

## PW3-7

### **Long-term neo-aortic growth in arterial switch operation versus Ross procedure. Is there a difference ?**

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#### Introduction:

Both arterial switch operation (ASO) in D-transposition of the great arteries and Ross procedure (ROSS) in aortic valve disease include previously pulmonary tissue in high-pressure systemic circulation. This may lead to proximal aorta dilatation and malfunction. The aim of the study was to compare long-term neo-aortic growth/function in these patients.

#### Patients and methods:

Compared were patients with ASO vs ROSS: 85 vs 48 patients, sex: 56M/29F vs 31M/17F, median age at surgery: 10 days vs 12.9 years ( $p<0.0001$ ), long-term follow-up (FU): median 11.6 vs 8.2 years. In patients repeated longitudinal echocardiographic proximal neo-aortic diameters (1.annulus (ANN), 2.sinuses (SIN), 3.sino-tubular junction (STJ)) were measured and converted to Z-scores according to normal values (measured in 702 healthy controls). Statistical analysis of ASO and ROSS was performed at 5, 10 and >10 years after surgery.

#### Results:

Significant difference in ASO vs ROSS median Z-score was found: 1.ANN (1.8 vs 2.7 -  $p<0.001$ ), 2.SIN (2.2 vs 3.0 -  $p=0.0022$ ), 3.STJ (0.2 vs 3.9 -  $p<0.001$ ). Comparing ASO vs ROSS during FU: at 5 and 10 years after surgery showed significant dilatation of: 1.ANN (1.5 vs 2.9 -  $p<0.001$ ) and 1.5 vs 2.5 -  $p=0.0021$ ), 2.SIN (2.0 vs 3.5 -  $p=0.01$  and 2.0 vs 2.9 -  $p=0.01$ ), 3.STJ (-0.05 vs 4.0 -  $p<0.001$  and -0.35 vs 3.9 -  $p<0.0001$ ). At >10 years after surgery there was no statistical difference in: 1.ANN (2.7 vs 2.5 -  $p=0.68$ ), 2.SIN (2.8 vs 2.9 -  $p=0.5$ ), only in 3.STJ (1.2 vs 3.9 -  $p<0.0001$ ). Neo-aortic regurgitation was present in 41.8% ASO vs 64% ROSS ( $p=0.0013$ ). In ROSS compared to ASO was regurgitation more often present with dilated (Z-score >2) 1.ANN ( $p=0.002$ ), 2.SIN ( $p=0.003$ ), but not with dilated 3.STJ ( $p=0.34$ ).

#### Conclusions:

Proximal neo-aortic dilatation is significantly greater in patients after ROSS compared to ASO. Measured diameters show no progression during FU in patients with ROSS, also in ASO during first 10 years of FU; though >10 years after surgery there is a significant progression in ASO patients. This may be associated with the different age at surgery in both groups (new-born in ASO vs >10 years in ROSS).