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The promising rule of neutrophil CD64 as an early diagnostic and prognostic marker in neonatal sepsis

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Background: In spite of extensive research for understanding and treatment of neonatal sepsis, sepsis stills a major source of morbidity and mortality among neonates, it represents a diagnostic burden problem by showing minimal initial non-specific manifestations. The clinical course can be fulminate and fatal if treatment is not commenced promptly. Neutrophil CD64 shows a promising value as early diagnostic and prognostic marker for neonatal sepsis.

Aims: Our aim was to assess nCD64 as an early predictive and monitoring marker and the best panel of markers that can achieve the highest diagnostic performance in this disease

Methods: This study conducted over 8-months and included a total of 175 sepsis evaluations, neonates classified into three groups: Documented sepsis group, Clinical sepsis group and Control group. Blood samples were collected for hs-CRP, CBC, nCD64 (done by Flow Cytometry) and blood culture to confirm the diagnosis in the patient's group

Results: A significant increase in nCD64 was found in sepsis group than in control group. nCD64 had AUC=0.864 with an optimal cutoff at 42% with sensitivity of 86 %, specificity 93.3%, NPV 68.3%, PPV 97.5% and efficacy 87.7%. Combination of CRP and CD64 achieve the highest diagnostic and prognostic performance over the other hematological parameters.

Conclusions: We can conclude that nCD64% & CRP combination represent the best early predictor and monitoring panel of markers that can be used conventionally in NICU. Our study suggests that nCD64 is ready to be incorporated in the routine daily work as a valuable marker.

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