PROCALCITONIN, INTERLEUKIN-6 AND HIGH SENSITIVITY C REACTIVE PROTEIN IN THE EARLY PREDICTION OF NEONATAL SEPSIS, ARE THEY CORRELATED?

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Introduction: We aimed to assess the value of simultaneous measurement of procalcitonin (PCT), interleukin-6 (IL-6) along with the other variables in the prediction of early neonatal sepsis.

Methods: We performed a follow up study on 95 neonates who were below 12 h age, had clinical signs of sepsis, or maternal risk factors of sepsis. Neonates were assigned to 4 groups including “proven early-onset sepsis”, “clinical early-onset sepsis”, “negative infectious status”, and “uncertain infectious status”. Blood samples were obtained within the first 12 h and repeated between 24 and 36 h of age for determination of PCT, IL-6, high sensitivity CRP (hs-CRP), and White blood cell count.

Results: Neonates with sepsis (uncertain sepsis, clinical sepsis and blood culture positive sepsis) had a higher WBC (8.40 ± 1.00 vs. 16.59 ± 0.73 ; $p < 0.001$), IL-6 (45.9 ± 3.65 vs. 126.3 ± 6.90 , $p < 0.001$), PCT (0.57 ± 0.14 vs. 2.800 ± 0.45 , $p < 0.001$) and hs-CRP (2.22 ± 0.27 vs. 4.80 ± 0.83 , $p < 0.001$) levels than neonates without sepsis, when admitted to the hospital. This remained significant 12-24 hours after admission. Likewise patients with clinical evidence of sepsis had a higher serum IL-6 level compared to patients with uncertain sepsis on admission. They had higher serum PCT levels on the 12-24 hours of admission. Serum PCT levels were significantly correlated with serum IL-6 levels in patients with no sepsis and uncertain sepsis ($r = 0.529$, $P < 0.05$ and $r = 0.521$, $P < 0.01$ respectively).

Conclusion: PCT is a good and efficacious serum marker in the prediction of early neonatal sepsis. Combination of IL-6, hs-CRP and PCT is a good marker for the prediction of neonatal sepsis.