Does NRBC/100 WBC change in early onset sepsis compared normal preterm infants?

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ABSTRACT

Introduction: In spite of significant advances in medical care, neonatal sepsis remains an important risk factor for neonatal morbidity and mortality. Accordingly, the present study was conducted to compare the number of Nucleated Red Blood Cells per 100 white blood cell (NRBC/WBC) in neonates with early onset sepsis and non-infectious neonates.

Materials and Methods: In this cross-sectional study, of 156 neonates admitted to the NICU of Ghaem Hospital in Mashhad, Iran within the first three days of life, during 2014 to 2016, the characteristics of 44 neonates identified early onset sepsis (Case group) were compared with 112 non-infectious neonates (Control group). After the confirmation of sepsis in neonates based on positive culture and laboratory results, a researcher-made questionnaire containing neonatal characteristics (gestational age, weight, first minute Apgar scores, fifth minute Apgar score, duration of oxygen therapy, and mechanical ventilation duration) and neonatal laboratory profiles (using neonatal venous blood samples CBC (complete blood count), Absolut NRBC, NRBC/100 WBC and CRP) was filled in.

Results: The results of this study showed that the absolute number of NRBC in neonates with negative blood culture was 630.54 ± 1320.65 and in neonates with premature sepsis was 6773.61 ± 13099.72 (P = 0.003). Also, the number of NRBC per 100 white blood cells in the neonates with negative blood culture was 6.14 ± 11.41 and in neonates with sepsis was 49.34 ± 120.02 (P = 0.022). The absolute number of NRBC for the detection of early onset sepsis had a good sensitivity (73%) and NRBC/100WBC was high specificity (89%).

Conclusion: This study indicated that NRBC/100 WBC and absolute NRBC count can be helpful in the diagnosis of early onset sepsis and have an acceptable sensitivity and specificity.