

NSQIP-P Racial Disparities in Pediatric Head and Neck Mass Surgery

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INTRODUCTION

- Within pediatric otolaryngology, numerous studies have demonstrated racial disparities in access to care and outcomes¹⁻³
- Such studies have focused on otologic, rhinologic, and trauma-related conditions, but have not examined head and neck masses⁴
- Many pediatric head/neck masses are relatively uncommon, and the National Surgical Quality Improvement Program Pediatric (NSQIP-P) database offers the ability to draw conclusions from a larger patient population than is possible from a single institution

OBJECTIVE

To identify potential racial/ethnic disparities in perioperative outcomes for pediatric patients undergoing surgery for head/neck masses using NSQIP-P

METHODS

- NSQIP-P was queried from 2015-2020 for pediatric patients who underwent head/neck mass surgery according to ICD-10-CM diagnostic codes
- Primary outcomes: readmission, unplanned reoperation, and length of stay
- Secondary variables: patient demographics, comorbidities, operative time and location, and complications
- Pearson Chi-Square and Kruskal-Wallis rank sum tests were performed as well as univariate and multivariable analyses

TABLE 1. Adjusted odds ratios and 95% confidence intervals for primary outcomes

Factor	Readmission		Reoperation		LOS > 2 days		
	aOR (CI) Reference	p-value	aOR (CI) Reference	p-value	aOR (CI) Reference	p-value	
Race/ Ethnicity	Asian	-	-	-	-	-	
	Non-Hispanic Black	2.33 (0.27, 19.93)	0.441	1.84 (0.23, 14.76)	0.565	0.80 (0.35, 1.85)	0.603
	Hispanic	3.61 (0.44, 29.41)	0.230	2.47 (0.33, 18.65)	0.380	0.82 (0.38, 1.78)	0.616
	Other Race	5.53 (0.68, 44.83)	0.109	3.09 (0.41, 23.25)	0.273	0.91 (0.42, 1.97)	0.810
	Non-Hispanic White	5.43 (0.69, 42.97)	0.109	2.59 (0.35, 18.98)	0.350	0.78 (0.37, 1.63)	0.502
Age	-	-	-	-	0.97 (0.94, 0.996)	0.028	
No History of Malignancy	0.995 (0.62, 1.61)	0.983	-	-	0.28 (0.19, 0.41)	<0.001	
Structural Pulmonary Abnormality	-	-	-	-	1.84 (1.02, 3.32)	0.043	
	Major	Reference	-	-	-	-	
Cardiac Risk Factors	None	0.47 (0.15, 1.47)	0.194	-	-	-	
	Minor	0.68 (0.15, 3.08)	0.612	-	-	-	
	Severe	-	-	-	-	-	
Structural CNS Abnormality	2.60 (1.24, 5.45)	0.012	2.08 (0.87, 4.94)	0.099	1.65 (0.87, 3.16)	0.128	
Nutritional Support	1.09 (0.32, 3.72)	0.896	0.99 (0.23, 4.29)	0.988	4.60 (1.54, 13.73)	0.006	
Ventilator Dependence	-	-	4.24 (0.94, 19.20)	0.061	0.54 (0.14, 2.16)	0.385	
SIRS/Sepsis/Septic Shock Within 48 Hours Prior to Surgery	None	Reference	-	-	Reference	-	
	Sepsis	9.37 (0.92, 95.26)	0.059	-	-	3.62 (0.32, 40.68)	0.298
SIRS	4.98 (1.34, 18.52)	0.017	-	-	4.41 (1.35, 14.46)	0.014	
Transfusion Within 48 Hours Prior to Surgery	Class 1	Reference	-	-	Reference	-	
	Class 2	1.42 (0.92, 2.19)	0.117	1.10 (0.70, 1.73)	0.689	2.31 (1.55, 3.44)	<0.001
ASA Classification	Class 3	2.36 (1.27, 4.37)	0.006	2.08 (1.17, 3.72)	0.013	6.03 (3.84, 9.46)	<0.001
	Class 4	0.88 (0.10, 8.10)	0.907	4.79 (1.19, 19.26)	0.027	3.10 (0.85, 11.30)	0.086
Case Type	Elective	Reference	-	-	Reference	-	
	Emergent	0.49 (0.06, 4.21)	0.518	4.80 (1.45, 15.93)	0.010	2.87 (0.90, 9.12)	0.075
Urgent	1.80 (0.68, 4.76)	0.236	1.45 (0.46, 4.57)	0.523	2.51 (1.27, 4.97)	0.008	
Outpatient	0.71 (0.47, 1.06)	0.093	0.54 (0.35, 0.83)	0.005	0.08 (0.06, 0.12)	<0.001	

RESULTS

- **4647** children (124 Asian, 604 Black, 968 Hispanic, 2218 White, and 733 Other Race) were identified with a mean age of **8.1 years** (SD: 5.3)
- Most common diagnoses were congenital malformations of other endocrine glands (73%) and malignant neoplasms of thyroid and other endocrine glands (18%)
- Black patients were least likely to have current or prior history of malignancy (11% vs. 20-32%, $P < 0.001$)
- Operation time and length of stay were significantly different among all patient groups ($P < 0.001$)
- Asian patients experienced the longest mean operation time and length of stay at 140 minutes and 1.2 days (SD: 2.0) respectively
- **Complication rates did not significantly differ among racial/ethnic groups**
- On multivariable analysis, **race/ethnicity did not significantly affect postoperative outcomes when adjusting for comorbidities (Table 1)**

CONCLUSION

- Disparities in length of hospital stay, readmission, and reoperation related to race/ethnicity were not identified when adjusting for comorbidities such as ASA classification and history of malignancy
- Further research is needed to better understand driving factors for achieving equitable outcomes in pediatric head/neck mass surgery

CONTACT

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