SHORT OF DATA?
Reply to the Editor:
In a letter to the Editor, Licker and Diaper expressed concern about the compliance and withdrawal of inspiratory muscle training (IMT) protocol and inconsistent inclusion criteria in the meta-analysis made by Ge and colleagues. After the exclusion of 5 studies mentioned by Licker and Diaper, only 536 patients (originally 784) can be analyzed in the study. That may get a different result.

A weak point of the meta-analysis is that although 13 trials were included in the study, there were only 372 patients receiving IMT and 369 patients in the control group. In addition, there were different IMT protocols in every trial. The efficacy of IMT for preventing postoperative pulmonary complications (PPCs) is also confounded by other factors that may prevent PPCs, such as smoking cessation and correcting anemia. These trials may indicate that IMT is one but not the only method of preventing PPCs. In the absence of confirmation by a large, randomized controlled trial, the efficacy of IMT in PPC prevention remains doubtful. We appreciate the viewpoint of Licker and Diaper, and we hope that Ge and colleagues will clarify the study result. The accompanying editorial commentary also points out that IMT is time-consuming and needs staff time. So, is IMT a simple method? Until we have standardize IMT’s protocol and conducted large clinical trials with more patients, the method remains difficult.

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References

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In terms of confounding factors, Licker put forward very good questions about the factors that may contribute to the success of the intervention and the inclusion criteria. We agree that these concerns may limit widespread application and clinical effectiveness. As Chou and Chen said in their editorial commentary, getting information from original clinical trials is a hallmark of meta-analysis, but sometimes it is not so easy. We sent email to all corresponding authors of included studies for the missing data. The study of Heynen and colleagues can be found in the Diseases of the Esophagus Wiley Online Library, but the corresponding author’s contact information did not show. One study was a nonrandomized trial, but it was a double-blind pilot study, and we evaluated the quality through the Cochrane risk of bias tool. The intervention in 2 studies was preoperative and postoperative IMT, which may also have had an impact on our current results. The study by van Adrichem and colleagues included 2 intervention groups (a high-intensity group and an endurance group), rather
than usual care. The result of IMT associated with decreased PPCs suggests that the effect of IMT on improving pulmonary outcomes may be even stronger than our analysis suggests.1 Because of the unclear proportions of laparoscopic or thoracoscopic versus open operations, whether minimally invasive surgery would eliminate the observed effect that patients who had IMT had significantly fewer PPCs after open surgery but not after thoracotomy or laparoscopy is not certain. These limitations were illustrated in our section on strengths and limitations.

Preoperative smoking cessation, correcting preoperative severe anemia, avoidance of general anesthesia in favor of regional anesthesia, protective ventilation, correction of anemia, and improvement of nutritional status all have an effect on PPC prevention.8,9 We need to find a higher level of evidence to identify which method is the best way to guide clinical practice.

In conclusion, to meet a higher evidence level and to determine the appropriate surgical candidates and the modalities of physical training when patients undergoing cardiothoracic or upper abdomen surgery, more double-blind and unbiased randomized, controlled trials are necessary.

References

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