

LETTER TO THE EDITOR

Open Access



A wrong conclusion

Hadi Mirfazaelian^{1,2*}

Dear Editor,

I read the study published by Nikula et al. [1] with interest. As provided by the authors, “the objective of this study was to evaluate whether intranasal dexmedetomidine could provide more effective analgesia and sedation during a painful procedure than intranasal ketamine” [1]. As depicted in the statistical analysis section, it is a superiority trial and hence the null (H0) hypothesis should be “dexmedetomidine is not superior to esketamine”. By conducting this study, the investigators tried to reject the null hypothesis and conclude that it is superior to ketamine (H1 hypothesis).

In the conclusion, they stated that “This study was underpowered and did not show any difference between intranasal dexmedetomidine and intranasal esketamine for procedural sedation and analgesia in young children.” [1]. I have 2 arguments; first, although early stoppage of a trial would generally reduce the power [2, 3], this can be stated only after post-hoc power analysis. Second, the inability to reject the null hypothesis should lead to a conclusion that the study failed to demonstrate the superiority of dexmedetomidine over esketamine. As a result, it is more accurate for conclusion to be read as “the results failed to show that Dexmedetomidine was superior to the esketamine” or “reduction in pain as per FLACC, was not statistically significant”. In my view, the conclusions drawn by the authors do not accurately

reflect the statistical findings, potentially leading to misinterpretation of the study’s implications.

Sincerely yours,
Hadi Mirfazaelian MSc, MD.

Funding
Not applicable.

Declarations

Conflict of interest
Not applicable.

Received: 25 March 2024 / Accepted: 27 March 2024
Published online: 09 April 2024

References

1. Nikula A, Lundeberg S, Ryd Rinder M, Lääperi M, Sandholm K, Castrén M, Kurland L. A randomized double-blind trial of intranasal dexmedetomidine versus intranasal esketamine for procedural sedation and analgesia in young children. *Scandinavian Journal of Trauma*.
2. Moher D, Dulberg CS, Wells GA. Statistical Power, Sample Size, and Their Reporting in Randomized Controlled Trials. *JAMA*. 1994;272:122–124.
3. Nayak BK. Understanding the relevance of sample size calculation. Vol 58: Medknow; 2010:469–470.

Publisher’s Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

*Correspondence:

Hadi Mirfazaelian
H-Mirfazaelian@sina.tums.ac.ir

¹Emergency Medicine Department, Tehran University of Medical Sciences, Tehran, Iran

²Prehospital and Hospital Emergency Research Center, Tehran, Iran



© The Author(s) 2024. **Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article’s Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article’s Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated in a credit line to the data.