Risk Factors Predictive of Tracheostomy in Spinal Cord Injury Patients

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INTRODUCTION

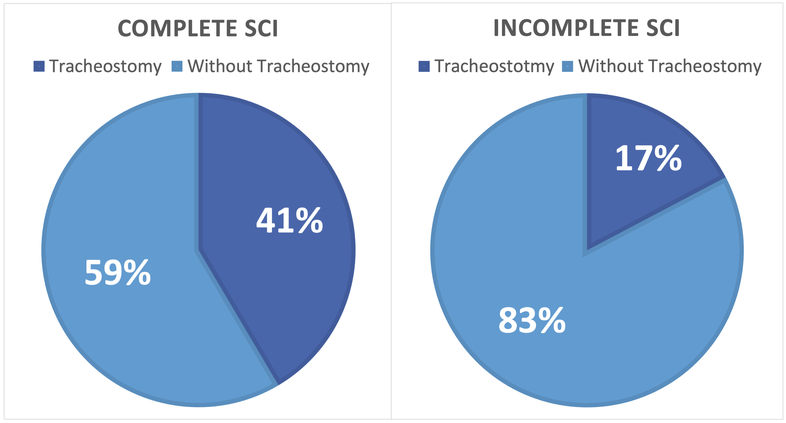
- Spinal cord injuries (SCI) cause significant respiratory compromise and increase prolonged intubation with need for tracheostomy
- Previous data shows:
    - Correlation between SCI and the need for trach
    - Benefits of early trach
- No consensus on specific risk factors increasing need for trach
- Hypothesis: Complete SCI requires tracheostomy more frequently than incomplete SCI

METHODS

- Retrospective chart review
- Population - all trauma patients age 18 and older who presented between 2015 and 2020 with diagnosed SCI
- Exclusion criteria: preexisting SCI, death prior to exam, neurological deficit, missing data
- Primary outcome - need for tracheostomy
- Secondary outcomes - mortality, complications, length of stay
- Validity testing with chi squared tests and student t-tests

RESULTS

- 151 total patients: 121 males, 30 females
- 39 patients (26%) required tracheostomy during hospitalization
- In trach patients: (P<0.05)
    - Complete SCI – 41% require trach
    - Incomplete SCI – 17% require trach
- Independent risk factors for trach placement - Injury Severity Score (ISS) and diabetes
- Not significant – Gender, operative vs. non-operative treatment, smoking, age, obesity (BMI)
- Mortality: 11.3% (not statistically significant in trach vs. non trach patients)



Figures 1 and 2. Tracheostomy rates among complete and incomplete spinal cord injuries

Complications

- Overall pneumonia rate: 26%
- Length of stay - longer in trach patients; 26.9 vs. 14 days (P<0.05)
- Most complications also higher

Complication	Trach	No Trach	P Value
Pneumonia	69.2%	10.7%	P<0.01
UTI	38.5%	11.6%	P<0.01
Bacteremia	17.9%	2.7%	P<0.01
SSI	5.1%	0.9%	P>0.05 (NS)
Decubitus ulcer	28.2%	5.4%	P<0.01
DVT	12.8%	2.7%	P<0.05
PE	12.8%	0.9%	P<0.01

Table 1. Complications

CONCLUSIONS

- Patients with a complete SCI are at higher risk of requiring a tracheostomy after their injury
- Independent risk factors - ISS and diabetes
- Further work - risk scoring systems for early identification to allow for early tracheostomy