Right ventricular outflow tract reconstruction

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Right ventricular outflow tract (RVOT) reconstruction is an integral component of many pediatric cardiac surgical procedures. Till date the ideal method of performing this remains elusive. This presentation will focus on the various substitutes available for RVOT reconstruction, their merits and demerits and intermediate and long term results. Between January 1998 and December 2018, 365 patients underwent right ventricular outflow tract reconstruction for a variety of indications: Ventricular septal defect with pulmonary atresia (n=231), Tetralogy of Fallot (n=65) and Tetralogy of Fallot with absent pulmonary valve syndrome (n=69). This excludes patients with truncus arteriosus in whom valved conduits are the predominant option. The method of RVOT reconstruction was pulmonary homograft (n=137), aortic homograft (n=62), direct anastomosis of the main pulmonary artery to the RVOT (n=32) in patients with ventricular septal defect with pulmonary atresia. For the other two indications, the methods adopted were monocusp pulmonary valve reconstruction with autologous pericardium (n=59), bicuspid pulmonary valve using PTFE membrane (n=49) and RVOT reconstruction using a homograft monocusp (n=26). In patients with homograft implantation there were no significant early gradients and the valves were competent in all. In patients with pericardial monocusps there was mild insufficiency in immediate follow-up, moderate at three years of follow-up in 16 and severe in 35 patients at 6 to 13 years of follow-up. In patients with PTFE valve reconstruction that was adopted recently, freedom from significant stenosis or regurgitation was 87% at a median follow-up four years. In patients with homograft monocusp preconstruction, freedom from the latter was 74% at a median follow-up of six years. There were 35 re-operations for change of the conduit after a median follow-up ranging 9 to 13 years. We conclude that the methods of RVOT reconstruction need to be tailored to the individual patient anatomy and using a variety of these techniques, satisfactory results may be obtained.