

Coronary artery complications following arterial switch operation: A Registry analysis of the German Competence Network Congenital Heart Defects

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Objectives: The introduction of the arterial switch operation (ASO) for repair of transposition of the great arteries (TGA) has transformed survival with this condition. However, coronary complications resulting from coronary transfer with reimplantation into the neo-aortic root remain a concern. We aimed to evaluate coronary complications in this national cohort of TGA patients.

Methods: Registry search of the German Network for Congenital Heart Disease.

Results: At time of analysis, 1737 TGA patients were included in the networks registry, of whom 871 had undergone the ASO. CA complications were reported on in only 13 (1.5%) patients: two presented with myocardial infarction; five were diagnosed with CA occlusion and another 6 with coronary stenosis. Of those, four patients underwent CAVB surgery, in 3 the CA was re-implanted and another 3 underwent coronary angioplasty with stent placement. In 3 patients no revascularization was undertaken. It is noteworthy, that 4 of the 13 patients with CA complications had an unusual coronary anatomy (common origin, double ostium, intramural course of the CA, right CA from left sinus and hypoplastic left CA from right sinus), 2 of whom died 2.2 and 14.4 years after ASO. These patients did not undergo any revascularization procedure. 2 of the 11 patients who were still alive after 19.8 years of follow-up developed ventricular tachycardia resulting in ICD implantation 16 and 19 years following their ASO.

Conclusions: Albeit the technical challenge of reimplantation of the CA during the ASO, late CA complications appear to be rare. The true incidence, however, remains unclear as this complication might be underdiagnosed and underreported. Survival with this complication seems guarded.

Particular caution at follow-up should be taken in patients with an unusual CA anatomy pattern.

Coronary complications are associated with adverse outcomes and routine coronary angiography after the ASO could be considered, particularly in patients with unusual coronary anatomy.