

Scientific Session IV (cont.)

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THE RELATIONSHIP BETWEEN OPERATIVE VOLUME AND OUTCOMES IN ESOPHAGEAL ATRESIA

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Purpose: A relationship between surgeon or hospital operative volume and patient outcomes has been established for a variety of surgical procedures. Esophageal atresia and tracheoesophageal fistula (EA/TEF) are rare congenital malformations, with most pediatric surgeons treating <2 patients annually. We aimed to determine whether higher surgeon and hospital volumes are associated with better outcomes after EA/TEF repair in order to inform potential credentialing processes or referral practices.

Methods: Neonates with a diagnosis of EA/TEF and EA/TEF repair at their index hospital admission were identified in the Pediatric Health Information System. Patients treated in Jan 2000–Sept 2015 across 44 hospitals were included. For each patient, hospital and surgeon operative volumes were defined as the number of EA/TEF cases treated in the previous 365 days. As no thresholds were detected in volume-outcome relationships, volumes were dichotomized at their upper tertiles. Propensity score weighting was used to estimate relationships between operative volumes and rates of in-hospital mortality, readmission within 30 days, and readmission, reoperation, and dilation within one year.

Results: A total of 3085 patients were included. Variables associated with higher mortality included lower birth weight, earlier gestational age, and the presence of congenital heart disease and certain other anomalies. When risk-adjusted outcomes were compared across groups defined by treatment by a low- or high-volume surgeon practicing at a low- or high-volume hospital, there were no differences in any evaluated outcome (Table). Risk-adjusted outcomes were also similar across groups defined by just hospital or surgeon volume.

Conclusions: Neither surgeon nor hospital volume significantly impacted outcomes after EA/TEF repair. Our findings do not provide evidence in support of selective referral or pediatric surgeon subspecialization in EA/TEF. However, future analyses evaluating additional outcomes and incorporating measures of hospital resources relevant to this patient population are warranted.



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Adjusted outcomes across surgeon and hospital volume categories					
	Hospital volume < 11		Hospital volume ≥ 11		P
	Surgeon volume < 2 (N=1352)	Surgeon volume ≥ 2 (N=668)	Surgeon volume < 2 (N=486)	Surgeon volume ≥ 2 (N=579)	
In-hospital mortality (%)	6.2	6.4	5.3	4.7	0.45
30-day readmission (%)	16.9	19.9	15.6	16.5	0.27
1-year readmission (%)	47.8	49.8	48.6	50.0	0.77
1-year reoperation (%)	8.5	7.6	7.6	7.7	0.81
1-year dilation (%)	30.2	31.8	30.7	31.2	0.88