

# **EVALUATION OF HAEMATOLOGICAL SCORING SYSTEM IN EARLY DIAGNOSIS OF NEONATAL SEPSIS**

## **ABSTRACT**

### **BACK GROUND**

Neonatal sepsis is a life-threatening condition, but treatable if diagnosed early. The antibiotic therapy is usually initiated based on the clinical suspicion which may result in overtreatment ultimately leading to emergence of multi drug resistant organisms. Blood culture is still considered to be the 'gold standard' for diagnosis of septicemia but its time consuming. Therefore, there is a need for a test that is cheap, easily performed with quick availability of reports. The present study is to evaluate the usefulness of the seven hematological parameters of Rodwells HSS, as an early indicator of neonatal septicemia and to correlate the results with blood culture and c-reactive protein.

### **METHODOLOGY**

The present study was conducted in the Department of Pathology, Tirunelveli medical college, Tirunelveli, for a period of one year from March 2017 to April 2018. A total number of 100 neonates blood samples who were clinically suspected to have sepsis were taken and the peripheral smear, blood culture, c-reactive protein tests were done. Peripheral smear assessment for total leucocyte count, total neutrophil count, immature neutrophil count, immature to total neutrophil ratio, immature to mature neutrophil ratio, toxic granulations and degenerative changes, platelet count were done according to Rodwells HSS.

### **OBSERVATION AND RESULTS**

The present study group of suspected sepsis cases shows male predominance of 59%, and females 41%. The mean birth weight was 2300±632 grams. Most of the neonates (54%) were under low birth weight. The neonates delivered by caesarian section were 58% and normal delivery 42%. The most common maternal risk factor was premature labour. The pre term neonates were 54%. The chief neonatal complaints were poor feeding in about 59% of cases. CRP positive in 26% and blood culture positive in 30% of cases. In this study, out of 30 culture positive sepsis cases, 28 neonates had hematological scoring system score  $\geq 4$ . The sensitivity of haematological scoring system with cut-off score of  $\geq 4$  in predicting sepsis was 93.3% and specificity was 62.9%. Positive predictive value was 51.9% and negative predictive value was 95.7%.

### **CONCLUSION**

In our study, raised I:T neutrophil ratio, raised I:M neutrophil ratio and platelet count gives a significant p value in assessment of neonatal sepsis. HSS with a cut-off score of 4 may provide a guideline to the clinicians to make decisions regarding judicious use of antibiotic therapy in neonatal sepsis and unnecessary exposure to antibiotic therapy can thus be avoided.

**KEY WORDS:** Neonatal sepsis, HSS- Haematological scoring system, Blood culture, CRP- C reactive protein.