this complex procedure.

Methods: During 2013/2014 YO was performed in five consecutive patients (age: 8 days to 7 months, weight: 3.0 to 6.6 kg with LVOTO (n=1) or AA (n=4) and hypoplastic (n=4) or interrupted aortic arch (IAA n=1) each with a sufficiently sized left ventricle (mitral valve z-score ranged from -0.82 to +0.26). In two children the YO followed an initial PA banding.

Results: For LVOTO reconstruction Damus-Kaye-Stansel or Norwood procedure was combined with modified reconstruction of the aortic arch using autologous material in the dorsal part to preserve growth potential. The Rastelli procedure was performed using Contegra® 12mm for reconstruction of the right ventricular outflow tract. Cross-clamp time was 44 to 73 min, time on respirator 4-9 days and hospital stay 13 to 18 days. Complications: One case of junctional ectopic tachycardia and two cases of chylothorax, but no further complications were observed. The median LV ejection fraction at discharge was 67% (58 to 83%) and remained stable (EF>55%) during midterm follow-up (1 to 14 months).

In one infant - after initial bilateral PA-banding - residual bilateral pulmonary stenosis was treated interventionally one month after the YO. All children showed good somatic development (increase in weight percentiles from +5% to +20%).

Conclusions: The Yasui operation may be employed to create biventricular anatomy in young infants with severe LVOTO or AA with VSD and sufficient LV as a primary or staged procedure safely and with excellent outcome.