

Long Term Results after Arterial Switch Operation (ASO) for Transposition of the Great Arteries: Complications necessitating re-intervention.

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Background/Purpose: Although the Arterial Switch Operation (ASO) is long established as the procedure of choice for Transposition of the Great Arteries (TGA), follow up has frequently revealed development of complications which may necessitate late re-intervention (percutaneous and/or re-operative). This study aims to review the long-term results of the ASO in our experience, with emphasis on the need for re-intervention.

Methods: The medical records of all sixty survivors of an ASO for TGA at our institution between 1997 and 2017 were retrospectively reviewed. Median age and weight at ASO were 14 days(3d-3y) and 3.5kg(2.35+11.8), respectively. The indications for the ASO included TGA with intact ventricular septum (IVS)(n=43), TGA with ventricular septal defect (VSD)(n=15), TGA/VSD and aortic coarctation(n=2). Seven patients had a two-stage repair.

Results: One late death occurred due to pulmonary infection. Six patients underwent reoperation, five had a catheter intervention, and two patients had reoperation after prior re-intervention (balloon dilation and stenting). Median time for re-interventions (percutaneous or surgical) was 6.5 years after ASO (range 1y-16y). Freedom from reoperation at 20 years was 86.6% and from re-intervention (percutaneous or surgical) was 78.5% (n=13). The cause for re-intervention was RVOTO obstruction, mainly in PA branches (n=12), TV regurgitation (n=1), and none for neo-aortic valve regurgitation or coronary artery stenosis. There was no mortality for re-intervention. At follow up (median time=13 years) all patients are in NYHA I.

Conclusions: Following the ASO for TGA, compared to atrial level repairs, complications requiring intervention have shifted from the inflow to the outflow of the ventricles. Our experience confirms that the most common complication is pulmonary artery stenosis, which can be treated effectively by catheter procedures and /or surgery, the latter also providing effective treatment after failed percutaneous interventions. Most late reoperations are needed within the first 10 years after an ASO. Larger series and possibly longer follow-up may be necessary to detect more rare complications, such as aortic valve insufficiency and coronary stenosis, which have not been encountered in our patients. Finally, survival and functional outcomes of the ASO were excellent in the long term and seem unaffected by the need for re-intervention.