**The significance of Functional Status Scale in Decannulation after Pediatric Tracheostomy**

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Abstract:

Objective:

To evaluate if the Functional Status Scale (FSS) of pediatric patients with tracheostomy at discharge from the pediatric intensive care unit (PICU), one and three-years later impacts decannulation outcomes.

Methods:

Retrospective review of patients who were admitted to the PICU and underwent tracheostomy at a tertiary care children’s hospital from 2010-2019. Baseline demographics, comorbidities, tracheostomy indication, decannulation status, and FSS scores were recorded at PICU discharge, one- and three-years after tracheostomy. Logistic regression was performed to assess association of FSS components with decannulation status at 3 years.

Results: Fifty-three patients met inclusion criteria. The mean age at tracheostomy was 73.2 days [95% Confidence Interval (CI) 30.4 – 116.0]. Average gestational age was 34.3 weeks [95% CI 32.7 – 35.9]. Thirty-four (64.2%) had a pulmonary diagnosis on admission, while 28 (52.8%) had a cardiac diagnosis. A majority (28, 52.8%) underwent tracheostomy for airway obstruction. Forty (75.5%) had complete data. Then mean age at one- and three-years post-tracheostomy were 23.2 months [95% CI 15.2 – 31.2] and 44.6 months [95% CI 34.2 – 55.0], respectively. There were no decannulations at 1 year. Nine (22.5%) were decannulated at 3 years. An abnormal motor FSS score at PICU discharge was associated with an odds ratio (OR) of 4.1 [95% CI: 1.0–16.4, *p* = .05] of maintaining the tracheostomy at 3 years. An abnormal 3 year FSS score in the feeding domain was significantly associated with maintaining a tracheostomy at 3 years, with an OR of 7.4 [95% CI: 1.5 – 36.6, *p* = .01] to maintain the appliance. An abnormal 3 year score in motor domain showed an higher odds ratio of 4.5 [95% CI: 1.0–18.2] of maintaining the tracheostomy, though this did not reach significance (*p* = .06).

Conclusions:

Pediatric tracheostomy has been associated with long term morbidity impacting multiple organ systems. Persistent abnormalities in the feeding and motor domains are negatively associated with decannulation. This information may help caregivers plan for short- and long-term resources and improve the quality of care in these patients.