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Fontan operation: comparison of intra-atrial lateral tunnel and extra-cardiac conduit

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Objectives: To compare the outcome of current modifications of staged total cavopulmonary connection (TCPC): The extracardiac conduit (ECC) and intra-atrial lateral tunnel (ILT) technique. To compare the modern prosthetic ILT technique with the ECC technique.

Methods: We included patients that underwent staged TCPC between 1988 and 2008. Records were reviewed for patients demographics, operative details and events (arrhythmias, surgical and catheter-based reinterventions and death) during follow-up. Late complications were defined as complications after 30 days of the TCPC or after hospital discharge.

Results: 208 patients were included, 103 ILT (51 Baffle and 52 Prosthetic) and 105 ECC patients. Median follow-up duration was 14.0 years (interquartile range 10.7-17.2). At 15-year post TCPC a) overall survival was 81% for ILT, 90% for ECC patients (p=0.122), b) freedom from late surgical and catheter-based reintervention was 63% for ILT and 45% for ECC (p= 0.024), c) freedom from late arrhythmia was 72% for ILT, 85% for ECC (p=0.020). There were no differences in freedom from late arrhythmias between prosthetic ILT and ECC technique (82% vs 85%, p=0.567 (Figure 1)).

Conclusions: Outcome after staged ILT and ECC Fontan are good, with comparable overall survival. Reinterventions occurred more frequently in the ECC group. Late arrhythmias were more common in the ILT-group, but not in comparison between recent ILT modification and ECC.

Figure 1: Late arrhythmia free survival, ECC vs Prosthetic ILT