The Status of Cleft Lip Repair - An Assessment Using the 2012 ACS NSQIP Pediatric

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Background: The American College of Surgeons National Surgical Quality Improvement Program Pediatric (NSQIP Peds) is a 30-day quality improvement database that was recently made available in November 2013. Current literature regarding cleft lip surgery employs single-institution data; this study utilizes the NSQIP Peds to identify risk factors and better understand national readmission and complication rates for cleft lip.

Methods: Patients undergoing Current Procedural Terminology codes 40700, 40701, and 40702 were extracted from the ACS NSQIP Peds 2012 Pediatric Participant User File Database (2012 PUF). Patients older than 36 months, or with an additional surgery that may have confounded the risk of surgery, were excluded. A complication variable was created from a composite of outcome variables within the database. Complications were then compared using Fischer's exact and chi-squared tests, as well as, rank-sum. A subgroup analysis was performed for those who underwent ambulatory cleft lip surgery.

Results: 525 patients met eligibility criteria. There were 403 (76.8%) unilateral clefts and 122 (23.2%) bilateral. The average age of surgery was 176.1±136.6 days. Of the 22 (4.2%) patients with complications, respiratory complications were the most common and included eight mechanical ventilations for >12 hours following surgery, four re-intubations, and one pneumonia. Wound complications included three wound disruptions, three superficial infections, two deep wound infections, and one organ space infection. Other complications included four re-operations, two seizures, two cardiac arrests, one incidence of bleeding, one urinary tract infection, and one death. Risk factors included bilateral cleft lip (p=0.012), mechanical ventilation (p=0.002), oxygen support (p=0.016), tracheostomy (p=0.005), esophageal/gastric/intestinal disease (p=0.007), cardiac anomaly (p=<0.001), impaired cognitive status (p=0.034), structured CNS abnormality (p=0.040), nutritional support (p=0.001), and higher ASA class (0.001). The readmission rate was 4.6%. The readmission rates between ambulatory and inpatient were 2.6% and 4.9%, though this was not statistically significant. Ambulatory patients were older (242.6±198.4 vs 164.8±119.8 days, p=0.005) and had shorter operative times (102.2±51.0 vs 130.0±63.9 min, p=<0.001).

Conclusion: Overall, readmission rates and complications are low for cleft lip repair according to NSQIP Peds. Risk factors for complications are bilateral cleft lip, mechanical ventilation, oxygen support, tracheostomy, GI disease, cardiac anomaly, impaired cognitive status, structured CNS abnormality, nutritional support, and higher ASA class. This data will aid physicians in determining which patients may be at greater risk of complication following cleft lip repair and gain an understanding of national complication and readmission rates in cleft lip repair for comparison.

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