Trends in Pediatric Sleep Surgery

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Introduction

- There are a variety of surgical procedures available for the treatment of pediatric obstructive sleep apnea (OSA)
- Surgery is dependent on patient history and site of airway collapse
- Prior studies have shown increases in procedures such as lingual tonsillectomy (LT) and supraglottoplasty (SGP) through the 1990s and 2000s
- We sought to further study these trends through the 2020s compared to tonsillectomy and adenoidectomy (T&A)

Methods

- A retrospective review was performed using the TriNetX database
- Patients aged 12 years or younger diagnosed with OSA between 2010 and 2024 using ICD-10 code G47.33
- T&A was identified using CPT code 1007178 and SNOMED Code 28913000
- LT was identified using CPT code 42870 and SNOMED code 47823003
- SGP was identified using CPT codes 31540, 31541, 31560, 31561 and 31599

Results

	All OSA Patients	T&A	LT	SGP	T&A vs LT *p*-value	T&A vs SGP *p*-value
Total Number of Patients	301,866	104,225	999	2,937		
Age at Time of Surgery, years (mean ± SD)		5.52 ± 2.83	7.37 ± 2.94	3.39 ± 3.32	<0.01*	<0.01*
Sex, n (%)					<0.01**	<0.01**
Male	172,739 (57.2)	58,019 (55.7)	628 (62.9)	1,791 (61.0)		
Female	128,100 (42.4)	45,887 (44.0)	370 (37.0)	1,144 (39.0)		

Table 1. Demographics of study population including age and sex.

* indicates *p*-value calculated using Turkey's HSD Post Hoc Test

** indicates *p*-value calculated by Chi Square Test

Comorbidity	T&A n (%)	LT n (%)	SGP n (%)	T&A vs LT *p*-value	T&A vs SGP *p*-value
Heart disease	6,312 (6.1)	299 (29.9)	812 (27.6)	<0.01	<0.01
Lung disease	1,416 (1.4)	32 (3.2)	346 (11.8)	<0.01	<0.01
Neurological disease	3,210 (3.1)	119 (11.9)	529 (18.0)	<0.01	<0.01
Trisomy 21	3,047 (2.9)	224 (22.4)	367 (12.5)	<0.01	<0.01
Genetic syndrome	1,562 (1.5)	64 (6.4)	295 (10.0)	<0.01	<0.01
Laryngomalacia	2,782 (2.7)	295 (29.5)	1,852 (63.2)	<0.01	<0.01

Table 2. Comorbidities between surgical groups. *P*- values calculated using the Chi Square Test

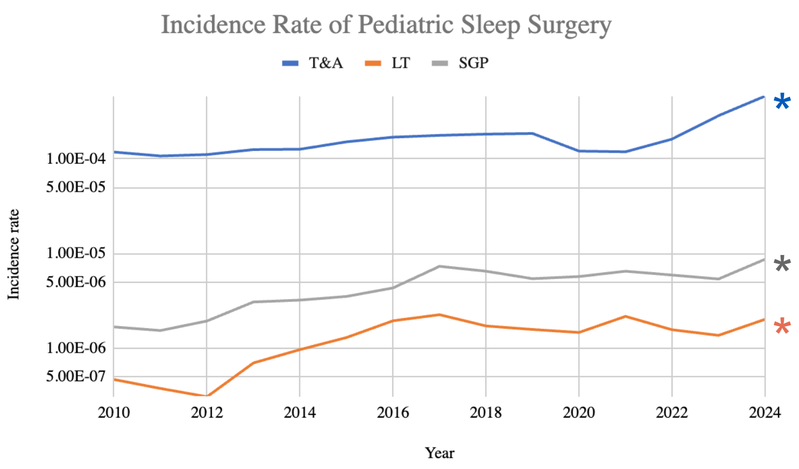


Figure 1. Increase in incidence of procedures from 2010-2024.

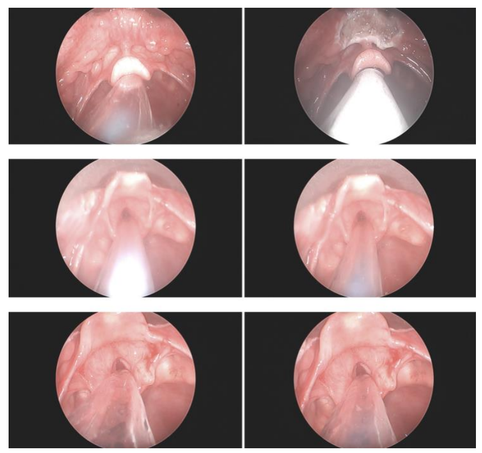
* Indicates *p*-value calculated using the Fisher test <0.01

Procedure	Increase in Incidence 2011-2024 (%)	*p*-value
T&A	191.8	<0.01
LT	226.2	<0.01
SGP	290.0	<0.01

Table 3. Numerical percent increase in incidence of procedures from 2011-2024. *P*- value calculated using the Fisher test.

Conclusion

- LT and SGP have an increased role in management of pediatric OSA
- "Sleep nasoendoscopy" described in 1990s
- "Drug induced sleep endoscopy" described in pediatric patients in 2000 by Myatt and Beckenham
- Reflects a shift to more comprehensive and anatomy specific sleep surgery in pediatric otolaryngology.



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