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Beyond contamination rates: a broader lens on diagnosing neonatal sepsis

Mishquat Shabbir[1], Fatima Zahid[2], Noman Alam[2], Manahil Bahrawar[2]

[1]*Jinnah Postgraduate Medical Centre, Karachi, Pakistan;* [2]*Bahria University of Health Sciences, Karachi, Pakistan.*

To the Editor,

I read the recent interesting study published in The Turkish Journal of Pediatrics by Çalkavur et al.,[1] which addressed an important issue of blood contamination reduction in neonatal intensive care units (NICUs) using a structured interventional bundle. The study is timely and must be appreciated. As contamination directly affects the reliability of sepsis diagnosis, their efforts are highly relevant to improving overall diagnostic accuracy in practice. The observed decrease in the contamination rates demonstrates the efficacy of standardized protocols in enhancing clinical outcomes.

While the study's main focus was on reducing contamination, some additional factors may be considered in future work to further enhance the overall reliability of neonatal sepsis evaluation. Notably, risk determinants that were not within the scope of this study, such as premature rupture of membranes, maternal infection, low Apgar score, meconium-stained amniotic fluid, birth asphyxia, mechanical ventilation, and parenteral nutrition are all recognized risk determinants of neonatal sepsis and could be included in future analyses.[2]

Moreover, future studies can include multiple blood culture sites to enhance diagnostic sensitivity. As pointed out by Coggins et al.,[3] the collection of both peripheral and catheter-based blood cultures is important since the majority of infections can be missed while relying on a single location. Similarly, future studies focusing on diagnostic optimization could mention the sampling site which can greatly affect the results of cultures. For instance, umbilical cord blood cultures are more sensitive and more specific for the early detection of neonatal sepsis than are cultures using peripheral venous samples.[4,5]

Another consideration lies in the interpretation of results across different patient groups. Since pre- and post-intervention cultures were obtained from discrete cohorts of patients, so baseline differences such as bacterial colonization could have naturally varied. While this does not detract from the study's primary objective of contamination reduction, accounting for such variations in future analyses may help further clarify distinctions between true sepsis and contamination.

In conclusion, the current study provides a valuable contribution to the literature by highlighting in detail the framework of the interventional bundle used to effectively reduce contamination rates, for which the authors are to be appreciated. Building on such quality improvement initiatives, the development and implementation of standardized diagnostic frameworks will be essential for future studies related to sepsis diagnosis. This also entails the demand for a uniform definition of neonatal sepsis, consistent diagnostic parameters, and the incorporation of modern diagnostic

✉ Mishquat Shabbir ▪ mishquatshabbir01@gmail.com

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instruments.[6] Moreover, the use of artificial intelligence (AI) to diagnose neonatal sepsis is also a promising way forward. Models based on AI have shown more sensitivity and specificity than conventional ones in terms of clinical assessment and thereby enable detection and treatment earlier and more accurately.[7]

Author contribution

The authors confirm contribution to the paper as follows: Study conception and design of the LTE: MS; literature review: MS; draft manuscript preparation: MS, MB, FZ, NA. All authors reviewed the results and approved the final version of the manuscript.

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Conflict of interest

The authors declare that there is no conflict of interest.

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