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## Postoperative sore throat prevention: Is there an evidence or is it much ado about nothing?

Dear Editor,

The incidence of postoperative sore throat (POST) is estimated to be to 62% following general anesthesia. Young patients, females, prolonged surgeries with postoperative ventilation, underlying lung diseases, traumatic intubations, use of double-lumen endotracheal tubes, intubation without using neuromuscular blockade, and high cuff pressures are a few of the causes of POST. Use of gum elastic bougie and stylet in difficult intubations could possibly aggravate POST if any other factors are also coexisting. Surprisingly, evidence reveals that the expertise of the anesthesiologist performing tracheal intubation has no influence on the

incidence in adults, but it could be a reason in children as size of tube used, smooth intubations come with experience.<sup>[1]</sup>

A sore throat could be experienced due to a number of pathologies such as pharyngitis, laryngitis, tracheitis, cough, hoarseness, dysphagia, or irritation due to the throat pack used. The use of nitrous oxide has been implicated to have unfavorable experiences in terms of POST because of its propensity to diffuse in the cuff and thus precipitate POST. Use of oversized tubes, uncuffed tubes, and head/neck surgeries are responsible for POST in children. It is recommended to use

a cuffed tube whenever possible in children and to monitor cuff pressure (between 20 and 30 cm water).<sup>[2]</sup>

Use of supraglottic airway devices (SGAs) has been implicated with lesser POST. However, evidence suggests that there is a negligible difference in the incidence of POST between first- and second-generation SADs, with the exception of the use of i-gel which could be due to the absence of an inflatable cuff.<sup>[3]</sup>

Inflating the SGA cuff after securing the device has been shown to reduce the incidence when compared with inserting an inflated SGA. ProSeal SGA has an incidence of 33% POST when introduced without introducer and 25% with an introducer. A cuff pressure of up to 60 cm water is recommended for SGA.<sup>[4]</sup> The second-generation SGA including ProSeal and the preformed cuff SGA I-gel is better tolerated compared the first-generation ones. Researchers have used lidocaine jelly, betamethasone gel, water, water-based gels for lubricating SGA prior to insertion. However, the studies show that nothing is superior and is also limited by the small sample size in studies done. The various considerations for POST in adults are similar in children. Cuff pressure monitoring is recommended when using cuffed SGA in children and a pressure less than 40 cm water is suggested.

Currently, there is no dearth of literature trying to explore how to prevent POST, which is the best agent (systemic, topical, instillation in cuff), the ideal dose, the better airway device (endotracheal tube or SGA).<sup>[5]</sup> The topical agents include lidocaine, magnesium sulfate, ketamine, corticosteroids (betamethasone, triamcinolone, fluticasone, budesonide), glycyrrhizin (licorice), non-steroidal anti-inflammatory drugs (benzylamine spray or gargles), lozenges (containing amyl-m-cresol, azulene, and dexpanthenol). A recent meta-analysis suggests that lidocaine as a topical gel, spray, or a preinduction nebulization is ineffective in preventing POST.<sup>[6]</sup>

Authors concluded that agents like magnesium sulfate, NSAIDs, corticosteroids, and licorice are reasonably effective in preventing POST with variable duration of efficacy which depended on the duration of surgery, and experience of the clinician involved. On the contrary, a systematic review, and meta-analysis of randomized controlled trials by Lam *et al.* suggested that when used for inflating cuff of endotracheal tube, both the alkalized and non-alkalized lidocaine may prevent and alleviate POST including postintubation-related emergence phenomena.<sup>[7]</sup>

Most of the randomized studies had some or the other limitations making it difficult to extrapolate the results into practice. The reasons are absence of analysis of certain pertinent data like comparison of cuff pressures, variable surgeries, non-standardized assessment of POST (binary scale, i.e. yes/no, use of various point scales like 0–4), and timing and time frames of assessment of POST), dose variability of various agents used. This is the reason why recent systematic reviews and meta-analysis have also suggested to conduct well-designed, adequately powered study using various alternatives to suggest the ideal agent for POST prophylaxis.

To conclude, prevention of POST still remains a grey area in the practice of anesthesia due to heterogeneity of patients, type of surgeries, route and dose of medications used, and lack of standardization in the assessment of POST.

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#### Conflicts of interest

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