The Turkish Journal of Pediatrics 2025; 67: 607-608
https://doi.org/10.24953/turkjpediatr.2025.5969

Evaluation of serum procalcitonin as a diagnostic tool to differentiate bacterial sepsis from rheumatic flare-ups in children with rheumatic disorders

Aghil Keykhosravi[1]

[1]*Department of Pediatrics, Faculty of Medicine, Sabzevar University of Medical Sciences, Sabzevar, Khorasan Razavi, Iran.*

Dear Editor,

I read the article published in The Turkish Journal of Pediatrics by Majumder et al. with great interest, which concerned the evaluation of serum procalcitonin (PCT) to differentiate bacterial sepsis from rheumatic flare-ups. The study provides valuable insights into the diagnostic challenges faced by clinicians when managing febrile episodes in children with rheumatic diseases, particularly juvenile idiopathic arthritis (JIA) and systemic lupus erythematosus (SLE).[1]

The authors' focus on comparing the diagnostic utility of PCT with traditional inflammatory markers such as C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR) is both timely and clinically relevant. The findings that PCT, with a cut-off at 0.275 ng/mL, demonstrated superior sensitivity (94.7%) and specificity (74.3%) in differentiating bacterial sepsis from disease flare-ups is particularly noteworthy. This underscores the potential of PCT as a more reliable biomarker in guiding clinical decisions, especially in children with low disease activity.

However, we would like to highlight a few points. First, while this study highlights the diagnostic superiority of PCT, it would be useful to discuss the potential limitations of PCT in clinical practice. For instance, could factors such as renal impairment or concurrent viral infections affect PCT levels, and how might these confounders influence its diagnostic accuracy?[2]

Second, the study population was relatively small (n=73), with a majority of patients diagnosed with JIA (56.2%) and SLE (38.3%). It would be interesting to see if these findings are generalizable to a larger and more diverse cohort, including children with other rheumatic disorders or those with comorbidities.

Thirdly, although the cross-sectional study design and the exclusion of non-bacterial infections enhance the study's internal validity, real-world clinical practice frequently involves cases with ambiguous or mixed diagnostic presentations.[3] Future studies could investigate the utility of PCT in more complex contexts, such as mixed infections where flares overlap with underlying chronic conditions.

Furthermore, the study stratified patients into flare-up and sepsis groups based on disease activity scores (Juvenile Arthritis Disease Activity Score [JADAS-27] or Systemic Lupus Erythematosus Disease Activity Index [SLEDAI]) and the presence of a bacterial focus. Although this approach is methodologically rigorous, future studies should investigate whether PCT levels correlate with clinical disease activity scores independent of concurrent infection. Such data could provide

✉ Aghil Keykhosravi ▪ drakeykhosravi@yahoo.com

Received 26th Feb 2025, accepted 23rd Jun 2025.

additional clarity on the interplay between inflammation due to rheumatic activity and infection.

Lastly, the study's conclusion that PCT is a better diagnostic tool than CRP or ESR is well-supported by the data. However, it would be helpful to discuss the cost-effectiveness and accessibility of PCT testing, particularly in resource-limited settings where CRP and ESR remain widely used due to their affordability and availability.[4]

In conclusion, this study makes a significant contribution to the literature by highlighting the diagnostic utility of PCT in differentiating bacterial sepsis from rheumatic flare-ups in children, and also significantly advances pediatric rheumatology practice. I commend the authors for their rigorous methodology and insightful findings. I look forward to further research in this area, particularly studies that address the limitations and practical implications of incorporating PCT into routine clinical practice.

Thank you for considering my comments. I believe this article will spark important discussions among clinicians and researchers alike, ultimately improving the care of children with rheumatic disorders.

Source of funding

The authors declare the study received no funding.

Conflict of interest

The authors declare that there is no conflict of interest.

REFERENCES

1. Majumder S, Nandi M, Mondal S, Sen S. Role of serum procalcitonin in differentiating disease flare and systemic bacterial infection among febrile children with known chronic rheumatic diseases: a cross-sectional study. Turk J Pediatr 2024; 66: 681-689. https://doi.org/10.24953/turkjpediatr.2024.4889
2. Nakamura Y, Ishikura H, Tanaka J, et al. Examination of the diagnostic accuracy of sepsis using procalcitonin, presepsin and CD64 for patients with or without acute kidney injury. Crit Care 2015; 19(Suppl. 1): P64. https://doi.org/10.1186/cc14144
3. Haenssgen MJ, Charoenboon N, Do NTT, et al. How context can impact clinical trials: a multi-country qualitative case study comparison of diagnostic biomarker test interventions. Trials 2019; 20: 111. https://doi.org/10.1186/s13063-019-3215-9
4. Nelson GE, Mave V, Gupta A. Biomarkers for sepsis: a review with special attention to India. Biomed Res Int 2014; 2014: 264351. https://doi.org/10.1155/2014/264351