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Long term survival and re-intervention free survival after surgical correction of complex congenital heart defects in childhood

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Introduction: To evaluate long-term survival and relevant surgical and/or trans-catheter re-intervention free survival after surgical correction of complex congenital heart defects (CHD) in childhood.

Methods: Data obtained from the database of a single nation-wide paediatric cardiac centre between 1977 and 2016 were cross-mapped with the National Death Registry and the National Registry of Cardiovascular Interventions for adults. Survival was determined by death or heart transplantation after corrective surgery and the first relevant re-intervention was considered for event-free survival analysis using the Kaplan-Meier method.

Results: Twenty five-year probability of survival after surgical correction of CHD and re-intervention free survival were as follows: Tetralogy of Fallot repair (848 patients) 92% with 65% freedom from pulmonary valve replacement; arterial switch for transposition of the great arteries (605 patients) 94% with 90% freedom from coronary artery re-intervention and 85% from pulmonary arteries re-intervention; atrioventricular septal defect repair (550 patients) 94% with 89% freedom from mitral valve replacement; total cavopulmonary connection for univentricular heart (338 patients) 89% with 86% freedom from valve replacement and 84% from pulmonary arteries re-intervention; pulmonary atresia with ventricular septal defect (111 patients) 76% with 36% freedom from conduit replacement; arterial trunk repair (92 patients) 69% with 56% freedom from truncal valve replacement and with 5% freedom from conduit replacement.

Conclusions: Recent early results of interventional treatment of CHD in children are excellent, however the probability of re-interventions is considerable after correction of complex heart lesions.