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Early Extubation in Infancy and Early Childhood Following Heart Surgery: Outcome Analysis and Predictors of Failure

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ABSTRACT

Fast-track (FT) strategies and early extubation (EE), when feasible, can have beneficial effects on clinical outcomes. Despite positive findings in adult cardiac surgery studies, EE procedures have not been rigorously evaluated in the pediatric cardiac populations. We sought to determine feasibility and clinical outcomes of EE in infancy and early childhood following congenital heart surgery (CHS), as well as to identify predictors of failure and highlight cost implications related to FT. A retrospective chart review of children ≤ 6 years old who underwent CHS at the Children's Hospital of Georgia from January-December 2017 was performed. EE was defined as successful removal of the endotracheal tube in the operating room or upon arrival in intensive care unit (ICU). Multivariate analysis was used to compare peri-operative data, identify the predictors of EE failure, and assess total hospital cost. Of the 64 patients reviewed, mean hospital length of stay (LOS) was 6.97 \pm 4.1 days in EE compared to 21.78 \pm 13.45 days in non-EE ($p < 0.0001$). There was a near 3-fold cost increase failing EE/fast track which impacted total hospital cost for EE compared to non-EE patients ($p < 0.0001$, mean: \$51419.913 sd= 23,196.203). Deployment of FT strategy with EE is safe and feasible following CHS during infancy and early childhood. Proper customization and implementation, through patient modifiable variables, can have powerful impact on cost-containment.

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