

Initiation of a Home Monitoring Program Improves Interstage Mortality Following the Norwood Procedure

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Objective: Interstage mortality following the Norwood procedure remains significant. Home monitoring programs (HMP) have focused on surveillance for physiologic instability during this period in an effort to improve survival, however published results of these programs have been mixed. We evaluated interstage mortality at our institution following the initiation of an HMP

Methods: A retrospective review was performed of all infants undergoing the Norwood operation from 2008-12. An HMP was initiated at our center in January 2012, involving daily monitoring of subject weight and oxygen saturation, and weekly phone calls by a dietician or nurse practitioner. Outcomes and patient characteristics were evaluated in the pre- vs. post-HMP era using Fisher's exact or chi-square tests, 2 sample t-tests and Wilcoxon rank sum tests as appropriate.

Results: Overall, 102 infants underwent Norwood procedure during this time period. Hospital mortality was similar between time periods (15% [11/73] pre-HMP vs. 14% [4/29] post-HMP, $p = 0.6$). The 85 infants who survived to hospital discharge were included in further analysis: 62 (73%) in the pre-HMP era and 25 (27%) in the post-HMP era. There were no significant differences in baseline characteristics, including age, weight, race, type of single ventricle, prematurity, presence of non-cardiac anomalies, or Norwood shunt-type between eras. There were also no differences in age or weight at Norwood discharge, or length of the interstage period between eras. Interstage mortality was significantly higher in the pre-HMP era (11/62, 18%) vs. post-HMP era (0/25, 0%), $p=0.03$.

Conclusions: In this single center experience, initiation of an HMP for infants undergoing the Norwood procedure resulted in a significant reduction in interstage mortality. The two cohorts were otherwise similar in demographics, hospital mortality, duration of Norwood hospitalization, and interstage length. Further study is needed to determine if these results are sustainable over the long-term.