The impact of OR EXIT criteria on the incidence of early morbidity following pediatric cardiac surgery

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Introduction

Monroe Carell Jr. Children’s Hospital at Vanderbilt (MCICHV) is among the nation’s leading centers for pediatric health care. The cardiac surgery department averages 500 pediatric cardiac surgeries per year over the course of the previous five years. We are a high volume institution drawing a patient population from all over Tennessee and neighboring states. However, there is a growing need to continue to improve the quality of health care delivered to our patients, and consistently produce good outcomes for our children with congenital heart diseases.

In mid-2011, the Pediatric Anesthesiology Division of MCICHV developed the “EXIT criteria” as a quality improvement project. The EXIT criteria applies towards the final steps of a cardiac surgical procedure on a child with congenital heart disease. It is a list of surgical/medical parameters that must be met in order to allow a patient to transfer from the operating room to the pediatric intensive care unit (PICU). If a child fails the EXIT criteria, the intraoperative health care team will convene in an “all hands on deck” and reach consensus on the etiology and treatment of the failure.

Our aim is to reduce the incidence of early postoperative morbidity following pediatric cardiac surgery. We define early morbidity as the composite of two events in the first 12 hours following cardiac surgery.1 First, the occurrence of mediastinal exploration for cardiac tamponade, ongoing hemorrhage, or low cardiac output syndrome, and second, cannulation onto ECMO for refractory cardiac arrest also known as Extracorporeal Cardiopulmonary Resuscitation (ECPR).2 We hypothesize that since the implementation of the EXIT criteria, we have achieved a significant reduction in early postoperative morbidity as defined above. We also hypothesize that in cases prior to the implementation of the EXIT criteria, inotrope score was the strongest predictor of mediastinal exploration or ECPR.

Methods

We excluded the following:
- Aortopexy
- Pacemakers
- PDA ligations
- Vascular rings
- Misc.

Non-events because our study looks for early morbidity which only applies to the first 12 hours

Our study looks to analyze these events

Results

A comparison of occurrences before and after the implementation of EXIT Criteria. Red is representative of pre-intervention, and blue is representative of post-intervention. Length of horizontal lines show 95% confidence intervals. Horizontal lines without overlap show statistical significance.

References/Acknowledgements


Additional retrospective analysis of cases prior to the implementation of the EXIT criteria may allow us to create a predictive model of cardiopulmonary instability in the early postoperative period.

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