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LETTER

The Effect of Low-Dose Esketamine on Postoperative Neurocognitive Dysfunction in Elderly Patients Undergoing General Anesthesia for Gastrointestinal Tumors: A Randomized Controlled Trial [Letter]

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Dear editor

We read with interest the study by Ma et al evaluated the effect of intraoperative application of low-dose esketamine on PND in elderly patients undergoing general anesthesia for gastrointestinal tumors.[1] This study demonstrated that low-dose esketamine infusion reduced the incidence of delayed neurocognitive recovery (DNR) to some extent, which improved intraoperative hemodynamics and alleviated postoperative pain. After reading this article carefully, we have some suggestions to point out as follows.

First, it is important to explore interactions in clinical studies, and we have no real understanding about the effects of various variables on PND in patients undergoing general anesthesia.[2] As the authors described the discussion, "Age, low education level, inflammation, postoperative pain, serum 25-OH-D level, and preoperative cognitive impairment as potential risk factors for postoperative cognitive dysfunction". Age, sex ratio, American Society of Anesthesiology (ASA) physical status I–III, body mass index (BMI), education level, preoperative complications (hypertension, diabetes, and coronary heart disease), and operative procedure were shown in Table 1. However, we did not find an interaction analysis based on these variables. Therefore, if subgroup analyses had been performed in this article based on these variables, the results might have been more enriched and novel.

Second, as statistical methods continue to improve, interpolation is a novel way of dealing with missing data.[3] This method finds a reasonable alternative value for each missing data in a survey and then getting a complete data set to analyze and organize. As stated by the authors in the discussion, "six patients (8.8%) dropped out, two had incomplete information due to poor compliance, three withdrew from the trial, and one had a second operation within three days after surgery". However, the authors did not describe in detail the methodology for dealing with missing data. Next, intention-to-treat analysis would be the best option for clinical trials.[4] Intent-to-treat analysis is based on the initial assignment of treatment, rather than the treatment ultimately received, and is designed to avoid a variety of misleading factors that could affect the results. It is our recommendation that interpolation be used to address missing data in clinical practice and that intention-to-treat analysis be applied to determine the reliability of the results.

Finally, the esketamine group (group Es) and the control group (group C) were well matched (Table 1), and their clinical characteristics did not differ significantly. In clinical studies, especially those conducted in multiple centers, it is almost impossible to balance the baseline characteristics of patients. Thus the results of this study may not truly reflect the conditions of patients in the real world. In addition, although the baseline characteristics of the two groups were comparable ($P > 0.05$), this paper still suggests multivariate logistic regression analysis for the comparison of adverse

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clinical outcomes in both groups. In statistical modeling, regression analysis is a statistical process that estimates the relationship between variables.[5] It includes many techniques for modeling and analyzing several variables. We sincerely recommend that the authors use multivariate logistic regression analysis to adjust for confounders and thus draw accurate conclusions that reflect the real world.

Disclosure

The authors report no conflicts of interest in this communication.

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