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Survey of the use of laryngeal mask airway vs endotracheal tube for pediatric tonsillectomy in essex hospitals.

Manuela Cresswell[1], Harriet Walker[2], Laura Harding[3]

[1]ENT Registrar, Derriford Hospital, Plymouth Hospitals NHS Trust, Plymouth, Devon, UK.
[2]Core Surgical Trainee. Derriford Hospital, Plymouth Hospitals NHS Trust, Plymouth, Devon, UK.
[3]ENT Consultant. Broomfield Hospital, Mid Essex Hospital Services NHS Trust, UK.

Abstract

Introduction: Tonsillectomy is one of the most frequently performed surgical procedures in children. Endotracheal tube and laryngeal mask are widely used as airway adjuncts for children undergoing tonsillectomy, the choice of which varies according to anesthetist's and surgeon's preferences. Studies demonstrate no significant difference in laryngospasm rates, although post-operative stridor is less frequent after laryngeal mask use. The aim of this survey was to establish current practice in hospitals in Essex.

Materials and methods: An anonymous online questionnaire containing 5 questions was created using www.surveymonkey.com. Dissemination to regional middle grade ENT surgeons and ENT consultants was done via e-mail.

Results: The response rate was 56.3% (18 of 32). 87.8% of respondents reported using mostly endotracheal tube and 22.2% laryngeal mask. 66.7% of them preferred endotracheal intubation, while 11.1% preferred laryngeal mask and 22.2% had no preference. When respondents asked about reasons for airway selection could mark more than one answer: 64.3% selected 'better surgical access', 57.1% 'it is a secure airway', 21.4% 'patients experience less gagging and coughing postoperatively' and 14.2% 'others'. 61.1% of respondents reported an anesthetic preference for endotracheal tube. Only 16.67% of respondents reported a change in practice during their career.

Discussion: In our hospital network there is no consensus in use of endotracheal tube versus laryngeal mask for pediatric tonsillectomy. Endotracheal intubation is the most frequently used and preferred ventilation method by both ENT surgeons and anesthetists, but may be associated with longer extubation period and increased incidence of post-operative stridor.

Keywords: Children, Tonsillectomy, Endotracheal tube, Laryngeal mask airway, Anesthesia, Intra-tracheal intubation.

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Introduction

Tonsillectomy is one of the most commonly performed surgical procedures in children. In the management of the pediatric airway for general anesthesia different adjuncts can be used such as endotracheal tube (ETT) and laryngeal mask airway (LMA). There are no agreed national guidelines or consensus in the United Kingdom (UK) for the selection of airway adjuncts in pediatric tonsillectomy, therefore selection depends on anesthetic or to a lesser extent surgical preference. A survey of the use of LMA vs. ETT in the UK carried out in 2005 revealed that an ETT was used in 79-87% of patients [1].

LMA was first introduced in the UK in 1983 by A.I.J Brain and has since had a variable uptake worldwide [2]. LMA reduces the need for non-depolarizing muscle relaxants during general anesthesia which subsequently diminishes the need for reversal agents and allows for a quicker extubation and recovery [3,4]. Other significant proven benefits are a reduction in post-operative throat pain, coughing and gagging [3-6]. Reported laryngospasm rates and incidence of hoarseness of voice with LMA have also been reported to be lower than those of ETT [6]. Conversely, disadvantages of the use of LMA include a restricted surgical visualization and manipulation of the tonsils and a risk of kinking requiring change to ETT (reported rates 6.8-7.6%), especially if the use of a Boyle-Davies gag is simultaneously employed, which is general practice in the UK [3,7].

We conducted a regional survey to study current practice in airway management for pediatric tonsillectomy in National Health Service (NHS) hospitals in Mid and South Essex, United Kingdom.

Materials and Methods

A 5-question survey was designed using www.surveymonkey.com. Multiple choice with either single or multiple answers were used in addition to free text questions. The questionnaire explored preferences for airway adjuncts, reasons behind use of LMA or ETT as well as any changes in practice.

The survey was disseminated via email in December 2014 to all regional ENT (Ear, Nose and Throat) surgeons including consultants, training and non-training registrars and specialty doctors. Two reminder emails were sent to non-responders to improve response rates.

Results and Observations

We received 18 responses from registrars and consultants in the region. The response rate was 56.3% (18 of 32). All of the respondents answered all of the questions.

The majority (87.8%) of respondents reported primarily using an ETT in their current practice. Two thirds (66.7%) also favored this method, with only a small percentage (11.1%) preferring LMA. 22.2% of respondents specified no preference. Reasons for ETT preference included ′better surgical access' (64.3%), 'it is a secure airway' (57.1%) with approximately one fifth (21.4%) of surgeons additionally reporting that in their clinical practice 'patients experience less gagging and coughing post-operatively' with use of an LMA. Only 2(14.3%) surgeons indicated having 'other' reasons to select airway adjunct, one of which reported that LMA poses 'no difficulty with access and better for patient' with the other explaining that they used an ETT following 'advice from respected anesthetists'.

Most (61.1%) respondents marked that anesthetists in their hospitals had a preference for 'endotracheal tube'. It was emphasized by only 2 surgeons that the decision to use LMA vs. ETT was based on anesthetist preference and they did not routinely interfere in the decision making process when selecting airway adjunct.

Only 3 (16.7%) respondents reported a change in practice during their career, 2 of whom reported trialing LMA use for a short period but subsequently moving back to an ETT due to poor surgical access. One surgeon reported changing from ETT to LMA when it became available in their hospital.

Discussion

In our hospital network there is no consensus in use of endotracheal tube vs laryngeal mask for pediatric tonsillectomy. Based on our findings endotracheal intubation remains the most frequently used and preferred ventilation method by both ENT surgeons and anesthetists, although 22% of surgeons reported having no particular preference. Most surgeons in our region keep the same choice of airway adjunct throughout their careers. One could speculate that this choice is based on familiarity with either of the airway adjuncts from early training years, although this survey did specifically ask this question. This survey was carried out regionally and therefore there were a limited number of respondents. Further multicenter studies and extending the survey to anesthetists will be welcomed.

According to the literature, there are advantages and disadvantages of establishing an airway with either a LMA or an ETT with no clear superiority established [3-7]. Due to these well recognized differences, specific airway adjunct use should be discussed during pre-operative briefing and the decision should made jointly with anesthetists and surgeons taking into account patient particular characteristics such as patient age and weight. When surgical access is not appropriate with LMA (e.g. due to large tonsils, small oropharynx in young children) an ETT should be preferentially considered.

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Correspondence to:

Laura Harding,
ENT Consultant,
Ear, Nose and Throat Department,
Broomfield Hospital, Court Rd, Chelmsford, Essex CM1 7ET,
United Kingdom.
Tel: 447403387955
E-mail: manucresswell@gmail.com