Abstract:

OBJECTIVE: To evaluate utility of C-reactive protein (CRP) in the early diagnosis of neonatal sepsis in a tertiary care Newborn Unit in Kenya. DESIGN: Cross-sectional study. SETTING: Newborn Unit, Kenyatta National Hospital. SUBJECTS: All neonates admitted to Newborn Unit, Kenyatta National Hospital during the study period with suspected sepsis based on specified clinical criteria. RESULTS: Of the 310 infants, there were 83 episodes of proven sepsis and 94 episodes of probable sepsis. Using the standard CRP cut-off value of 5 mg/dl, a sensitivity of 95.2% in proven sepsis and 98.9% for probable septic episodes were noted. In proven sepsis, a specificity of 85.3%, positive predictive value of 80.6%, and a negative predictive value of 96.5% were noted. In probable sepsis, a specificity of 83.3%, positive predictive value of 80.9% and a negative predictive value of 99.1% were noted. The overall accuracy in proven sepsis was 96.5%, and in probable sepsis was noted to be 99.1%. Sub-analysis showed a lower positive predictive value (61.5%) for early onset sepsis compared to 93% for late onset sepsis. Repeat CRP tests were done in 33 babies. Twenty two of the 29 with proven/probable infection had a ten-fold increase in CRP levels, but levels were noted to be low or reducing in seven (24.1%) babies showing signs of improvement clinically. Using a receiver operator characteristic curve, the optimal cut-off point for CRP was found to be 5 mg/dl. CONCLUSIONS: Serum CRP is an accurate indicator of neonatal sepsis, with high sensitivity, specificity and predictive values, at the standard cut-off of 5. CRP is a better screening test for late-onset than early-onset neonatal sepsis. The standard recommended CRP cut-off point of 5 is appropriate for local use.