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Ensuring the brightest start: the new European airway management guideline for neonates and infants

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Airway management in neonates and infants is critical in providing lifesaving support to the tiniest and most vulnerable members of our society. The delicate nature of neonatal and infant airways necessitates developing and implementing precise guidelines to ensure the best outcomes. This issue of the European Journal of Anaesthesiology (EJA) and the British Journal of Anaesthesia (BJA) concomitantly publish a comprehensive guideline on this topic aimed at providing healthcare professionals with a standardised approach that prioritises safety, effectiveness, and the overall well being of these precious patients.

The authors (23 international experts in the field) identified seven main areas of interest: pre-operative assessment and preparation, medications, techniques and algorithms, identification and treatment of difficult airways, confirmation of tracheal intubation, extubation, and human factors. Based on PICO (patient, intervention, comparator, and outcome) they defined questions to guide a structured literature search. The electronic database search was performed in 2021 and included articles published after 2011 to increase clinical relevance. Missing papers of interest were added by the panel members. They used the GRADE methodology (Grading of Recommendations, Assessment, Development, and Evaluation) to assess their recommendations based on the quality of the included studies. Via a three-step Delphi process, the degree of agreement of the methodological quality of the underlying literature and the recommendations were determined. Finally, the authors then produced ten recommendations: to use medical history and physical examination to predict a difficult airway, ensure an adequate level of sedation or anaesthesia during airway management, administer neuromuscular blocking agents before tracheal intubation (when spontaneous breathing is not necessary), use video-laryngoscopy as first choice for tracheal intubation, use apnoeic oxygenation in neonates, consider a supraglottic airway as a rescue for failed intubation, limit the number of intubation attempts, use of a stylet for hyper-angled videolaryngoscope blades and when the larynx is located very anteriorly, verify successful intubation clinically and by capnography, and when necessary, to apply high-flow nasal oxygenation, continuous positive airway pressure (CPAP), or nasal positive pressure ventilation (NPPV) for postextubation respiratory support.

The guideline places safety at the forefront of airway management in small infants, emphasising the importance of thorough preparation, proper equipment, and a skilled team. Recognising the unique anatomical, physiological, and developmental characteristics of small children, the guideline outlines precautions to minimise potential complications and improve outcomes.

Neonatal and infant airway management requires a high level of skills and expertise due to the anatomical challenges and the potential rapid deterioration in the condition of these infants. The guideline stresses the significance of comprehensive training programmes, continuing education, and simulation-based learning to enhance proficiency and minimise errors. It aims to improve the quality of care provided for this procedure by emphasising the importance of competency assessment and ongoing skill development.

The guideline underscores the importance of interdisciplinary collaboration emphasising the need for clear roles, defined responsibilities, and open lines of communication among team members. This includes establishing a structured approach to team dynamics, establishing a shared mental model, and utilising effective closed-loop communication techniques to optimise outcomes.
It encourages healthcare providers to participate in quality improvement initiatives, and research endeavours to continually improve the techniques and outcomes.

Perhaps unsurprisingly, many of the recommendations have limited evidence or are based on scarce studies of low quality, and several of the included studies were comprised of children no longer infants. The quality and usefulness of clinical guidelines depend on the strength and clarity of the underlying evidence. If the evidence is poor, the opinions of the experts become a significant conflict of interest that should be disclosed. As this current guideline emphasize collaboration and teamwork, it is unfortunate that the group of experts did not include important stakeholders such as neonatologists who regularly participate in airway management in the Neonatal Intensive Care Units and Delivery Rooms. For instance, the guideline does not address the new European guidelines on surfactant administration. Procedures such as the INSURE technique (INtubate-Surfactant-Extubate), or less invasive methods such as the LISA technique (Less-Invasive-Surfactant-Administration) or similar, where infants are ‘sedated’ with minimal or no analgesia/sedation for surfactant administration to ensure adequate respiration afterwards should have been part of the guideline.

Furthermore, important issues such as prevention, recognition, and management of difficulties with bag-mask oxygenation and ventilation, rapid sequence induction, and managing the hyperreactive airway in infants were also not identified as primary areas of particular interest for the European Society of Anaesthesiology and Intensive Care & British Journal of Anaesthesia Joint Guideline Group on airway management in neonates and infants.

The authors should be congratulated for all their hard work with this critical guideline. However, at this stage, this is a preliminary guideline and we look forward to seeing how it may influence research, training and assessment, maintenance of skills, organisation, the importance of human factors, and collaboration in the future.

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