

Midterm results of the Norwood-Sano Operation – The Schneider Experience

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Introduction: Since its introduction, controversy exists regarding the Norwood Sano operation as a treatment of choice for neonates with Hypoplastic Left Heart Syndrome (HLHS) and neonates with complex congenital malformations in need for serial palliation leading to Fontan solution. This is due to the high operative mortality (18-35%) left ventricular dysfunction (15-30%) and atrio-ventricular valvar regurgitation (8-30%) reported worldwide. Since January 2006 we have adopted this approach. The following report presents our mid term results.

Methods: Retrospective analysis of charts of all consecutive patients that underwent the Norwood Sano operation at Schneider Children's Medical Center between January 2006 to November 2009.

Results: 22 patients underwent the Norwood Sano operation during the 34 month period. There were 2 operative deaths (9% mortality). One patient required emergency ECMO cannulation 2 days after the operation due to pulmonary hypertensive crisis and was weaned within 2 weeks. Follow-up is 100% complete. There was one interstage mortality(4%) 7 months after the initial operation due to a febrile disease and dehydration. One patient (5.5%) has moderate ventricular dysfunction and 2 patients (11%) have moderate atrioventricular valve regurgitation. 11 patients (60% of survivors) underwent successful Glenn procedures. One patient died 4 months after the Glenn procedure due to an embolic event to the brain. 8 patients are currently waiting for Glenn Procedure.

Conclusion: The Norwood Sano operation can successfully be applied to neonates with HLHS variants. Hospital mortality is low and midterm results are encouraging. Out of hospital careful and close follow up and interstage monitoring are crucial for the success of the program.