

Site of Interstage Outpatient Care Does Not Impact Growth after the Norwood Operation

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Objective: Recent efforts have focused on optimizing interstage outcomes, including growth, for infants following the Norwood operation through home monitoring. The impact of site of interstage care remains unclear. We hypothesized that care at the surgical site may be beneficial due to greater access to resources such as nutritional support, and evaluated the relationship between site of interstage care and weight gain in a large multicenter cohort.

Methods: Infants enrolled in the National Pediatric Cardiology Quality Improvement Collaborative (2008 – 2013) surviving to Stage 2 were included. Interstage growth was compared in those receiving care at the surgical vs non-surgical site in univariate and multivariate analyses. Those coded as receiving care at both were classified in the non-surgical group. The primary outcome was change in weight for age z-score (WAZ).

Results: Complete data were available on 487 of 605 interstage survivors; 60% received care at the surgical site and 40% at a non-surgical site. Demographic and patient characteristics at the time of Norwood were similar between groups, along with WAZ, route of feeds, and type of home monitoring at Norwood discharge. Norwood hospital stay was longer in the surgical site group (26.5 vs 24 d, $p=0.01$). Interstage duration was longer in the non-surgical site group (119 vs. 109d, $p=0.005$), but median age at Stage 2 was similar. There was no difference in the primary outcome of change in WAZ: $+0.36 \pm 0.96$ (surgical site group) vs $+0.46 \pm 1.02$ (non-surgical site group), $p=0.3$. Results were unchanged in multivariate analysis adjusting for length of Norwood hospital stay and interstage duration. Other weight gain indices were similar between groups including average daily weight gain: 22.4 g/d (surgical site) vs 22.7 g/d (non-surgical site), $p=0.6$. Overall, the proportion with WAZ <-2 decreased from 40% at Norwood discharge to 29% at Stage 2: 38% to 26% (surgical site) vs 42% to 34% (non-surgical site), $p=0.10$.

Conclusions: Site of outpatient care did not impact weight gain during the interstage period. While WAZ improved overall during the interstage period, nearly one third of patients had WAZ <-2 at Stage 2, emphasizing that further study is needed to identify methods to optimize weight gain in these patients.