The role of procalcitonin as a predictor of sepsis in preterm infants

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SUMMARY AND CONCLUSIONIn this work we evaluate PCT serum level as a marker of sepsis in preterm infants. The study was carried out on (50) neonate from Neonatal Intensive Care Unit (N.I.C.U) of Mansoura University Hospitals from the period of March 2007 to March 2008:They were subdivided into 3 subgroups:- Group I: Composed of (20) premature with culture – proven sepsis and definite clinical signs of sepsis and positive other laboratory studies. With gestational age (31.6± 2.99ws) and birth weight (1630.3 ± 500.9 gms).- Group II: Composed of (20) premature with definite clinical signs of sepsis with negative blood culture. With gestational age (31±2.82ws) and birth weight (1513.5± 580.89gms).- Group III: Composed of (10) premature admitted only for prematurity served as a control group. With gestational age (31.2± 1.75ws) and birth weight (1400.3± 413.29gms)They were preterm neonates with postnatal age (7.1± 3.3 days), (6.1± 2.07 days) and (6.7 ± 2.5 days) for septic group I, septic group II and control group respectively.Both septic and control groups were subjected to full history taking, thorough clinical examination and laboratory investigations including CBC with differential, CRP, blood culture and sensitivity and measurement of PCT by rapid PCT- Q test (a new test for rapid (30 min), semi- quantitative measurement of procalcitonin, using a monoclonal mouse anti- catacalcin antibody conjugated with colloidal gold (tracer) and a polyclonal sheep anticalcitonin antibody (solid phase).On applying the patient serum to the test strip, the tracer binds to the PCT in the sample and marked antigen antibody complex forms).Results of blood cultures in the septic group I showed that 50% (10/20) were caused by Staph, 25% (5/20) were caused by Klebsiella, 15% (3/20) were caused by Enterobacter, and 10%(2/20) were caused by E coli.Our study revealed statistically significant increase regarding TLC and bandaemia %in the septic groups I and II compared to the control group (p 0.5ng/mL respectively.-Even with blood culture negative in septic group II, with presence of clinical signs of sepsis, positive sepsis score and combined levels of CPR >10 mg/l and PCT >0.5 ng/ml, those neonates can be considered as septic cases and antibiotics therapy should be started.-PCT has a prognostic value as it is significantly higher in septic non-survivor neonates during this study versus survivor neonates.