

ABSTRACT

Neonatal septicaemia is a major cause for increasing morbidity and mortality rates in neonatal intensive care units in the world. Early diagnosis and optimal antibiotic therapy is necessary to reduce the high case fatality of neonatal septicaemia.

The objectives of this study were the assessment of microbiological investigations and role of C-reactive protein levels in early diagnosis and follow up of neonatal septicaemia.

109 newborn babies admitted to the neonatal intensive care units of General Hospital, Kandy over a three months period with suspected septicaemia were prospectively studied.

Clinical information was obtained in babies with suspected septicaemia using a questionnaire. Each baby had a septic screen comprising sterile fluid and surface swab cultures. All the isolates were identified up to species level and antibiotic susceptibility test was done. The mother of each baby was screened for prevalence of Group-B streptococcus in their vaginal flora.

C-reactive protein levels were measured on neonates at 24-48 hours after onset of sepsis and one week after antibiotic therapy.

Out of 109 babies who were screened, 39 babies were confirmed septic, 28 were non septic and 42 babies were categorized into an indeterminate group.

The commonest age at onset of clinical suspicion of septicaemia was within 24 hours after birth. Among the risk factors studied there was a significant association between low birth weight, intravenous cannulation, oxygen therapy, incubator care and neonatal septicaemia.

Clinical features such as poor cry and activity, poor feeding and jaundice were found to be unreliable predictors of septicaemia.

The commonest organism isolated from blood culture was Klebsiella pneumoniae. All isolates were multi resistant (resistant to all Cephalosporins, Gentamicin, Aztreonam) and did not demonstrate extended spectrum β . Lactamase production by the double disc potentiation test. This organism was sensitive to amikacin, netilmicin, augmentin and imipenem.

There was no correlation between culture results of surface swabs and blood-culture isolates. Twenty percent of mothers of suspected septic babies were colonized with

Group B streptococcus (GBS) in their vaginal flora. However GBS was not isolated from sterile sites in any of the septic babies.

CRP levels tested 24-48 hours after onset of suspected septicaemia was $> 6\text{mg/L}$ in 92.1% of septic babies and the level was $<6\text{ mg/L}$ in all non septic babies. According to this study CRP level of $\geq 6\text{ mg/L}$ in day 1 or day 2 after onset of sepsis was significantly associated with septicaemia ($P = < 0.000000001$). Falling CRP levels were observed at follow up of septic babies who were on antibiotic therapy. 87.2% of septic babies survived following appropriate antibiotics.

This study highlights the significance of C-reactive protein levels in day 1 or day 2 in early detection of neonatal septicaemia, before sterile fluid cultures confirm and specify the aetiological diagnosis with antibiotic sensitivity results. The usefulness of CRP levels in following up septic babies needs to be assessed with further studies.