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Evaluation of procalcitonin as a prognostic indicator against conventional markers in neonatal sepsis

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Neonatal sepsis is a leading cause of mortality and morbidity in developing countries. We tried to analyze the potential of procalcitonin (PCT) versus that of conventional markers as a reliable prognostic indicator in culture positive neonatal sepsis. It was a prospective study conducted in neonatal intensive care unit of a tertiary care referral hospital in Northern India. 100 consecutive neonates with clinical diagnosis of sepsis were enrolled. Blood culture, TWBC, platelet and absolute neutrophil counts, immature to total neutrophil ratio, CRP and PCT were done on Day1, 3 and 7. Subjects were grouped into those found culture positive (study group) and those who were culture negative (control group). The data was then analyzed statistically using SPSS software. The markers were also compared amongst various outcome groups as favorable and unfavorable, septic shock and non-septic shock and survivor and non-survivor groups. Procalcitonin was a better marker than CRP and hematologic indices in differentiating culture positive and culture negative sepsis in newborns ($p=0.048$, <0.001 and <0.001 for PCT on days 1, 3 and 7; Mann Whitney U Test). We will discuss the role of PCT in differentiating between different outcomes. Procalcitonin values increase sequentially in those with an unfavorable outcome ($p<0.001$ for difference in day 7 to 1 values) and decrease similarly ($p<0.001$ for difference in day 7 to 1 values) in those with a favorable outcome. The values of PCT also correlated well in the subgroup of patients in whom cultures eventually turned negative by the end of the study period (mean values 11.34, 12.12 and 5.5 on days 1, 3 and 7 respectively). The authors will present the utility of PCT testing for early diagnosis, and management of neonatal sepsis.

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