

Introduction

Patients who undergo a total laryngectomy (TL) have permanent anatomic changes that alter phonation, breathing, swallow, and smell. It remains unclear how much of a burden sinonasal symptoms and olfaction derangements are for this population given their objective changes in nasal airflow. This study characterizes deficits in olfactory-specific and sinonasal QoL after TL.

Methods

Cross-sectional study of patients who underwent a TL were asked to complete Questionnaire of Olfactory Disorders Negative Statements (QOD-NS) and Sinonasal Outcome Test (SNOT-22) questionnaires. Patients were sent prestamped envelopes with the questionnaires or were asked to fill these out during their follow up appointment.

The following were used to stratify the questionnaire results based on the literature:

QOD-NS (0-51):
Normal = <38.5
Abnormal = >38.5

SNOT-22 (0-110)
Normal = 0-7
Mild = 8-20
Moderate = 21-50
Severe = 51+

- The following were assessed:
- **Demographics**
 - **Days since surgery**
 - **Past medical history**
 - **Smoking history**
 - **Prior oncologic history**

Results

Table 1: Patient characteristics compared to QOD-NS and SNOT-22 scores							
	Total (%)	Abnormal QOD-NS (<38.5)	Normal QOD-NS (>38.5)	p value	Normal/Mild SNOT-22 (0-20)	Moderate/Severe SNOT-22 (>20)	p value
Total number	30	9 (30.0)	21 (70.0)		11 (36.7)	19 (63.3)	
Median age (range)	70.5 (49-88)	70.0 (62-82)	74.0 (49-88)	0.976	74 (49-84)	70 (59-88)	0.823
Sex							
Male	26 (86.7)	7 (77.8)	19 (90.5)	0.563	10 (90.9)	16 (84.2)	1
Female	4 (13.3)	2 (22.2)	2 (9.5)		1 (9.1)	3 (15.8)	
Former smoker							
Yes	19 (63.3)	7 (77.8)	12 (57.1)	0.419	6 (54.5)	13 (68.4)	0.7
No	11 (36.7)	2 (22.2)	9 (42.9)		5 (45.5)	6 (31.6)	
Psychiatric history							
Yes	13 (43.3)	6 (66.7)	7 (33.3)	0.123	4 (36.3)	9 (47.4)	0.708
No	17 (56.7)	3 (33.3)	14 (66.7)		7 (63.6)	10 (52.6)	
G tube presence							
Yes	10 (33.3)	3 (33.3)	7 (33.3)	1	4 (36.3)	6 (31.6)	1
No	20 (66.7)	6 (66.7)	14 (66.7)		7 (63.6)	13 (68.4)	
History of RT or CRT							
Yes	26 (86.7)	6 (66.7)	20 (95.2)	0.069	11 (100.0)	15 (78.9)	0.268
No	4 (13.3)	3 (33.3)	1 (4.8)		0	4 (21.1)	
Days since surgery	610 (33-1986)	904 (144-1882)	477 (33-1986)	0.237	860 (49-1986)	489 (33-1882)	0.540

Table 2: SNOT-22 score and its relation to QOD-NS score			
SNOT-22 score	QOD-NS score	p value	
Overall	37.9±11.4		
Normal/Mild (0-20)	45.6±3.7	0.0005	
Moderate/Severe (>20)	33.4±12.1		

Table 3: QOD-NS and its relation to SNOT-22 score		
QOD-NS Score	SNOT-22 score	p value
Overall	32.0±20.9	
Normal QOD-NS (>38.5)	23.5±16.7	0.0004
Abnormal QOD-NS (<38.5)	51.9±15.8	

Results

- 30 patients were studied; 86.7% were male with a median age of 70.5 (49-88).
- Average QOD-NS score was 37.9±11.4, which is abnormal. 30% of patients had abnormal scores (hyposmia/anosmia).
- Average SNOT-22 score was 32.0±20.9, which is moderate severity. 63.3% of patients had scores in the moderate or severe range.
- No specific factors were associated with worse scores
- SNOT-22 and QOD-NS are closely associated (**Tables 2 & 3**)
- One patient had prior CRS but had normal SNOT-22 and QOD-NS scores

Discussion

- Total laryngectomy has a significant and negative impact on olfactory-specific QoL in 1/3 of patients and sinonasal-specific QoL in 2/3 of patients.
- This novel finding will help counsel patients on the expected postoperative impact of TL to olfaction and sinonasal symptoms

Contact information

Rnsolisjr@ucdavis.edu