Comparing Sedation Regimens for Awake Fiberoptic Intubation

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To the Editor: In a single-center, prospective, randomized double-blind clinical study comparing dexmedetomidine-midazolam and sufentanil-midazolam sedation regimens for awake fiberoptic intubation (AFOI) in 50 patients with difficult airways due to limited mouth opening, Li *et al*.[1] show that both dexmedetomidine and sufentanil are effective as an adjuvant for AFOI under airway topical anesthesia combined with midazolam sedation, but respiratory depression is a potential risk in the sufentanil-midazolam regimen. Given that AFOI has been established as the gold standard for difficult airway management,[2] their findings have potentially clinical implications. In our view, however, there are several aspects of this study that need to be clarified and discussed.

First, the severity of a cough during fiberoscopy and tracheal tube placement was stated as a primary endpoint. In baseline characteristics of study population, however, the authors did not specify whether patients' comorbidities were comparable between groups. History of smoking, chronic cough, asthma, chronic obstructive pulmonary disease, airway infection, and bronchiectasis can increase airway reactivity,[3] resulting in the airway more sensitive to fiberoptic procedure, lidocaine spray, and tracheal tube insertion. Furthermore, the authors did not describe the experience of intubators in the AFOI. The experience and competence with the airway procedures are critical for their successful use, especially when there is a difficult airway. It must be emphasized that for the results of a comparative airway management study to be valid, participants must be equally proficient with tested airway procedures to avoid bias. In addition, ease of both fiberoscopy and tracheal tube placement depends on patient's head position and airway clearance procedures, such as sniffing position, jaw-thrust, lingual traction, and external laryngeal manipulation. In this study, it was unclear whether two groups were comparable with respect to patients' head position and airway clearance procedures during fiberoscopy and tracheal tube placement.

Second, to shorten the time of fiberoscopy, a modified "spray-as-you-go" technique with 2% lidocaine 2 ml/spray at a 15-s interval was used for airway topical anesthesia in this study. It must be pointed out that as with other local anesthesia methods, "tincture of time" is one of the most useful supplements to airway topical anesthesia. About 2–4% lidocaine applied to the airway mucosa begins to produce topical anesthesia in about 1 min and 3–5 min of contact time is usually required to provide adequate penetration of lidocaine into the airway mucosa for maximal effect.[4] Thus, a reasonable waiting period after each lidocaine spray should be allowed to ensure enough time of contact between lidocaine and airway mucosa. In this study, coughing during AFOI occurred in 40% of patients in dexmedetomidine group and 24% of patients in sufentanil group, respectively. It is generally believed that coughing during awake intubation is frequently reported as one of the most distressing symptoms and described as an undesirable feature.[2] Considering that intubation time in this study was <5 min, we argue that such a high incidence of coughing during AFOI should be attributable to inadequate airway topical anesthesia by a short interval of lidocaine sprays.

Third, this study provided a power analysis of sample size according to a 30% difference in the intubation score for a power of 0.8 and a type one error of 0.05. In methods, the authors did not clearly define the intubation score. Furthermore, the readers were not provided with the results of this variable assessment.

Fourth, the readers were not provided with the time required for targeted sedation level, though it is a useful endpoint for comparing sedation regimens for AFOI.[2] In fact, the infusion dose of dexmedetomidine used in this study is significantly lower than the doses reported in the available literature, in which it is generally administered as a bolus dose of 1 μg/kg over 10 min followed by an infusion at a rate of 0.3–0.7 $\mu g \cdot kg^{-1} \cdot h^{-1}$.[5,6] We are concerned that when using a low infusion dose of dexmedetomidine, the prolonged preparation time for targeted sedation level may challenge a patient's patience and comfort, and even affect turnover of patients in a high-volume surgery program.

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