Determining Effects of Intraoperative Intravenous Esmketamine on Opioid Consumption and Quality of Recovery After Thoracic Surgery

To the Editor:

In a randomized, double-blind, placebo-controlled clinical trial that included 82 patients undergoing thoracoscopic lung surgery under general anesthesia, Yuan et al (1) assessed effects of intraoperative intravenous esmketamine on postoperative opioid consumption and quality of early postoperative recovery. They showed that intraoperative intravenous esketamine at 0.25 mg/kg/hr significantly decreased postoperative opioids consumption and improved the quality of early postoperative recovery. Other than the limitations described by the authors in discussion, however, we had several questions about methods and results of this study and wished to get the authors' responses.

First, in the method, the authors described that esketamine was continuously infused during surgery in 2 esketamine groups. We noted that the time to extubation and duration of post-anesthesia care unit stay were significantly shorter in the sub anesthesia-dose esketamine group than in the control and low-dose esketamine groups. However, the authors did not provide the time to stop intravenous infusion of esketamine. We believe that it is important for readers who want to decrease postoperative opioid consumption and improve early postoperative recovery by using intraoperative intravenous infusion of sub anesthesia-dose esmketamine. Furthermore, addressing this issue will also improve the transparency of this study design.

Second, in the method, the authors stated that postoperative pain was controlled with a hydromorphone PCIA device for the first 2 days postoperatively to keep the numeric rating scale (NRS) score of 4 or less. This is an optimal target of postoperative pain control required by the Enhanced Recovery After Surgery protocols (2). However, it was unclear the patients' state when postoperative pain levels were evaluated. For patients undergoing thoracic surgery, postoperative pain level is actually more severe during movement than at resting state (3). Because the authors did not provide NRS scores of postoperative pain in the results, it was also unclear whether this target of postoperative pain control was achieved in all patients. Because of these unknown factors, we cannot understand why satisfaction with postoperative analgesia therapy was higher in the sub anesthesia-dose esketamine group than in the control and low-dose esketamine groups.

Third, extubation time, duration of post-anesthesia care unit stay, times of first feeding and first getting off to bed after surgery, quality of sleep, and satisfaction with postoperative analgesia were evaluated and defined as the variables to evaluate the quality of early postoperative recovery. This is an inappropriate study design. It is commonly recommended that the quality of postoperative recovery should be evaluated using the quality of recovery 15 or 40 questionnaire, as performed in other works assessing effects of esketamine on the quality of postoperative recovery (4,5). The quality of recovery 15 or 40 questionnaire is composed of different aspects evaluating patient's comfort, emotional, social, pain or independent behavior, with 1-5 points for each question and a total score of 200 or 150 points. A higher score indicates a better quality of recovery.

Finally, incidence of extubation agitation was significantly lower in the sub anesthesia-dose esketamine group than in the control and low-dose esketamine groups, but extubation agitation was not clearly defined. In available literature, the occurrence of extubation agitation is often evaluated using Aono's 4-point scale score. Patients' status is divided into 4 stages by the Aono's 4-point scale score: stage 1, calm; stage 2, not calm but could be easily calmed; stage 3, not easily calmed, moderately agitated or restless; stage 4, combative, excited, or disoriented. The extubation agitation is defined as an Aono's 4-point scale score of 3 or more (6).

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