

Fourth Decennium after the Arterial Switch Operation for Transposition of the Great Arteries

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Introduction: From 1977 onwards, patients in our hospital (Wilhelmina Children's Hospital) with both simple and complex transposition of the great arteries (TGA) were treated with the arterial switch operation (ASO). Consequently, today, we have a relatively large number of patients with over 30 years of follow-up. In this study, we compared mortality and morbidity in this group with outcome of patients operated more recently and studied echocardiographic left ventricular function.

Methods: A single institution retrospective cohort study was performed on patients who had an ASO for either simple or complex TGA. Data were collected from medical records. Patient cohorts were distinguished in an early era (group A; ≥ 30 years of follow-up) and a recent era (group B; < 30 years of follow-up). Type and number of reinterventions as well as standardized echocardiographic follow-up were evaluated.

Results: More than 30 years follow-up (median 33.0, IQR 31.9 – 35.7 years) was available in 48 (of 67) surviving patients (group A). Less than 30 years follow-up (median 13.1, IQR 7.7 – 19.6 years) was available in 208 (of 216) surviving patients (group B). Early survival was best in the youngest group B ($P < 0.001$). Late mortality was rare (1.1%) and similar in both groups. Functionally, all but 3 patients were in functional class I. Reinterventions, corrected for follow-up time, were more frequent in group A ($P = 0.043$), with over all, 48 patients (16.3%) requiring 62 reinterventions. The mode of reinterventions has shifted over time, from surgical to mostly catheter-based ($P = 0.004$). Left ventricular ejection fraction in group A was significantly lower than ejection fraction in group B ($52.9 \pm 4.1\%$ and $56.7 \pm 6.3\%$ respectively; $P = 0.010$).

Conclusion: Early survival improved over time. At follow up, mortality is rare and most patients are in functional class I. Reintervention are performed less frequently and are nowadays mostly catheter-based. Left ventricular ejection fraction is significantly decreased in patients in their fourth decade compared to patients operated on more recently.