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CORRESPONDENCE

Epinephrine versus dopamine in neonatal septic shock: author's reply

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We thank the authors for their comments on this article [1]. The neonates in both epinephrine and dopamine groups were followed for primary outcome for the first 45 min of vasoactive drug infusion. If the signs of shock persisted at 45 min, they were shifted over to the comparator arm. However, the drug of the comparator arm was *added on* to the ongoing vasoactive drug, which they received in the first 45 min. Similarly, if any neonate required third vasoactive drug, the first two drugs were continued along with. Secondly, the hemodynamic stability was defined when a neonate, after reversal of shock *anytime during the vasoactive drug infusion*, remained stable on the same rates of vasoactive drug infusion for 120 min or more. The median duration of vasoactive drug infusion was 998 and 972 min in epinephrine and dopamine groups, respectively. This outcome was chosen because we had observed that neonates with septic shock may achieve normal hemodynamic parameters transiently after initiation of vasoactive drugs, but deteriorate within a short time requiring further increase in the dose of these drugs. Thus, while five and six neonates achieved reversal of shock in first 45 min of epinephrine and dopamine infusion respectively, additional five neonates in epinephrine group and no neonate in dopamine group achieved reversal of shock after initial 45 min (during total duration of vasoactive drugs). Some of these neonates, who transiently achieved reversal of shock at any point during the study period, deteriorated further and developed adverse outcomes. This is also clear from the mortality rates in our study. While ten and six neonates in epinephrine and dopamine group were hemodynamically stable at some time point during the study, four and two of these neonates died, respectively. Lastly, increased mortality in neonatal septic shock in our cohort is due to predominantly gram-negative septicemia, where the mortality is much higher than gram-positive sepsis. We have elaborated this particular issue in the discussion along with published literature supporting our findings. Nevertheless, we agree that an earlier diagnosis and treatment is associated with better response to inotropic support and improved outcomes.

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Authors' Contributions Dr. Kishore Baske: designed the data collection instruments, enrolled the patients, collected the data, drafted the initial manuscript, and approved the final manuscript as submitted.

Dr. Shiv Sajan Saini: conceptualized and designed the study, coordinated and supervised data collection, performed functional echocardiography, performed the data analysis, reviewed and revised the manuscript, and approved the final manuscript as submitted.

Dr. Sourabh Dutta: critically reviewed the manuscript and approved the final manuscript as submitted.

Venkataseshan Sundaram: coordinated and supervised data collection, reviewed and revised the manuscript, and approved the final manuscript as submitted.

Compliance with ethical statements

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

Ethical approval This correspondence does not contain any studies with human participants or animals performed by any of the authors. However, the original article titled "Epinephrine versus dopamine in neonatal septic shock: a double-blind randomized controlled trial", on which this correspondence is based, did enroll human subjects, and we had obtained ethical approval from the Institute's Ethics Committee for the same.

Reference

1. Baske K, Saini SS, Dutta S, Sundaram V (2018) Epinephrine versus dopamine in neonatal septic shock: a double-blind randomized controlled trial. Eur J Pediatr 177:1335–1342. https://doi.org/10.1007/s00431-018-3195-x