

# Commentary on the Paper by Yang et al: Development and Validation of Nomogram Prediction Model for Postoperative Sleep Disturbance in Patients Undergoing Non-Cardiac Surgery: A Prospective Cohort Study [Letter]

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## Dear editor

We read with great interest the article by Yang et al,<sup>1</sup> which focused on postoperative sleep disturbance (PSD) in patients who underwent non-cardiac surgery and evaluated the perioperative risk factors associated with PSD, including sex, anxiety, satisfaction of ward environment, combined regional nerve block, postoperative nausea and vomiting, longer duration of stay in the postanesthesia care unit, a higher dose of midazolam or sufentanil, and a higher postoperative NRS score. However, while reading the article, we felt that some methodological aspects of the study should be discussed thoroughly.

First, although this study excluded patients with a long-term usage of sedatives, or those under antidepressants, drugs, or alcohol dependence, it did not consider if patients took hypnotic drugs from the day of admission to the night before surgery, including benzodiazepines, non-benzodiazepines, and melatonin. If patients in a clinic have sleep disturbance, doctors usually prescribe hypnotics for adequate rest before surgery. Few patients even opt for hypnosis by themselves. If this aspect is discussed, it may have a significant impact on the results of the study.

Second, during the preoperative period, majority of the patients experience a certain degree of sleep deprivation a night before surgery due to ward environment, fear of death, potential risks of surgery, postoperative recovery, and economic burden, all of which lead to preoperative sleep disturbance. Moreover, patients with preoperative sleep deprivation have a higher incidence of severe postoperative pain. Perioperative mental disease, sleep disturbance, and post-operative pain can result in a vicious circle for the patient.<sup>2</sup> Therefore, evaluating the patient's sleep quality before surgery is necessary. However, in the study, the patient's sleep quality one night before the surgery was not measured. Although PSQI was performed before surgery, it mainly measured the sleep quality of the patient in the past one month.<sup>3</sup>

Third, this study did not consider the impact of the timing of surgery on the circadian rhythm. The effects of surgery on the quality of postoperative sleep at different time periods are different. Song et al found that patients who underwent surgery in the evening had more severe sleep disorders than those who underwent surgery in the morning.<sup>4</sup> Moreover, different time periods of medication administration have different effects on postoperative sleep quality. For example, Song et al found that the intraoperative use of dexmedetomidine during surgery in the day could improve sleep quality compared with its use at night.<sup>5</sup>

Finally, the information in the Abstract and text does not match; for example, the Abstract stated "a higher dose of midazolam and sufentanil is a perioperative risk factor associated with PSD." However, the text stated that "a lower dose of midazolam was associated with an increased probability of PSD in non-cardiac surgery patients." The nomogram also

confirmed that the lower the dose of midazolam and sufentanil, the more likely it is to cause postoperative sleep disturbance.

## Disclosure

The authors report no conflicts of interest in this communication.

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