INTRODUCTION
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Neonatal septicemia refers to generalised bacterial infection in the first four weeks of life. It is a major contributor to perinatal and neonatal mortality and morbidity in developing countries and accounts for nearly half of all neonatal deaths in our country. This is primarily because newborns are prone to develop serious infections by bacteria, that are non pathogenic for older people and also because the signs of these infections both local and systemic may be absent, minimal or hard to detect. Changing bacterial flora and emergence of resistant strains further add to the problem. The reported incidence of neonatal sepsis varies widely. Mondal et al (1991) reported it as 15.5 per 1000 live birth.

The clinical diagnosis of neonatal septicemia remains a difficult task as it is mimicked by various non infective conditions like birth asphyxia, hypoglycemia, hypothermia prematurity and intracranial haemorrhage etc. These non infective conditions have clinical features similar to septicemia and many a times, septicemia may be associated with any of the above mentioned conditions (Chandna et al 1981).
As the clinical signs of septicemia are vague, non specific and subtle, one has to depend on laboratory investigations, for a firm diagnosis. The "Gold Standard" for diagnosis of neonatal sepsis is positive blood culture, but this requires a minimum period of 48-72 hours which a neonates can ill afford for the initiation of treatment. Moreover, blood culture facilities are either meagre or non existant at district level, and even where available a positive blood culture is obtained in only 30 - 70% cases of clinically suspected septicemia.

Neonatal sepsis is frequent, important and treatable cause of mortality and morbidity. Administration of prophylactic antibiotics in all suspected cases of neonatal sepsis may at best be useless, if not definitely hazardous (Hebel et al 1970), on the otherhand a policy of wait and watch under these situations may turn out to the disastrous (Lal et al 1975). Thus the outcome of a neonate, with sepsis largely depends on its early identification. To meet this end, several rapid diagnostic tests have been described recently (Philips and Hewitt 1980). These tests help in the judicious use of antibiotics, thereby, reducing the incidence of drug resistance and septicemia associated neonatal mortality and also avoid unnecessary therapeutic medications.
These rapid tests are detection of C-reactive proteins in serum, estimation of micro ESR. Leucocyte alkaline phosphatase activity, total leucocyte count, band cell/neutrophil ratio, toxic granules in neutrophils, buffy coat smear examination gastric aspirate cytology for polymorphs etc.

In recent years immunological techniques like counter immunoelectrophoresis, agglutination techniques, litmus amoebocyte lysate assay, monoclonal antibodies techniques and enzyme radio isotope assay have offered a rapid mean to identify bacteria directly from several body fluids and sites (Ramji 1989). Many of these investigations are expensive and require trained personnel, well equipped microbiological, histopathological and immunological laboratory set up with provision of round the clock service. In view of the limited resources both, men and material, these facilities may not always be available even in referral hospitals of developing countries. Hence the need to develop safe, simple, inexpensive, rapid and yet an accurate screening test for neonatal sepsis which may be carried out in clinical laboratory attached to ward even in peripheral hospital set up is well recognised. To meet this challenge the present study was undertaken to evaluate the role of
micro ESR, C-reactive protein and leucocyte alkaline phosphatase in early diagnosis of neonatal sepsis.

ESR is low in newborn infant because of high haematocrit, which is characteristic of the neonatal period, but infected babies show marked elevation of ESR and in majority of cases the value returns to normal with clinical improvement (Adler and Denton 1975). The micro ESR estimation using standard heparinised capillary blood from heelprick method is a simple and inexpensive test, which can be performed bedside and remains uninfluenced by antibiotics. The potential usefulness of this test in evaluating neonate with sepsis has been well established over the past couple of years (Parida et al 1980).

Similarly C-reactive protein, an acute phase reactant (present in low concentration in healthy neonates) is found to be elevated in all forms of neonatal infection and hence has been designated as another simple, effective and early test for the diagnosis of neonatal sepsis (Vyas et al 1985).

Leucocyte alkaline phosphatase, activity is another test which has found favour with neonatologists as an effective definite test for early diagnosis of neonatal infection (Donato et al 1979).
In view of the above findings the present study was undertaken to observe the clinical presentation and bacteriological profile of neonatal sepsis and to evaluate the role of micro ESR, C-reactive protein and leucocyte alkaline phosphatase activity in the early diagnosis of neonatal infection.
AIMS AND OBJECTIVES

1. To study clinical presentation, bacteriological profile and antibiotic sensitivity pattern of neonatal septicemia.

2. To study values of three laboratory tests viz, micro ESR, C-reactive proteins and leucocyte alkaline phosphatase activity in cases with proved sepsis, probable sepsis and superficial infections and comparing them with normal healthy control cases.

3. To observe effect of gestational maturity on above three parameters in normal healthy as well as septicemic neonates.

4. To evaluate, establish and compare the role of above parameters in early diagnosis of neonatal sepsis.