

# No Significant Difference is not Equivalence: Statistical Considerations on Phenylephrine Requirement in Left-Tilt versus Supine Cesarean Delivery [Letter]

Su Jiang, Yang Wang , Xiaoping Zhang

Department of Anesthesiology, The Second Affiliated Hospital of Dalian Medical University, Dalian, People's Republic of China

Correspondence: Xiaoping Zhang, Email xiao069@hotmail.com

## Dear editor

Yu et al<sup>1</sup> addressed a practical question in obstetric anesthesia: whether a 15° left-tilt position reduces prophylactic phenylephrine requirements during elective cesarean delivery under combined spinal-epidural anesthesia. The study contributes useful dose-finding evidence for prevention of spinal anesthesia-induced hypotension. The similar ED50 estimates, 0.33 µg/kg/min in the left-tilt group and 0.30 µg/kg/min in the supine group, add to the reassessment of routine left uterine displacement. Several points deserve clarification.

The main interpretive issue is that absence of statistical significance is not equivalence. The reported relative median potency for phenylephrine in the left-tilt versus supine group was 1.06, but the 95% CI ranged from 0.86 to 1.45. This interval is wide. It allows the possibility that 15° left tilt could reduce, have no effect on, or increase phenylephrine requirement by a clinically relevant amount. Figure 2 shows scatter and overlap in individual effective and ineffective responses; Figure 3 shows nearly superimposed probit curves, but visual overlap is not proof of interchangeability. Cuzick and Sasieni emphasized that an inconclusive superiority comparison only means that no statistically significant difference was detected; noninferiority requires a prespecified margin and a confidence interval excluding unacceptable loss.<sup>2</sup> The CONSORT extension for noninferiority and equivalence trials likewise calls for explicit margins and design-specific interpretation.<sup>3</sup> Therefore, the statement that routine tilt solely to reduce vasopressor need “may not be necessary” is acceptable as a cautious clinical hypothesis, but not as formal evidence that supine positioning is equivalent or noninferior to 15° left tilt.

A smaller reporting inconsistency concerns categorical analyses. The methods state that categorical variables were evaluated using Fisher exact test, yet the footnote to Table 2 identifies the chi-square test. This matters because several endpoints had sparse events: hypertension 0 of 40 versus 1 of 40, bradycardia 3 of 40 versus 2 of 40, and nausea or vomiting 2 of 40 versus 3 of 40. For such 2×2 tables, Fisher exact testing is preferable when expected counts are low.<sup>4</sup> A revised table specifying the exact test used for each endpoint, with risk differences or odds ratios and 95% CIs, would make negative findings more transparent. In addition, Table 1 and Table 2 label several non-normal variables as median (range), but values such as total phenylephrine 345 (290 to 443) versus 310 (243 to 390) appear more consistent with interquartile ranges.

The authors deserve appreciation for challenging a long-standing positional habit.

## Funding

There is no funding to report.

## Disclosure

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this communication.

## References

1. Yu XQ, Drzymalski D, Qian J, Hu HJ, Xiao F, Yu L. The median effective dose of phenylephrine infusion for prevention of spinal-induced hypotension during cesarean delivery in the 15° left-tilt vs supine positions: a randomised control study. *Drug Des Devel Ther.* 2026;20:1–8. doi:10.2147/dddt.s591446
2. Roshanov PS, Khanna R. The clinical interpretation of noninferiority trials. *Inflamm Bowel Dis.* 2024;30(11):2191–2194. doi:10.1093/ibd/izad314
3. Piaggio G, Elbourne DR, Pocock SJ, Evans SJ, Altman DG, CONSORT Group. Reporting of noninferiority and equivalence randomized trials: extension of the CONSORT 2010 statement. *JAMA.* 2012;308(24):2594–2604. doi:10.1001/jama.2012.87802
4. Kim HY. Statistical notes for clinical researchers: Chi-squared test and Fisher's exact test. *Restor Dent Endod.* 2017;42(2):152–155. doi:10.5395/rde.2017.42.2.152

Dove Medical Press encourages responsible, free and frank academic debate. The content of the Drug Design, Development and Therapy 'letters to the editor' section does not necessarily represent the views of Dove Medical Press, its officers, agents, employees, related entities or the Drug Design, Development and Therapy editors. While all reasonable steps have been taken to confirm the content of each letter, Dove Medical Press accepts no liability in respect of the content of any letter, nor is it responsible for the content and accuracy of any letter to the editor.

**Drug Design, Development and Therapy**

**Publish your work in this journal**

Drug Design, Development and Therapy is an international, peer-reviewed open-access journal that spans the spectrum of drug design and development through to clinical applications. Clinical outcomes, patient safety, and programs for the development and effective, safe, and sustained use of medicines are a feature of the journal, which has also been accepted for indexing on PubMed Central. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/drug-design-development-and-therapy-journal>

**Dovepress**  
Taylor & Francis Group

<https://doi.org/10.2147/DDDT.S623900>