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LETTER TO EDITOR

Propofol-Based Total Intravenous Anesthesia Reduces Prolonged Extubation as Compared to Desflurane-Based Anesthesia: A Few More Facts are Required

Dear Editor,

A conscious patient who can protect his/her airway is very much crucial after anesthesia. Extubation and shifting the patient to the postanesthesia care unit as early as possible is essential. Anesthesiologists often tailor their perioperative management to hasten the recovery of the patient. In this line, the manuscript published by Lai *et al*. is read with great interest.[1] We compliment the authors for their work. The study found that a propofolbased total intravenous anesthesia (TIVA) with target control infusion (TCI) system significantly reduces the extubation time, exit time, and the incidence of prolonged extubation. This finding is exciting, as well as intriguing. However, before the authors' conclusion is accepted, we must have a few more related data about patients recovering from anesthesia.

First, the authors' explanation about limitations concerning the study design and nonmonitoring of the bi-spectral index is very much pertinent and is appreciated. However, the statement that the incidence of prolonged extubation was lower than that of other reported studies cannot indicate that the depth of the anesthesia was also equivalent, although it may be acceptable. Hence, this limitation of not monitoring the depth of anesthesia has a vast potential to affect the recovery from anesthesia. The authors' reliance on the clinical parameter for anesthetic depth management is very much practical in clinical practice, but, probably not acceptable for research where the objective is to compare the recovery from anesthesia and related parameter. The desflurane group was also not monitored for minimum alveolar concentration (MAC). The authors managed the desflurane anesthesia only by relying on the dial setting of vaporizer, that too with 300 mL/min of oxygen, which clearly indicates that the total fresh gas flow was low. It is, indeed, a standard practice; however, we must accept that in such a scenario, the time taken to reach the new concentration set in the vaporizer, to the patients' alveoli, will be longer. The authors have used a dial setting of 6%–12% which may be adequate, but, this wide range itself speaks about the variation. Moreover, a dial set with a lower fresh gas flow is a poor indicator of alveolar concentration, which determines the MAC.

Moreover, MAC required for anesthesia or awareness is dependent on the patient's age as well. Therefore, it will be imperative to know whether the authors have used age-specific MAC or MACage or not.[2] It may be possible that those patients who had prolonged extubation and recovery time in the desflurane-based anesthesia were of older age group, and the authors' finding of age as one of the predictors of prolonged extubation indicates toward this.

Second, tracheal extubation of a patient also depends on the reversal of the neuromuscular blockade. Again, the administration of the reversal for the neuromuscular blockade, if relied on the clinical findings only, can lead to discrepancies as it has its own inherent bias and lack of robust objectivity. Therefore, administration of reversal guided by objective monitoring of neuromuscular blockade (i.e., train of four) is very much essential to reduce this bias. Whether any such accurate method was followed or not is very important to critically analyze and accept the data for the time taken for tracheal extubation.

The recovery from anesthesia is multifactorial,[3] which also includes the pharmacokinetics and pharmacodynamics of the anesthetic drugs used.[4,5] While the author recognizes this well and has managed the patients in the propofol-based group as per effect-site concentration using TCI, the desflurane-based anesthesia missed such management to a great extent. The authors' result from the multivariate analysis will definitely help the readers and anesthesiologists. However, the conclusion that a propofolbased TIVA with TCI system significantly reduces the extubation time, and the incidence of prolonged extubation as compared to desflurane-based anesthesia, cannot be well accepted without the above data in the mentioned aspects.

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Conflicts of interest

There are no conflicts of interest.

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