NEUTROPHIL-LYMPHOCYTE RATIO IN PREDICTING NEONATAL SEPSIS IN A TERTIARY HOSPITAL IN DAVAO CITY

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Background of the Study: Neonatal sepsis continues to be a significant health burden that contributes to neonatal morbidity and mortality. Complete Blood Count (CBC) and C-Reactive protein (CRP) are commonly used in diagnosing and monitoring neonatal sepsis. Neutrophil-Lymphocyte Ratio (NLR) has been used to determine the existence and severity of sepsis in adult studies. The aim is to determine the sensitivity and specificity of Neutrophil-Lymphocyte ratio in predicting neonatal sepsis.

Objective: To determine the sensitivity and specificity of NLR, its positive predictive value (PPV) and negative predictive value (NPV) and compare it to other parameters like white blood cell count (WBC), platelet count and CRP.

Design: Retrospective Study

Setting: Private Tertiary Hospital

Subjects: 120 neonates from 0-28 days old with clinical and laboratory signs of sepsis.

Methodology: Chart review of patients admitted in this institution from January 2016 to December 2020 with final diagnosis of neonatal sepsis who satisfied the inclusion criteria in this study.

Statistical Analysis: Independent-sample t test or Mann-Whitney U test was used for continuous variables while chi-square test or Fisher's exact test for categorical variables. The sensitivity and specificity between the classification and cut-off values were calculated according to the NLR, and CRP, WBC and platelet count variables receiver operating curve (ROC)- area under the curve (AUC) analyses.

Results: NLR has sensitivity of 75% and specificity of 52.68%. It has low PPV of 31.51% and an acceptable NPV of 87.89%. However, all parameters being studied have an AUC value less than 0.70. There is not enough evidence to support each parameter can sufficiently classify true cases of neonatal sepsis from suspected cases better than the rest of the parameters.

Conclusion: NLR, a rapid and easy test has good sensitivity and NPV. But further studies on its clinical utility as predictor of neonatal sepsis should be done.

Keywords: *Neutrophil-Lymphocyte Ratio, Neonatal Sepsis*