Abstract

Introduction: Children with long-term tracheotomy or tracheostomy following a staged airway reconstruction are frequently assessed for appropriateness of decannulation in various ways. There are very few studies or reports of a standardized protocol for decannulation of these patients.

Objective: To describe the experience and success of a capping and decannulation protocol for children with a tracheotomy at a single tertiary airway center.

Setting and Methods: Retrospective review of 34 children undergoing a standardized protocol for decannulation at a single academic tertiary care center between 2006 and 2013.

Protocol: Children were admitted for an initial capping trial of 24-48 hours. Subject who successfully complete a capping trial would proceed to a decannulation trial for an additional 24-48 hours during the same admission or at a separate admission determined by the treating physician.

Results: 34 children were identified that underwent the protocol. 29 subjects were successfully decannulated. The median age was 4.1 years, 20 (58.8%) male, 23 (67.6%) with pulmonary comorbidities and 20 (58.8%) with neurologic comorbidities. 44 capping trials were performed: before decannulation, 26 had a single trial, 10 second, 2 third, 2 fourth, 2 fifth trials. 35/44 (79.6%) of capping trials were deemed successful. 10/44 (22.7%) underwent decannulation trial during the same admission. 31 decannulation trials were performed. 29/31 (93.5%) subjects passed the decannulation trial.

Conclusions: Our study is one of the first to evaluate a protocol for tracheostomy decannulation of children. We found that a small percentage of children will fail capping or decannulation. Proper selection of patients for decannulation is central and establishing a standardized protocol is important in the decannulation process.

Introduction

- Pediatric tracheostomy is a common procedure; due to medical advances there has been a shift to placement at younger ages and an increased chronicity.

- Safe decannulation as soon as the underlying conditions permits is a major goal.

- Decannulation is fraught with challenges as communication of respiratory status is not reliable and at times impossible.

- Respiratory and vital signs should be monitored by experienced staff in case of intolerance of capping or need for recannulation.

- The true incidence/timing of capping and decannulation failures is not known.

- Wide range of pediatric decannulation practices from decannulation in an outpatient setting without prior tracheostomy capping to a 1 week inpatient stay.

- A majority of practitioners do not follow a decannulation protocol.

- Our goal is to establish a standardized decannulation protocol for pediatric tracheostomy patients and describe the outcomes of this protocol in a group of patients at our tertiary airway center.

Discussion

- Pediatric tracheostomy decannulation is a complex process that can be best guided by a standardized protocol.

- Capping the tracheostomy allows for an evaluation of airway function and gives the patient a chance to acclimate to the change in airway physiology before decannulation.

- Obstruction during sleep may be present in the absence of daytime symptoms underlying the need for 24-48 hour monitoring.

- Complete resolution of the underlying conditions may never occur but the patient’s airway function may be appropriate for decannulation.

- Patients who do not initially succeed with capping trials may need further surgical procedures investigating for additional sites of obstruction or time for growth before another capping trial.

Conclusions

- Decannulation should be performed in a monitored setting as respiratory distress cannot be easily conveyed by patients and recannulation may need to be performed by a health care provider.

- Decannulation failures can occur after previous tolerance of capping necessitating the need for inpatient observation even if success with previous capping.

- Proper selection of patients for capping and decannulation is an invaluable portion of the process.

References


