

Neonatal bacterial meningitis

Amar Taksande¹ 

¹Department of Paediatrics, JNMC, DMIHER, Sawangi Meghe, Wardha, Maharashtra State, India.

Dear Editor,

We read with great interest the article by Shao et al.¹ examining predictors of poor outcomes in neonatal bacterial meningitis. Despite the improvements in surveillance, meningitis remains a significant contributor to infant morbidity and mortality, with the greatest risk of death occurring during the neonatal period.²

However, some methodological limitations should be noted in the article. The immature immune system of neonates, especially preterm, puts them at high risk for bacterial meningitis.³ First, why were neonates with gestational age <34 weeks and birth weight <1500 g excluded, even though they are one of the highest risk groups for neonatal bacterial meningitis and poor neurodevelopmental outcomes? Secondly, limiting inclusion to only microbiologically confirmed infections may create selection bias because previous antibiotic use may result in sterile cultures regardless of strong clinical evidence of bacterial meningitis. Thirdly, acute neurological complications were major predictors of poor prognosis; however, it is unclear whether neuroimaging (computed tomography, magnetic resonance imaging, or transfontanelle ultrasonography) was performed in all neonates or only in severe cases. Standardized imaging protocols are important to ensure accurate detection of complications and reliable prognostic interpretation.

The primary reliance on the Gesell Developmental Diagnosis Scale may result in underestimating the presence of more subtle cognitive, language, and behavioral deficits. Were long-term developmental assessments conducted by evaluators who were blinded to clinical status and imaging results to reduce bias? Additional detail is also needed about the hearing evaluation, including whether otoacoustic emissions (OAE) or brainstem evoked response audiometry (BERA) were used, because adequate evaluations of hearing are critical to have in long-term follow-up assessments.

Finally, were the predictors identified applicable to the extremely preterm and very-low-birth-weight infants, who remain very vulnerable and were excluded from this investigation? Overall, this study underlines the importance of recognizing early neurological involvement in neonatal bacterial meningitis as a critical prognostic factor. These concerns related to the study's methods will improve the overall quality and applicability of the results.

Author contribution

The authors confirm contribution to the paper as follows: Study conception and design: AT; data collection: AT; analysis and interpretation of results: AT; draft manuscript preparation: AT. All authors reviewed the results and approved the final version of the manuscript.

✉ Amar Taksande ▪ amar.taksande@gmail.com

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Conflict of interest

The authors declare that there is no conflict of interest.

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