National Trends and Associated Factors of Endotracheal Intubation among Adult Inpatients with Peritonsillar Abscesses

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ABSTRACT

Outcome Objectives:
1. Describe national trends in peritonsillar abscess (PTA) requiring endotracheal intubation (ETI).
2. Determine factors associated with ETI in patients with PTA.

Methods:
Years 2003-2010 of the Nationwide Inpatient Sample (HCUP-NIS) were queried for PTA (ICD-9 code: 475) and ETI (ICD-9 code: 96.04) in adult patients (age ≥18 years-old). Descriptive statistics and multivariate regression modeling were employed to identify factors associated with ETI.

Results:
From 2003-2010, 91,647 (95% CI: 87,117-96,177) admissions associated with a PTA were identified, of which 1,357 (1.5%) underwent ETI. These patients had a higher prevalence of concurrently coded aspiration pneumonitis (8.7% vs 0.3%), severe sepsis (13.0% vs 2.5%), and death (7.9% vs 0.1%) compared to patients without ETI. Intubated patients were significantly (all p<0.001) older (45 vs 34 years-old), had a longer hospital stay (10.8 vs 2.4 days), and had more procedures (5.4 vs 0.9). Multivariate regression analysis displayed factors associated with intubation included age group 65 and older (OR=3.145, P<0.001), race gender (1.613 (1.613, P=0.010), routine admission (OR=0.602, P=0.041), alcohol abuse (OR=8.226, P<0.001), anemia (OR=4.395, P=0.001), and obesity (OR=2.993, P<0.001). When controlling for age, gender, hospital characteristics, and number of procedures, general linear modeling was used to adjust for potential confounders and identify factors associated with ETI in PTA inpatients. General linear modeling was used to isolate costs of ETI.

METHODS

Study Design: Cross-sectional analysis
Setting: Nationwide Inpatient Sample (NIS) database, years 2003-2010
Selection Criteria: PTA patients ≥18 years-old, with or without ETI, were identified in the NIS using their respective ICD-9-CM codes.

RESULTS

There were 91,647 (95% CI: 87,117-96,177) weighted cases of PTA based on an unweighted total of 18,540 cases from years 2003-2010.

• Of these patients, 1,357 (1.5%) underwent ETI during their hospital stay.

• These patients were significantly (all p < 0.001):
  • Older: 45 vs 34 years-old
  • Longer length of stay: 10.8 vs 2.4 days
  • More procedures: 5.4 vs 0.9
  • Higher total charges: $91,641 vs $12,657

REFERENCES


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DISCUSSION

• The principle findings of this study are that the odds of ETI are significantly higher in older age groups of PTA patients, males, and those with comorbid alcoholism, anemia, and obesity, and patients with PTA who undergo ETI have significantly higher rates of morbidity, mortality, and in-hospital resource utilization.

• The elderly have been noted to have higher rates of airway compromise and more severe PTA infections.1 Additionally, obesity is a known risk factor for airway obstruction.2 Alcoholism predisposes patients to decreased airway protection and ARDS.3,4 Patients who present with these factors warrant special attention for airway monitoring given the higher rates of morbidity and mortality associated with undergoing ETI.

• This study is subject to a number of limitations associated with the use of administrative databases, and the results depend on the accuracy of the coding process. However, to the best of our knowledge, this is the first study of its kind to report the rates of ETI in PTA inpatients and determine factors associated with it in this patient population.

CONCLUSIONS

• Patients with PTA undergoing ETI have worse in-hospital outcomes along with higher resource utilization.

• Patients requiring ETI are more likely to be older, male, and have comorbid alcohol abuse, anemia, or obesity.

• This study identifies characteristics of a PTA patient in whom clinicians should be wary of respiratory decompensation.

**All outcome and management measures have statistical significance of p < 0.001**