

Remimazolam versus Propofol in Renal Allograft Surgery: A Methodological Commentary [Letter]

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Dear editor

We read with interest the article by Han et al¹ on remimazolam for renal transplantation. The authors are to be commended for addressing an important clinical question in a challenging patient population. The finding that remimazolam provides better hemodynamic stability and less injection pain than propofol is certainly of value. However, we would like to raise several methodological points that we believe deserve further discussion.

Statistical approach to hemodynamic data. The authors state in the Methods section that Bonferroni correction was applied to account for multiple comparisons¹ (16 comparisons in total), with a corrected significance threshold of 0.003125. In Figure 2, however, the annotation reads “**P<0.05 after Bonferroni correction,” which is internally inconsistent—if the threshold was indeed adjusted to 0.003125, the notation should reflect that value. More importantly, Table 2 presents Δ MAP and Δ HR as averaged differences across all time points.¹ These are derived, composite measures rather than individual pairwise comparisons. Applying the same 0.003125 threshold to these single comparisons represents an overcorrection that, while not altering the statistical significance of the Δ MAP finding ($P<0.001$), suggests a misunderstanding of when Bonferroni adjustment is appropriate. For repeated-measures data of this nature, a mixed-effects model or repeated-measures ANOVA with appropriate post-hoc testing would have been a more statistically efficient approach that preserves the integrity of the longitudinal structure.

A unit error that warrants clarification. Table 3 reports the time for BIS to decrease to 60 as 2.36 ± 0.22 seconds in the propofol group and 2.75 ± 0.30 seconds in the remimazolam group. This is physiologically implausible: the arm-to-brain circulation time alone is typically 15–30 seconds, and the full electroencephalographic effect of an intravenous induction agent generally requires 1–3 minutes.² We suspect this may be a unit error (minutes rather than seconds), but the published version carries this inconsistency. Given that onset time is one of the key pharmacological distinctions drawn between the two drugs, clarification from the authors would be helpful.

Missing vasoactive drug data. The Methods section states that vasoactive drugs were administered when necessary to maintain hemodynamic stability, and that their usage was recorded. Yet the Results section contains no data on the type, frequency, or dosage of vasopressors or other rescue medications used in either group. This omission is consequential. In kidney transplant recipients, perioperative vasopressor use has been associated with allograft outcomes including delayed graft function.³ Without knowing whether the two groups differed in vasopressor requirements, it is difficult to determine whether the observed MAP differences reflect a true clinical advantage or merely a difference in the threshold for pharmacologic intervention. A table detailing rescue medication use would substantially strengthen the interpretation.

Definition and reporting of adverse events. The authors state that no cases of postoperative nausea and vomiting were observed in either group. In the context of opioid-based anesthesia (sufentanil plus remifentanyl infusion), a zero incidence is sufficiently unusual to warrant explicit tabulation rather than omission from Table 4. The CONSORT

statement emphasizes that all important harms should be reported for each group;⁴ leaving PONV data entirely absent from the results table makes it difficult for readers to assess the completeness of adverse event reporting.

Ceiling effect in QoR-15 assessment. The baseline QoR-15 scores in both groups were approximately 140 out of a maximum of 150. This near-ceiling baseline severely limits the potential for detecting postoperative improvement or between-group differences. The authors attribute the lack of significant difference in QoR-15 to the low-risk nature of their population, but the statistical phenomenon of ceiling effect-whereby scores cannot meaningfully increase because they are already near the maximum-offers a more direct explanation. This does not invalidate the finding, but it contextualizes the negative result more precisely than the current discussion suggests.⁵

The core finding-that remimazolam offers hemodynamic advantages over propofol in renal transplant recipients-is clinically relevant and supported by the data. We believe that addressing the points above, particularly the unit clarification and the missing vasoactive drug data, would further enhance the manuscript's contribution to the literature.

Disclosure

The authors report no conflicts of interest in this communication.

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