Letter to the Editor

We were intrigued by a recent meta-analysis carried out by Xie et al (1) that aimed to assess the efficacy of s-ketamine in reducing postoperative pain. This meta-analysis included 9 randomized controlled trials (RCTs) involving 1,621 individuals who underwent abdominal surgery. Their results revealed significantly lower pain scores at 4 and 24 h after surgery in the S-ketamine group compared to the control group, while no significant difference was observed between the 2 groups at 48 h post-surgery (1). These findings are particularly valuable in the context of abdominal surgery, where pain control is crucial, and offer important insights for clinical practice to enhance postoperative pain management.

Despite these promising results obtained from that meta-analysis (1), it is crucial to acknowledge the limited number of studies included in the analysis of pain scores at 24 h postoperatively, with only 7 studies pooled for this specific time point. To achieve a more conclusive result, the utilization of trial sequential analysis (TSA) (2) may prove advantageous in evaluating the adequacy of information accumulation within the meta-analysis by Xie et al (1). TSA has demonstrated its value in mitigating the risk of type 1 and type 2 errors (3-5) and in enhancing the reliability of conclusions in the current literature. Using this approach, researchers can ensure that the evidence is adequately powered and reliable to guide clinical decision-making and contribute to the advancement of postoperative pain management.

In order to address the concern and enhance the precision of the study, we performed a TSA using data extracted from the research conducted by Xie et al (1). The TSA was carried out using the Trial Sequential Analysis Viewer software developed by the Copenhagen Trial Unit, with an alpha value set at 0.05, and a power of 80% to ensure statistical validity. The TSA yielded a required information size of 406 patients (Fig. 1), indicating the minimum number of participants necessary to obtain conclusive outcomes in the meta-analysis conducted by Xie et al (1). Based on our TSA (Fig. 1) and the total number of patients included in the study by Xie et al (e.g., 825 patients) (1), we can confidently assert that the favorable impact of s-ketamine usage on postoperative 24-hour pain is conclusive. Our analysis provides evidence that corroborates the conclusions of Xie et al (1).

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**Fig. 1.** The Trial Sequential Analysis (TSA) yielded a required information size of 406 patients, indicating the minimum number of participants necessary to obtain conclusive outcomes in the meta-analysis conducted by Xie et al (1).
REFERENCES


