Application of triamcinolone acetonide paste to the endotracheal tube to reduce postoperative sore throat

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To the Editor,

In a randomized controlled clinical trial, Park *et al.*¹ showed that using triamcinolone acetonide paste over an endotracheal tube can reduce the incidence and severity of postoperative sore throat (POST) compared with using chlorhexidine gluconate jelly. Their findings have potential implications for prevention of POST, one of the common side effects associated with tracheal intubation.² In our view, however, there are several aspects of this study that need to be clarified before adoption into routine practice.

First, the article did not specify the manufacturers and ingredients of either the 0.1% chlorhexidine gluconate jelly or the 0.1% triamcinolone acetonide paste used in this study. It has been shown that chemical additives in some endotracheal tube lubricants, including local anesthetics, can irritate airway mucosa, potentially causing airway mucosal damage and ultimately leading to an increased incidence and severity of POST.³ The article did not clearly explain whether the 0.1% triamcinolone acetonide paste was a special preparation for airway mucosal use, hence, we suggest cautious interpretation of these findings.

Second, POST is a result of airway mucosal injury with ensuing inflammation caused by the combined effects of

airway instrumentation (i.e., laryngoscopy, endotracheal tube insertion, and airway suctioning) or the irritating effects of a foreign object (i.e., endotracheal tube, or cuff).² The incidence and severity of POST are associated with many factors, including patient sex and age, tube size, surgical site, external laryngeal manipulation, intubating stylet during laryngoscopy and intubation, use of nitrous oxide during anesthesia, intracuff pressure during surgery, airway suctioning, duration of intubation, and postoperative analgesic protocols.^{2,4} To differentiate the effect of one factor related to POST, the other factors need to be standardized in the study design. The authors are to be commended for having tried to control for the majority of these factors. However, in this study, three factors do not appear to have been addressed adequately, i.e., use of the intubating stylet, external laryngeal manipulation, and oropharyngeal suctioning. It is logical to assume that use of the intubating stylet will predispose to airway trauma, especially when it is used blindly and with excessive force.² Moreover, pharyngeal trauma caused by aggressive oropharyngeal suctioning has also been shown to be a contributing factor related to POST.⁵ In contrast, application of external laryngeal manipulation to facilitate visualization of the glottis during laryngoscopy may help to avoid damage around the glottis caused by forcible intubation, resulting in a decreased risk of laryngeal damage.⁴ Addressing these factors would further clarify the transparency of this study.

Finally, one must consider the use of chlorhexidine gluconate jelly for comparison with triamcinolone acetonide paste. In previous studies, the authors have commented on the absence of a significant difference in the incidence of POST between unlubricated and lubricated tracheal tubes using chlorhexidine gluconate-containing jelly as a lubricant. Nevertheless, in these studies, we noted that the endotracheal tubes were actually lubricated with water-soluble jelly and

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2-5% lidocaine jelly or ointment. In the reference 4 of this article, the additives of 5% lidocaine ointment are propylene glycol and polyethylene glycol, not including chlorhexidine gluconate. In their reference 5, the ingredients of 2% lidocaine jelly, 2.5% lidocaine ointment, and water-soluble jelly, used for nearly 30 years, are not explained. Thus, we argue that the possibility cannot be excluded that the promising efficiency of triamcinolone acetonide paste on the POST obtained in this study is due to an increase in POST in the chlorhexidine group. Had a dry endotracheal tube or a normal saline control group been included in the study design, the findings might have been different.

Competing interests None declared.

References

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Reply,

We are grateful for the opportunity to reply to the letter from Dr. Liu *et al.* Drs. Liu and Xue are correct in identifying that chemical additives in some lubricants,

including local anesthetics, can irritate airway mucosa. In our study, we used the jelly containing only chlorhexidine gluconate, and the triamcinolone paste has the acetonide component which contains two preservatives, as was reported in our article. There were no other ingredients. The triamcinolone acetonide paste is a preparation for topical use that has been used for the treatment of inflammatory lesions of the oral mucosa.

We cited the report by Loeser *et al.*¹ because of their use of water-soluble jelly, not lidocaine ointment. In that study, the investigators used Surgilube® water-soluble jelly, which is a surgical lubricant containing chlorhexidine gluconate. There was no difference in the incidence of postoperative sore throat (POST) when comparing unlubricated tubes and Surgilube-lubricated tubes. However, we agree with Drs. Liu and Xue that the results may have been more clear had we included a control group in our study rather than the chlorhexidine group. As mentioned by Drs. Liu *et al.*, we did not control for all factors that could influence the incidence of POST, including use (or not) of an intubating stylet, external laryngeal manipulation and the oropharyngeal suctioning technique. We would assume that these factors are potential confounders.

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