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Early bidirectional cavopulmonary anastomosis: impact on outcome and Fontan completion.

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Introduction: The interstage mortality is the highest before bidirectional cavopulmonary anastomosis (BCPA) on the way to Fontan completion. The BCPA improves hemodynamic conditions of systemic-pulmonary shunt physiology. BCPA at younger age would shorten the high risk period characterized by volume load, pathological coronary flow pattern and risk of acute shunt closure. The aim of this study was to evaluate the impact of age at time of BCPA on outcome.

Methods: Retrospective analysis of patient records from patients who underwent BCPA between January 2006 and April 2013. With regard to age at surgery we classified the infants into two groups: group A ≤ 90 d and group B 91 – 183 d and compared early and late outcome parameters.

Results: Group A comprised 32 and group B 112 infants (median age 78 vs. 124 d; $p < 0.01$).

Postoperative course: The mean arterial oxygen saturation (maSO₂) within 24 h after BCPA was 72% in group A, and 75% in group B ($p = 0.047$). MaSO₂ after 24 h, time on respirator, need for oxygen or tcSO₂ at discharge were not significantly different. **Early outcome:** there was no significant difference regarding postoperative complications between groups. There was no early death in group A but 6 % in group B died within 30 days after BCPA ($p = 0.15$). **Late outcome:** The invasive hemodynamic data as well as the incidence of major collaterals or pulmonary artery stenosis before total cavopulmonary connection (TCPC) showed no significant difference between groups. At time of admission for TCPC weight (11 vs. 11 kg; $p = 0.5$), tcSO₂ (83 vs. 82 %; $p = 0.8$) and time after BCPA (18 vs. 17 months; $p = 0.6$) were comparable. At the end of the study 20 patients (63 %) in group A and 77 (69 %) in group B were completed to TCPC ($p = 0.5$). The late mortality was 3 % in group A and 9 % in group B ($p = 0.5$).

Conclusion: BCPA below 91 days of age to improve hemodynamic conditions of systemic-pulmonary shunt physiology is feasible without serious complications or deleterious influence on outcome.