Tracheostomy Management and Outcomes: An Institutional Analysis

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Introduction

- Tracheostomy is a commonly performed procedure for upper airway obstruction or long-term ventilatory support
- Previous studies on short-term outcomes post-tracheostomy show:
  - High rates of complications and hospital readmissions
  - Complications can occur before or after discharge
  - Severity of complications varies
- Limited data exist on long-term outcomes and management post-tracheostomy
- This study aimed to describe management and patient outcomes after tracheostomy

Methods

- Adult patients undergoing tracheostomy from January to June 2022 were included
- Data were collected over a 6-month post-procedure period through both manual chart review and structured database query
- Descriptive statistics summarized outcomes and features of management
- Logistic and linear regression was used to evaluate risk factors

Variable	N = 218
Age (mean, SD)	57.0 (15.0)
Gender	
Male	129 (59.2%)
Female	89 (40.8%)
Ethnicity	
Not Hispanic	207 (95%)
Hispanic	5 (2.3%)
Did not answer	6 (2.8%)
Race	
American Indian / Alaskan Native	1 (0.5%)
Asian	1 (0.5%)
Black / African American	64 (29.4%)
Pacific Islander	2 (0.9%)
White	146 (67%)
Did not answer	4 (1.8%)
Index Diagnosis	
Head and Neck Cancer	65 (29.8%)
Persistent Requirement for Mechanical Ventilation	153 (70.2%)

Table 1. Demographics and diagnoses of patients who underwent tracheostomy

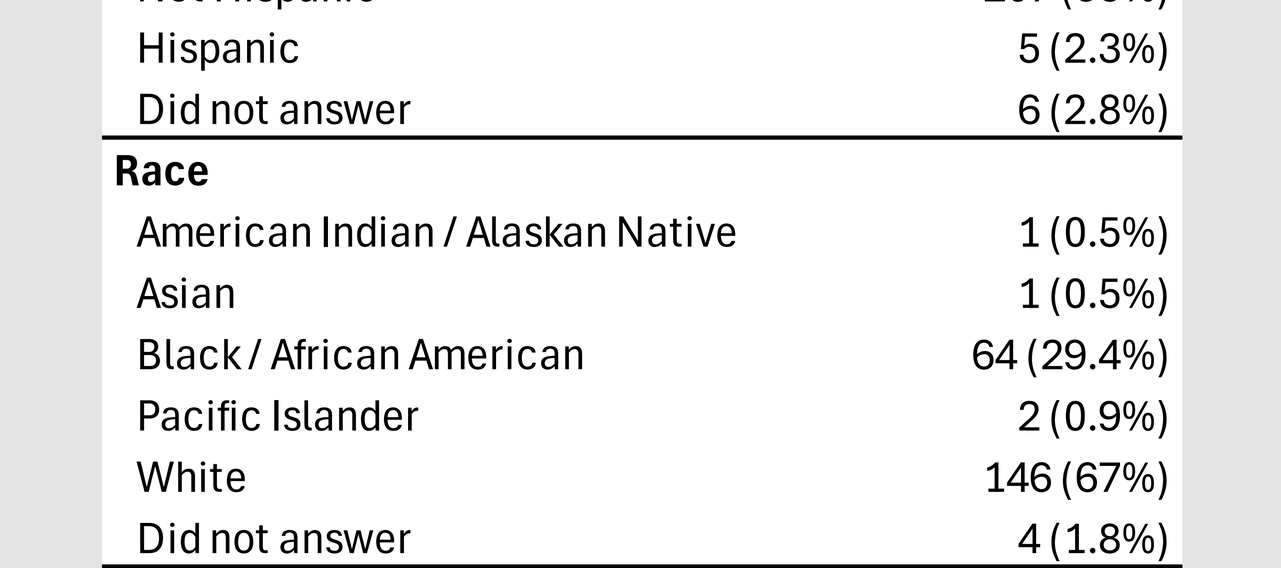

Figure 1. A) Histogram of total length of stay
B) Histogram of ICU length of stay

Results

- The cohort included 218 patients:
  - 65 (30% had head and neck cancer
  - 153 (70%) required prolonged mechanical ventilation
- Decannulation status:
  - 100 (46%) were decannulated before discharge
  - 45 (21%) were decannulated after discharge
  - 51 (23%) were not decannulated during study period
  - 22 (10%) died while inpatient
- Tracheostomy-related complications occurred in 6.8% of patients
- All-cause readmission was 35%
- Total hospital length of stay was 32 (IQR 12-52) days
- Median ICU length of stay was 17 (IQR 0-30) days
- Patients with severe comorbidities (ACE-27 score ≥2) had ICU stays 17 days longer (95% CI: 10-24) and total stay 27 days longer (95% CI: 15-39) compared to those with fewer comorbidities
- Patients were discharged with a variety of different tracheostomy tube sizes, and mean BMI varied by tracheostomy tube size
- Median time to outpatient follow-up was 12 (range 0-161) days
  - Follow-up time when performed by otolaryngologists: 9 (IQR 5-18) days
  - Follow-up time when performed by other specialties: 27 (IQR 12-48) days

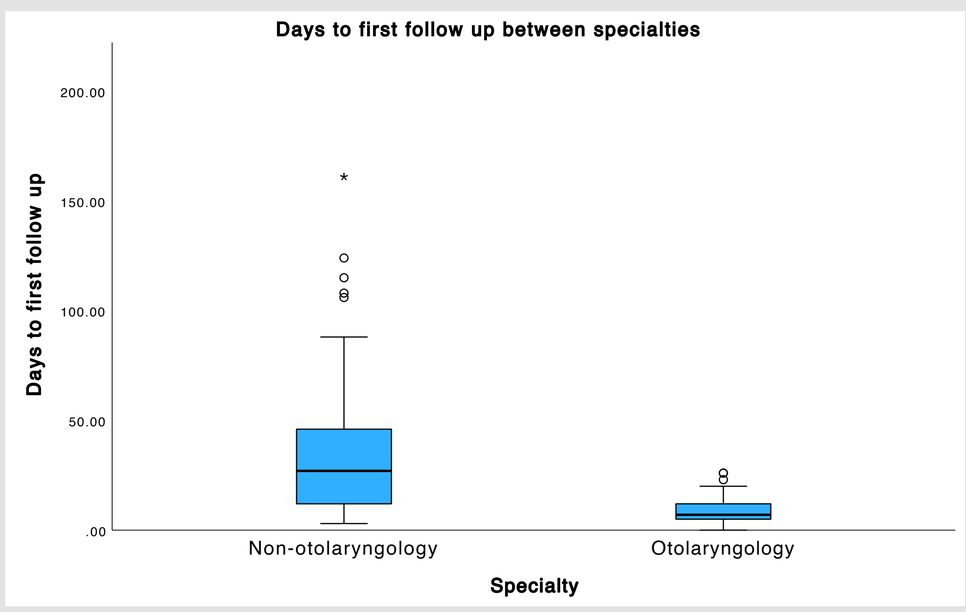

Figure 2. Boxplot of time to first follow-up by provider specialty

Figure 3. Histogram of tracheostomy tube sizes at discharge

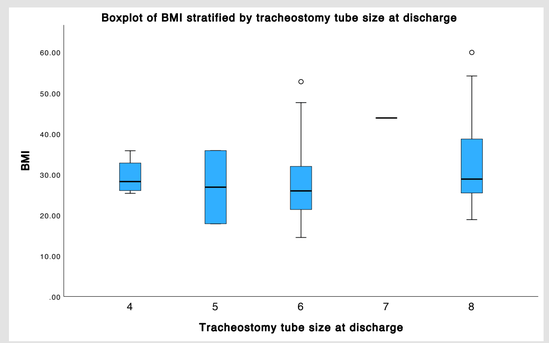

Figure 4. Boxplot of patient BMI stratified by tracheostomy tube size at discharge

Conclusion and Future Directions

- Higher comorbidity scores were associated with increased ICU and total hospital length of stay
- Considerable heterogeneity was observed in time to follow up, and differed by provider specialty
- Tracheostomy tube size at discharge was variable, and was associated with differences in BMI
- The results of this study provide a foundation for future tracheostomy-related research and may inform future quality improvement initiatives