Journal of Immunology Research 2017 vol.2017

Comparative Assessment of Cytokine Pattern in Early and Late Onset of Neonatal Sepsis

Khaertynov K., Boichuk S., Khaiboullina S., Anokhin V., Andreeva A., Lombardi V., Satrutdinov M., Agafonova E., Rizvanov A.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2017 Kh. S. Khaertynov et al. Neonatal sepsis is a significant health issue associated with high mortality. Immune responses associated with neonatal sepsis, such as proinflammatory cytokine production, are believed to play a central role in the pathogenesis of this disease. In the present study, serum levels of the proinflammatory cytokines TNF-α, IL1-β, and IL-6 and the anti-inflammatory cytokines IL-4 and IL-10 were evaluated for 25 subjects with neonatal sepsis. We observed that subjects with late onset of sepsis (LOS), as well as those with early onset of sepsis (EOS), had a substantial increase in serum TNF-α. In contrast to EOS, subjects with LOS demonstrated a significant increase in serum levels IL-6 and IL-10. Additionally, we observed a significant difference in cytokine profiles between acute and postacute cases of neonatal sepsis. For instance, the level of proinflammatory cytokines, such as TNF-α and IL-6, was elevated in the acute phase, whereas the production of anti-inflammatory cytokines, such as IL-10, became substantially upregulated during the postacute phase. Additionally, no correlation was observed between cytokine levels and CRP levels or lymphocyte counts. Thus, in contrast to CRP levels and lymphocyte counts, examination of the cytokine profile can provide valuable information when determining the most effective therapy for treating neonatal sepsis. This information may be useful to physicians when determining if anti-inflammatory or immune stimulatory therapy is warranted.

http://dx.doi.org/10.1155/2017/8601063

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