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Minimally Invasive Surgery in Neonates with Congenital Anomalies: Experience from the NSQIP-P

Emily Sagalow
Thomas Jefferson University, emily.sagalow@jefferson.edu

Katerina Dukleska, MD
Thomas Jefferson University, katerina.dukleska@jefferson.edu

Courtney Devin, MD
Thomas Jefferson University, courtney.devin@jefferson.edu

Erin Teeple, MD
Thomas Jefferson University; A.I. duPont Hospital for Children, eat001@jefferson.edu

Scott W. Cowan, MD
Thomas Jefferson University, Scott.Cowan@jefferson.edu

See next page for additional authors

Authors
Emily Sagalow; Katerina Dukleska, MD; Courtney Devin, MD; Erin Teeple, MD; Scott W. Cowan, MD; Charles D. Vincour, MD; and Loren Berman, MD

Emily Sagalow
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Minimally invasive surgery in neonates with congenital anomalies:

Experience from the NSQIP-P

Katerina Dukleska, Emily Sagalow, Courtney Devin, Loren Berman

Background: Congenital diaphragmatic hernias (CDH) and tracheoesophageal fistulas (TEF) are managed with minimally invasive surgery (MIS) or open surgery. Little is known about the patient populations and outcomes for those treated by each approach.

Hypothesis/Specific Aims: We expect that there will be fewer complications, better outcomes, and longer operative times for the MIS group versus the open group.

Methods: National Surgical Quality Improvement Program-Pediatric Participant Use Files (NSQIP-P PUFs) from 2012-2015 were used to identify neonates (up to 30 days old) who underwent CDH and TEF repair. The patient characteristics, post-operative complications, and 30-day mortality were analyzed using multivariable logistic regression to determine morbidity associated with each.

Data/Results: We identified 1,142 neonates who underwent CDH (n=577) and TEF (n=565) repair. Neonates who underwent open repair were sicker than those who underwent MIS and had slightly worse select outcomes. Median operative time was longer for both CDH and TEF with the MIS approach. However, multivariable logistic regression analysis adjusting for patient comorbidities showed that open versus MIS surgical approach was not associated with increased morbidity.

Discussion: Neonates who underwent MIS repair had fewer co-morbidities and better outcomes. This surgical approach was not associated with any adverse 30-day outcomes in the multivariable models. This suggests that MIS repair of CDH and TEF can be safely performed in a subset of patients, but further research is needed to understand whether surgical approach affects the incidence of longer-term complications such as CDH recurrence or esophageal stricture.