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Audit of Preoperative Difficult Airway Management in Algeria: Challenges and Strategies

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Abstract

Most respiratory complications during intubation are unanticipated and can lead to severe injuries or even death, especially in general anesthesia. Mitigating factors include preparation, evaluation, communication, teamwork, and situational awareness. However, in the absence of national recommendations, airway management in Algeria remains a challenge.

Methodology:

A cross-sectional study over one year (2019-2020) was conducted by distributing a questionnaire covering demographic data, difficulties encountered during intubation and ventilation, access to specific equipment and training, and the desire for training or algorithms. Data were entered and analyzed using SPSS 18 software.

Results:

Out of 110 distributed questionnaires, the participation rate was 78%, covering 25 wilayas. The prevalence of intubation

difficulties was 100%, with a higher prevalence among those without local protocols or specific training. Public health specialists in EPH and CHU were more likely to encounter ventilation difficulties.

Discussion:

This audit identifies the challenges faced by anesthesiologists in Algeria, emphasizing the importance of pre-planning and advancements in techniques to simplify the management of difficult intubations. The development of algorithms could facilitate patient care, provided that the techniques are widely known and feasible.

Conclusion:

Improving airway management in Algeria requires pre-planning, increased awareness, and appropriate training. Advances in techniques and the development of algorithms could help reduce complications during difficult intubations.

Keywords: Intubation, Anesthesia, Algeria

1. Introduction

Most respiratory complications during intubation are unforeseen and can lead to injuries or even death, particularly during general anesthesia. Factors that help reduce complications include preparation, assessment, planning, communication, teamwork, mastery of multiple techniques, and situational awareness. A recent study has shown that the use of a standardized algorithm for managing difficult airways can significantly reduce intubation-related complications ^[1]. Furthermore, ongoing training in advanced intubation techniques is crucial for healthcare professionals to maintain their skills and ensure safe patient care ^[2]. It is also essential to have adequate and well-maintained equipment for airway management, including alternative intubation devices in case conventional intubation fails ^[3]. Lastly, clear and effective communication among the medical team is indispensable for coordinated care and early identification of potential complications ^[4].

Objective: Conduct a national audit on airway management aiming to:

1. Analyze data on difficulties encountered in airway management during general anesthesia across Algeria, including the frequency, types of complications, and associated risk factors.
2. Evaluate the current preferences and practices of Algerian anesthesiologists regarding the use of rescue devices for

difficult airway management.

3. Identify gaps and variations in the management of difficult airways among different regions and healthcare facilities in the country.
4. Provide a robust database for the development of national recommendations and standardized protocols on airway management in the absence of current official guidelines in Algeria.
5. Raise awareness among healthcare professionals about the importance of proper airway management and promote the adoption of best practices to enhance patient safety.
6. Encourage ongoing training and skills development of anesthesiologists in advanced airway management techniques, highlighting areas in need of improvement.

This national audit will provide an accurate overview of the current situation in Algeria, serving as a crucial step towards establishing national standards and protocols for optimal airway management during general anesthesia.

Materials and Methods

Study Design:

This was a national cross-sectional study conducted as a survey over a one-year period, from 2019 to 2020, among practicing anesthesiologists in Algeria.

Data Collection Tool:

A structured questionnaire was developed and distributed, encompassing the following elements:

Demographic data of the participants (age, gender, years of experience, practice location, etc.).

Experience of encountered difficulties in intubation or ventilation during the practice of general anesthesia.

Availability of equipment and devices for difficult airway management in their healthcare facility.

Existence of specific training and local protocols for difficult airway management.

Perceived need for additional training and a standardized national algorithm for difficult airway management.

Procedures:

The questionnaire was distributed to all anesthesiologists practicing in different regions of Algeria using various methods (postal mail, email, in-person distribution, etc.).

Data Analysis:

The collected data were entered and analyzed using the SPSS statistical software, version 18 (Statistical Package for the Social Sciences). Appropriate descriptive and inferential analyses were performed to describe the sample characteristics, assess frequencies of different variables, and identify significant associations.

Ethical Considerations:

This study was approved by a competent ethics committee, and all precautions were taken to ensure the confidentiality and anonymity of the participants.

This national survey aimed to obtain an overall picture of difficult airway management in Algeria, identify gaps and training needs, and the requirement for standardized protocols, ultimately aiming to improve the quality of care and patient safety.

Results

Participation Rate: Out of 110 distributed questionnaires, 78% of anesthesiologists participated in the survey.

Geographical Coverage: Participants were from 25 out of the 48 wilayas (provinces) in Algeria.

Demographic Data:

Sex ratio of 0.75, with a predominance of females.

Mean age of 40.12 ± 6.065 years.

Professional experience: 32.6% had less than five years of experience.

Practice Locations:

Public Hospital Establishments (EPH): 38.4%

University Hospital Centers (CHU): 30.2%

Specialized Hospital Establishments (EHS): 26.7%

University Hospital Establishments (EHU): 3.5%

Private sector: 1.2%

Practiced Activities: 52.3% of participants performed all types of surgeries.

Participants' Grades: 75.6% were resident physicians.

Encountered Difficulties:

100% of participants acknowledged experiencing intubation difficulties.

93.0% reported difficulties with mask ventilation, more frequently among public health specialists practicing in EPH and CHU, as well as those without a local protocol.

Training and Protocols:

Participants who did not receive training encountered more difficulties with mask ventilation.

These same participants expressed a higher demand for additional training and the implementation of standardized protocols.

It is important to note that these results underscore the need for adequate training, appropriate equipment, and standardized national protocols to improve the management of difficult airways in Algeria, thereby enhancing patient safety during procedures under general anesthesia.

Discussion

This national study in Algeria has highlighted significant challenges in the management of difficult airways during general anesthesia. The results showed that the majority of participants encountered difficulties with intubation and mask ventilation, which is consistent with data from international literature. A multicenter study conducted in 28 European countries found an incidence of 8.5% for unexpected difficult airways^[1]. Similarly, a recent systematic review estimated the incidence of mask ventilation difficulties to range between 0.07% and 15%^[2].

A concerning aspect of our study is the lack of training and standardized protocols for difficult airway management, which has been associated with increased complications. This underscores the crucial importance of ongoing healthcare professional training and the adoption of national guidelines, as recommended by international anesthesia societies^[3, 4]. A recent study in the United Kingdom demonstrated that the implementation of a structured training program significantly reduced complications related to difficult airways^[5].

Our results also revealed variations in encountered difficulties based on types of healthcare facilities and medical specialties. These disparities can be attributed to differences in resources, expertise, and exposure to complex cases. A similar study in India also found significant regional variations in the management of difficult airways^[6].

It is encouraging to note that the majority of participants expressed a strong interest in training and the establishment of standardized national protocols. This highlights the need for coordinated national initiatives to improve the management of difficult airways in Algeria, as successfully implemented in other countries^[7, 8].

Conclusion

This national study has shed light on the major challenges faced by Algerian anesthesiologists in managing difficult airways during general anesthesia. While this audit addressed most of the problems and situations encountered in daily practice, it should be noted that certain complex circumstances will always require the practitioner's informed clinical judgment.

Nevertheless, the ongoing advancements in airway management techniques and equipment offer encouraging prospects for simplifying and improving the management of difficult intubations. The development of standardized national algorithms based on international best practices will greatly facilitate the management of these critical situations, provided that these protocols are widely disseminated, taught, and mastered by healthcare professionals.

It is essential to establish nationwide continuing education and awareness programs to enhance anesthesiologists' skills in advanced techniques for managing difficult airways. Additionally, the acquisition of specialized equipment and its availability in all healthcare facilities are crucial steps to ensure optimal patient care.

this study highlights the need for concerted and coordinated action at the national level involving health authorities, professional societies, and healthcare professionals to develop proactive strategies and adequate resources to address the challenges related to managing difficult airways in Algeria. Such an approach will significantly improve patient safety and the quality of care during procedures under general anaesthesia.

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