CORRESPONDENCE

In reply: Uncertainty in the methods and interpretation of a meta-analysis of airway complications from lidocaine lubrication

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To the Editor,

We would like to thank Dr. Kataoka for showing interest in our study¹ and raising a few important and relevant comments regarding our research. As Dr. Kataoka pointed out,² several methodological limitations exist and may have influenced the outcome of our analyses. We would like to take the opportunity to address these.

First, our statistical calculation was done using RevMan software, which is provided by the Cochrane Collaboration. Its unique integrated hybrid method of combining the DerSimonian and Laird method with the Mantel-Haenszel method for random effect calculation has been implemented for many years, and the details can be found in the Cochrane Handbook for Systematic Reviews of Interventions Section 10.10.4.4.³

Alan Hsi-Wen Liao and Shang-Ru Yeoh contributed equally to this work.

This reply is related to letter 20-00365.

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Second, we would like to disclose that our Egger's test was performed using Comprehensive Meta-Analysis (CMA) software (version 2.0, Biostat Inc., Englewood, NJ, USA).

Third, we concur with Dr. Kataoka's interpretation that our trial sequential analysis may be a "false negative" due to bias. Indeed, because of the limited study sample, a conclusion regarding the benefit of lidocaine lubrication is not possible at present. Nevertheless, as the calculated required information size is well over 7 million, we maintain our doubt regarding the feasibility of conducting future trials with that sample size.

Fourth, selection bias was noted in seven of the primary studies, including Kori *et al.*⁴ as was disclosed in Fig. 2 of our study. Kori *et al.*'s data were only included in the postoperative hoarseness (PH)-24 hr analysis, and thus we have re-calculated the PH-24 hr result, which remained unchanged after Kori *et al.*'s exclusion (original risk reduction [RR], 0.91; 95% confidence interval [CI], 0.66 to

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Table 1 Sensitivity analyses: the effect of potential bias of control group on primary and secondary outcomes

Potential bias or limitations excluded	POST within 1 hr RR (95% CI), I^2	POST within 24 hr RR (95% CI), I^2	POSTMS within 1 hr RR (95% CI), I^2	POSTMS within 24 hr RR (95% CI), I^2	Cough within 24 hr RR (95% CI), I^2	Hoarseness within 24 hr RR (95% CI), I^2
Overall	1.11 (0.82 to 1.51), 77%	0.99 (0.8 to 1.17), 33%	1.06 (0.37 to 3.02), 59%	0.49 (0.16 to 1.50), 28%	1.09 (0.71 to 1.66), 23%	0.91 (0.66 to 1.24), 1%
Methodology—Control group						
No lubrication only*	1.08 (0.80 to 1.46), 80%	0.98 (0.75 to 1.27), 52%	0.83 (0.22 to 3.13), 67%	0.33 (0.08 to 1.35), 25%	1.16 (0.49 to 2.74), 23%	0.86 (0.61 to 1.21), 9%
No lubrication and others	1.17 (0.89 to 1.55), 64%	1.08 (0.80 to 1.45), 0%	0.26 (0.00 to 19.15), 88%	0.16 (0.01 to 2.05), 48%	1.27 (0.08 to 19.10), 68%	0.68 (0.26 to 1.77), 13%

CI = confidence interval; POST = postoperative sore throat; POSTMS = moderate to severe postoperative sore throat; RR = relative risk

*With no lubrication only: Basaranoglu *et al.*,⁵ Klemola *et al.*,⁶ Kori *et al.*⁴

With no lubrication and others: Basaranoglu *et al.*,⁵ Klemola *et al.*,⁶ Kori *et al.*,⁴ Lim *et al.*,⁷ Selvaraj *et al.*,⁸ Sumathi *et al.*,⁹ Thapa *et al.*¹⁰

1.24; re-calculated RR, 0.89; 95% CI, 0.66 to 1.21). The primary outcomes, as well as the sensitivity analysis, remained unaffected as the study was not included in the original analyses.

Lastly, we agree in principle that any *post hoc* protocol violation should generally be avoided. In our case, the PROSPERO update was taken after careful consideration, at the reviewer's requests, to enhance the clinical applicability of our study. The analyses of the severity of postoperative sore throat (POST) were added as it was an important clinical outcome to consider. The control group was widened to include no lubrications to reflect all current practices. We re-calculated our results after excluding studies with no-lubrication as the only control group,^{4–6} and studies that had no-lubrication as one of its control groups.^{7–10} The RRs for POST-1 hr, POST-24 hr, POST moderate to severe (MS)-1 hr and POSTMS-24 hr remained insignificant (see Table 1 below).

Disclosures None.

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