Difficult Pediatric Airway: Implementation of A Consultation Service

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Introduction

In children, the major considerations with difficult airway management are the frequent associations with congenital syndromes, craniofacial anomalies and the difficulty in using awake fiberoptic techniques in securing an elective or urgent airway. These considerations in addition to the unique features of developing pediatric airways are reasons that a Difficult Airway Service may be of greater importance for pediatrics than adults. Moreover, with availability of increasing number of various airway devices, establishing a service to provide not only consultation, but also to standardize approaches to Difficult Airway management seemed prudent. With this in mind, a collaborative Difficult Airway service from Anesthesiology and ENT is established at SLCH to identify and consult management of challenging pediatric airways.

Methods

The consult service at SLCH officially became operational in September, 2012. The inpatient consult team consists of an Anesthesia faculty, a Pediatric Anesthesia fellow, and an Advanced Practice Nurse. The service is available 24 hours a day, 7 days a week. Outpatient consultation for DAS is also available through Pre-Anesthesia clinic, and through the otolaryngology clinic. The consultation form is filled out, which consists of review of airway risk factors, comprehensive physical examination of the airway, and a detailed airway management history. An assessment and appropriate recommendations are made based on whether the child has critical airway, potential for difficult airway, or an uncomplicated airway. Children with critical airways are identified in the Electronic Medical Record (kiddos), and are given unique markers such as a green arm bracelet, or a green ETT tape.

Additionally, DAS has committed to a standardized difficult airway cart, which is a mobile supply cart, with advanced unique airway equipments. These secured carts are serviced by OR anesthesia technologists and are currently located in the OR suites, PICU, and in the Ambulatory Procedural center. A formal educational program for staff will also be implemented with conferences and inservice classes twice a year, which will include the use of clinical simulation sessions.

Results

We have received 32 consultations since the initiation of DAS. Amongst these children, nine are identified with craniofacial dysmorphic features. Twelve children have congenital syndromes including but not limited to, trisomy18, cri-du-chat, klippel feil, Pfeiffer, and CHARGE syndrome. In addition, 11 children have acquired conditions such as cervical spine fusion, supraglottic abscess, and post surgical airway edema, that require advanced airway management. Four children were identified as unanticipated difficult airways encountered by the Emergency Room physician, Critical Care team, or by the anesthesia provider in the operating room. A total of 19 children have been identified and entered in the EMR as critical airways. These children are followed by the DAS team during Critical Care Unit admission, and if indicated, an airway cart is provided at bedside. DAS is to be notified before surgery and procedures requiring sedation. For pediatric patients who are potential difficult airways, DAS is on standby for assistance. See Figure 2 for summary of the airway status of the children evaluated by DAS. Figure 3 demonstrates that most of these children were easy mask ventilations. While airway management was accomplished with a number of techniques, including video-assisted laryngoscopes such as Glidescope and C-MAC. Fiberoptic intubation was utilized most to secure airways in these children. The FOI technique often involved maintenance of spontaneous ventilation or use of intubating LMA. A few number of consulted patients proved to be easy airways, managed with conventional laryngoscopy despite concerns due to congenital syndromes or their unique features.

Conclusion

With knowledge and preparedness, DAS hopes to facilitate management of challenging pediatric airways not only in the operating rooms, but at various clinical settings within SLCH. Furthermore, data collected may add educational value in the future for the trainees and staff, and contribute to quality improvement.

References: