# RED BLOOD CELL DISTRIBUTION WIDTH (RDW) AND ITS PREDICTIVE ROLE IN THE DIAGNOSIS OF NEONATAL SEPSIS

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## ABSTRACT

**Background**. Diagnosis of neonatal sepsis remains a challenge because of its nonspecific symptoms and the limitations in sensitivities and specificities of laboratory markers. Recent studies have shown a correlation between RDW and sepsis in the adult population, but data on neonates are still limited.

**Objectives**. This study aims to determine the relationship between RDW and neonatal sepsis; and its potential role in the diagnosis.

**Study design**. This is a retrospective cross-sectional study.

**Methods**. The study population consisted of healthy term neonates and neonates with sepsis. Red cell distribution width of healthy neonates and those with sepsis were compared.

**Statistical Analysis**. Descriptive statistics was used for the demographics. Independent t-test and logical regression were used to analyze the relationship between RDW and neonatal sepsis. Linear regression was used to determine the correlation with RDW and blood culture findings; and RDW with sepsis biomarkers.

**Results**. The study included 54 healthy term, singleton neonates and 58 term, singleton neonates with sepsis. Mean RDW for the control group is 15.87 $\pm$1.83 and for the septic group, 16.81 $\pm$2.13. RDW was found to be associated with neonatal sepsis, with a p value of 0.014. It was noted that a 1-unit increase in the RDW can increase the odds of neonatal sepsis to 32%. Correlation between CRP levels and RDW (p= 0.917, r= 0.015), between I/T ratio and RDW (p= 0.180, r= 0.208), between WBC levels and RDW (p=0.418, r=0.077), and between blood culture and RDW (p=0.4275, r=0.1062) were also studied.

**Conclusion**. High RDW is associated with neonatal sepsis in term neonates. No significant correlation were found between RDW and blood culture, between RDW and CRP, and between RDW and I/T ratio.

**Keywords**: *red cell distribution width, neonatal sepsis*