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Dr. Suhaib Ahmed Khan
Department of Anesthesia,
Shaikh Zayed Medical College
and Hospital, Pakistan

Pattern of usage of supraglottic airway devices in Pediatric patients among anesthesiologists

Dr. Suhaib Ahmed Khan

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Abstract

Background: The most vital element in providing functional respiration is the airway. The present study was conducted to determine the pattern of usage of supraglottic airway devices among anesthesiologists.

Materials & Methods: The present study was conducted on 62 Pediatric anesthesiologists of both genders. Their qualification, area of practice, type of institution, experience and average daily cases were assessed. Complications arising from use of SGAD were also recorded.

Results: 20 were practicing in rural and 42 in urban, 25 were MD, 20 were DA and 17 had fellowship, 26 were in college, 16 were private practitioner and 20 were in other. 32 had > 5years of experience and 32 had daily >5 patient consultation. The difference was significant ($P < 0.05$). Commonly used SGADs were I- gel in 34, LMA classic reusable in 24, LMA classic disposable in 16, LMA ProSeal in 12, Ambu Aura- 1 in 10, LMA flex in 8 and laryngeal tube in 5. The difference was significant ($P < 0.05$).

Conclusion: Commonly used SGADs by anesthesiologists were I- gel, LMA classic reusable, LMA classic disposable, LMA ProSeal, Ambu Aura- I, LMA flex and laryngeal tube.

Keywords: Anesthesiologists, laryngeal tube, pediatric

Introduction

The most vital element in providing functional respiration is the airway. Management of the airway has come a long way since the development of endotracheal intubation by Macewen in 1880 to present day use of modern and sophisticated devices. The major responsibility of the anesthesiologist is to provide adequate ventilation to the patient [1].

Supraglottic airway devices (SGADs) are routinely used for airway management in paediatric patients undergoing general anaesthesia for various surgeries. SGADs have changed the practice of paediatric anaesthesia [2]. The first generation supraglottic airways (e.g. the classic laryngeal mask airway) had several limitations, notably providing only a moderate pharyngeal seal (less than ~20 cmH₂O) that may be associated with regurgitation and pulmonary aspiration. The design of second generation supraglottic airways allows for greater pharyngeal seal pressures (around 28 cmH₂O) with an inflatable cuff or thermoplastic elastomer component, and they contain a separate oesophageal port which allows for the draining or aspiration of gastric contents [3].

There are studies in literature describing SGAD use in uncommon and unconventional situations such as laparoscopy and prone position in pediatric patients. It would be worthwhile to know if these practices are being applied in clinical use. In the absence of high- quality evidence, there could be a possibility of bias for or against newer devices [4]. The present study was conducted to determine the pattern of usage of Supraglottic airway devices among anesthesiologists.

Materials & Methods

The present study was conducted in the department of Anesthesia. It comprised of 62 Pediatric anesthesiologists of both genders. They were informed regarding the purpose of the study and written consent was obtained.

Data pertaining to anesthesiologists such as name, age, gender etc. was recorded. A questionnaire was given to all and was asked to respond accordingly. Their qualification, area of practice, type of institution, experience and average daily cases were assessed. Complications arising from use of SGAD were also recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

Corresponding Author:
Dr. Suhaib Ahmed Khan
Department of Anesthesia,
Shaikh Zayed Medical College
and Hospital, Pakistan

Results

Table 1: Assessment of parameters

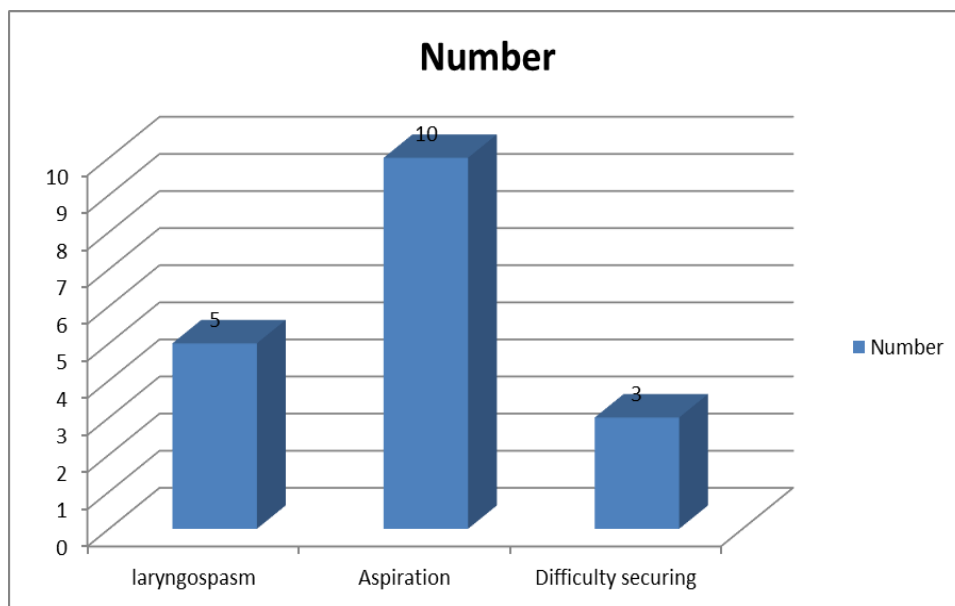
Parameters	Number	P value
Area of practice		
Rural	20	0.01
Urban	42	
Qualification		
MD	25	0.78
DA	20	
Fellowship	17	
Type of institution		
College	26	0.02
Private	16	
Other	20	
Experience		
<1 year	4	0.01
1-5 year	36	
>5 years	22	
Daily cases		
2-5	30	0.5
>5	32	

Table 1 shows that 20 were practicing in rural and 42 in urban, 25 were MD, 20 were DA and 17 had fellowship, 26 were in college, 16 were private practitioner and 20 were in other. 32 had > 5years of experience and 32 had daily >5 patient consultation. The difference was significant ($P < 0.05$).

Table 2: Type of SGADs used by them

Type	Number	P value
I- gel	34	0.01
LMA classic reusable	24	
LMA ProSeal	12	
LMA classic disposable	16	
Laryngeal tube	5	
Ambu Aura-i	10	
LMA flex	8	

Table 2 shows that commonly used SGADs was I- gel in 34, LMA classic reusable in 24, LMA classic disposable in 16, LMA ProSeal in 12, Ambu Aura- I in 10, LMA flex in 8 and laryngeal tube in 5. The difference was significant ($P < 0.05$).



Graph I: Complication of SGADs

Graph I shows that common complication were aspiration observed by 10, laryngospasm by 5 and difficulty in securing position by 3. The difference was significant ($P < 0.05$).

Discussion

The wide variety of airway armamentarium available today may broadly be classified as intraglottic and extraglottic airway devices, which are employed to protect the airway in both elective as well as emergency situations. New extraglottic airway devices have also been described at a rate of one per year for the last twenty five years, increasing to two per year since the turn of the century^[5].

Two commonly available second-generation supraglottic airways in the UK are the Laryngeal Mask Airway Supreme (Teleflex) and the i-gel by Intersurgical. The tip of the i-gel is narrower, and makes a seal lower down the oesophagus, a deliberate design feature which has been demonstrated to decrease the risk of dysphagia compared with laryngeal

mask airways^[6]. The present study was conducted to determine the pattern of usage of Supraglottic airway devices among anesthesiologists.

In present study, we involved 62 Pediatric anesthesiologists of both genders. We found that 20 were practicing in rural and 42 in urban, 25 were MD, 20 were DA and 17 had fellowship, 26 were in college, 16 were private practitioner and 20 were in other. 32 had > 5years of experience and 32 had daily >5 patient consultation.

Jain *et al.*^[7] conducted a study in which four hundred and five (2.3%) valid responses were obtained. The most commonly used device was i- gel© (60.74%). Three hundred and four (75.06%) respondents had access to second- generation SGADs. Second- generation devices (60.74%) were more commonly used than first- generation devices (39.26%). Anesthesiologists utilized SGADs in various challenging scenarios such as in the difficult airway (53.33%), remote locations (55.47%), ophthalmologic (38.77%) and long-duration surgeries (17.53%). Sixty per

cent respondents did not use SGADs in laparoscopic surgery. Disposable SGADs were reused by 77.28% respondents. Oropharyngeal seal and intracuff pressures were not measured by 86.91% and 56.92% respondents, respectively. Difficulty in size selection (84.19%), securing position (82.22%) and maintaining unobstructed ventilation (78.76%) were common problems encountered while using SGADs.

In a randomized study in children undergoing minor surgery, vocal cord oedema and airflow resistance were increased in those whose airway was managed with an endotracheal tube compared with supraglottic airway. Vocal cord and airway oedema are important in all groups, but especially in paediatric patients, prolonged cases and in cases already at risk of increased airway oedema^[8].

We found that common complications were aspiration observed by 10, laryngospasm by 5 and difficulty in securing position by 3. Joshi *et al.* (1997)^[9] found that 24 hours post-operation, the patients managed with supraglottic airways had significantly less nausea and sore throat compared with those whose airways were managed with an endotracheal tube ($P < 0.05$), while they also had shorter times in recovery and time to mobilization.

Conclusion

Authors found that commonly used SGADs by anesthesiologists were I-gel, LMA classic reusable, LMA classic disposable, LMA ProSeal, Ambu Aura-I, LMA flex and laryngeal tube.

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