



Is remimazolam superior to propofol in TAVR procedure?

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To the Editor:

We have read with interest a recently published article in the *Journal of Anesthesia* by Kotani et al. [1] reporting that remimazolam-based total intravenous anesthesia resulted in a lower hypotension rate than that of propofol-based induction in patients undergoing transcatheter aortic valve replacement (TAVR). The authors concluded that remimazolam-based total intravenous anesthesia could be used safely during anesthetic induction in patients with severe aortic stenosis [1]. However, we have several questions and comments regarding the methodology and the interpretation.

First, Kotani et al. [1] did not show data differences at each time point between remimazolam- and propofol-based anesthesia management, including mean blood pressure and cardiac index. More importantly, they did not evaluate these values before endotracheal intubation after anesthesia induction. Therefore, the authors cannot conclude that remimazolam-based total intravenous anesthesia is safer than propofol-based one during anesthetic induction undergoing TAVR. Second, Kotani et al. did not document whether their study included patients with a long-term benzodiazepine prescription. We recently reported an intraoperative awakening male patient receiving IV remimazolam when we assessed the patient's hypnosis levels by electroencephalogram (Patient State Index [PSi], SedLineTM, Masimo Japan

Corp., Tokyo, Japan), and his PSi remained stable between 30 and 55 during general anesthesia [2]. The report suggests that electroencephalogram monitoring may not be reliable for securing patient hypnosis levels appropriately in patients with benzodiazepine tolerance. Therefore, the above point can bias Kotani et al.'s study even when they carefully employed a remimazolam dose regimen using their original sliding scale based on PSi [1]. Also, Katani et al. [1] did not show any actual PSi values at each parameter measurement point, and thus, whether their remimazolam dose regimen successfully produced the equivalent anesthetic depth in both remimazolam- and propofol-based anesthesia is unknown. We would argue that remimazolam effects on intraoperative hemodynamics may be comparable to propofol-based anesthesia management if clinicians employ sufficient remimazolam doses to prevent unexpected intraoperative awakening in limited patients, including benzodiazepine tolerance [2]. Third, we agree with Kotani et al.'s data that remimazolam-based total intravenous anesthesia provided a lower hypotension rate during TAVR [1]. The results are predictable since a recent multicenter randomized controlled trial concluded that the anesthetic effect of remimazolam was non-inferior to propofol [3]. In the study, in patients with American Society of Anesthesiologists physical status 3 or 4, remimazolam demonstrated a slightly lower mean number of postinduction hypotension events than propofol [3]. Fourth, a recent study documented that among patients undergoing TAVR, the length of hospital stay was shorter, and both in-hospital and 30-day mortality were lower with conscious sedation than general anesthesia [4]. The results indicate that conscious sedation will be increasingly critical to manage patients undergoing TAVR worldwide. Indeed, the TAVR procedure under conscious sedation is currently feasible in Japan [5]. Therefore, future studies to evaluate the role of remimazolam-based conscious sedation in TAVR will be required to follow the trend of patient management.

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Data availability No data was used for the research described in the article.

Declarations

Conflict of interest The authors declare that they have no conflict of interest.

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