Editorial Commentary

Difficult airway management in the operation room (OR): American and French guidelines discrepancies are they so important?

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Airway management (AM) is fundamental to safe anesthetic practice and in most circumstances is uncomplicated, but it has been recognized for many years that complications of AM occur with serious consequences. The incidence of airway complications during anesthetic procedure was estimated to 1 to 22,000 general anesthetic procedures in 2011 (1,2). In addition, recent closed claims analysis emphasized that outcomes remained poor with inadequate AM related to planning concerns and judgment errors (3).

A revision of the practice guidelines for the management of the difficult airway by the American society of anesthesiologists task force (ASA) has been recently published (4). This update was expected because the previous one was published 10 years ago (5), and AM including techniques evolved a lot for the last decades. ASA was not the only one society to revise their guidelines. Indeed the French society of anesthesiology and critical care (SFAR) published in 2017 also a revision of recommendations (6). Even both guidelines proceed in the same purpose, specially prevention of oxygenation during procedure, any discrepancies can be highlighted between the two societies.

Firstly, general observation is that methods used for building these recommendations were quite different between those 2 guidelines. SFAR proceeded by formulation of Patients Intervention Comparison Outcome (PICO) questions, analyzed literature and produced recommendations according to the GRADE methodology (Grade of Recommendation Assessment, Development and Evaluation) (7). In the other side, ASA questioned a panel of AM experts to decide on predetermined recommendations whatever the level of trials published (i.e., randomized or not). These two methods conducted to practical approach for American guidelines compared to a more evidence based approach for French ones.

Considering intubation, in both recommendations some common and major issues are shared, like: a step by step approach (algorithms) according the possibility to maintain or not adequate oxygenation with facemask or supraglottic device, the absolute necessity to limit tracheal intubation attempts to a number of three to consider alternative AM strategy including awakening the patient. However, as maintenance of oxygenation is the first priority in AM, SFAR detailed specific recommendations about oxygen desaturation prevention during intubation or supra-glottic device insertion, according various pre-oxygenation and oxygenation techniques during maneuvers. For example, noninvasive ventilation and high flow nasal oxygen administration were mentioned specially in some specific clinical settings as obese patient and emergencies in vital distresses patients. In contrast, ASA pointed out preoxygenation and apneic oxygenation techniques in general recommendations without development nor positioning in specific clinical setting. In the same way, SFAR guidelines proposed an algorithm on specific AM devices according clinical setting. For example in anticipated difficult intubation with effective mask ventilation and possibility of apnea, they proposed the use of laryngoscope

(in case of one anticipated difficult intubation criteria) or videolaryngoscope whatever the type (in case of two or more anticipated difficult intubation criteria) or intubating laryngeal mask. In the same situation ASA proposed to consider to awake the patient and then consider alternative intubation approaches, invasive access or other options. A list of various AM alternatives techniques is proposed, as a catalog, in the figure legend of the ASA algorithm but none of them are highlighted. Moreover this list do not consider the routine use, the widespread of the technique neither ease of learning. This underlined the more detailed approach of French guidelines for material and techniques. As material for AM is quite developed, a more detailed approach and indications would be requisite for the American ones.

We can also mentioned that ASA guidelines didn't address any aspect of airway and anesthetic management during AM. Indeed in French guidelines maintaining a deep level of anesthesia using rapidly reversible agents in order to optimize conditions of mask ventilation and intubation was highly recommended (6, question 4). Furthermore they confirmed that administration of a muscle relaxant in order to improve the conditions of mask ventilation and tracheal intubation was recommended. Use of a short acting muscle relaxant that can be rapidly inactivated during routine monitoring with always backup techniques to oxygenate the patient during the anesthetic induction is highly supported. This discrepancy is maybe the most important one between the two anesthesiologist societies guidelines, and we would be great to have any expert comment on this setting in American guidelines.

Beside the question of intubation, the French and American societies have considered the question of extubation. One major event post extubation for 75,600 anesthetic procedures were previously reported (1,2) essentially secondary to airway obstruction, coughing, and desaturation. The concept of a stepwise approach has been widely accepted for difficult AM [4, 5, 6, 10], but the Difficult Airway Society in UK was one of the first AM society to dedicate specifically recommendations about tracheal extubation (8). As previously reported, tracheal extubation remain an important issue in AM morbidity and mortality (1-3).

Both ASA and SFAR societies proposed to check risk factors for extubation failure before procedure to define a clear strategy. These risk factors are essentially dependent on type of surgery, length of procedure, patient status (COPD, cardiac failure…). Contrary to extubation care in ICU patients the need for a cuff leakage test before extubation was not considered as relevant in this setting by ASA. However specific surgeries, as spine ones, have been reported to develop edema specially if several segment proceed, presence important bleeding or important length of procedure (9). In this condition the use of such test could be of interest. Issued from this risk stratification way, while SFAR described accurately several successive steps and techniques (position, supplemental oxygenation, extubation set…) for procedure. and proposed algorithm for helping in management, ASA guidelines underlined rather the need for personal support when risked extubation failure is defined. French society identified more precisely anesthesiologist as the rescue support in this way. The use of airway exchange catheter has been unfortunately poorly studied in the difficult airway setting and so not well support by the two published guidelines, however we could expect that they could secure the procedure and the potential reintubation (10). Follow-up of patient after procedure has been also underlined by both societies. Even capnia monitoring has been proposed in only French guidelines, American ones, confirmed the need to rather define location for extubation procedure and/or follow-up care after. Lastly, to prevent future complication in subsequent surgical procedure, the two societies are in accordance on the fact that documentation and communication to the patient have to be systematically realized after the procedure. Therefore for extubation purpose, the two societies are in accordance in most of proposed recommendations even few ones have been published. We could be however disappointed on the lack of recommendation considering oxygen support after extubation in this setting, as it was well defined in French guidelines for critical patient AM (11). Indeed, we would be interested to obtain the expert positioning on oxygen support after extubation, especially with new support as high flow nasal oxygen.

In conclusion, some discrepancies emerge between the ASA and SFAR guidelines related to AM in the operating room but the main purpose remain the same: safety improvement in AM practices to decrease morbidity and mortality. Beyond discrepancies mainly related to method (GRADE methodology versus expert panel classification) and presentation (specific questions versus general statements) for SFAR and ASA respectively, the main issues and concerns related to AM improvement are the same: to implement the concept of a stepwise approach, to develop risk stratification, to propose solution including new techniques or new process, with always one major key issue the patient oxygenation

maintenance whatever the clinical setting during tracheal intubation or tracheal extubation time.

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