SUMMARY AND CONCLUSION
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The early diagnosis of neonatal sepsis has been occupying the minds of paediatricians since long. Septicemia in neonates refers to the presence of bacteria in blood associated with the active disease.

Present work was carried out to diagnose neonatal septicemia early on account of its high mortality and morbidity.

This study was conducted from July 1992 to September 1993 in Department of Paediatrics and Department of Microbiology, M.L.B. Medical College, Jhansi. A total of 100 neonates were included in this study. The prime aim of this study was to evaluate certain hematological test for early diagnosis of neonatal septicemia, in terms of sensitivity, specificity, positive predictive accuracy and negative predictive accuracy. Moreover, a clinical and bacteriological profile of the cases was established.

Selection of cases was done on the basis of clinical symptomatology suggestive of septicemia like lethargy, poor feeding, hyporeflexia, fever, hypothermia,
sclerosis and/or manifestations pertaining to gastro-intestinal tract, respiratory system, cerebro-vascular system, central nervous system or hematological system.

Blood culture was done in all the cases, except in 25 healthy neonates, without any clinical symptomatology, who served as control.

Cases were classified according to the result of blood culture: Category 'A' (Bacteriologically positive); Category 'B' (Bacteriologically negative) and Category 'C' - healthy control (blood culture not done).

Various haematological tests, viz., total leucocyte count, differential leucocyte count, Band cell count, Band/Neutrophil ratio and micro Erythrocytic Sedimentation Rate (mESR) were done in Immunology and Biochemical Lab. of Department of Paediatrics, M.L.B. Medical College, Jhansi.

Total leucocyte count, Differential leucocyte count and Band Cell count were done by standard technique as described by Dacie and Lewis (1975). The differential leucocyte count was done with special emphasis on Band Cells. Band/Neutrophil ratio was calculated.
micro Erythrocytic Sedimentation Rate was done as described by Landau et al (1933) and recently redescribed by Parida et al (1980).

For this study, following standards were considered (Mishra et al, 1989).

- Leucopenia: ≤5000 cells/cu mm
- Leucocytosis: ≥10,000 cells/cu mm
- mESR: ≥8 mm in 1st hour
- Significant Band/Neutrophil ratio: ≥0.2

Blood culture profile:

Blood culture was done in all the suspected cases of neonatal septicemia. Observation revealed that 46.6% cases were bacteriologically positive. Staphylococcus aureus was the top scorer with 37% of positivity. Next to staphylococcus aureus were E.coli and Pseudomonas observed in 28.5% and 17.1% cases respectively. Klebsiella and Streptococcus faecalis showed positivity of only 8.3% and 5.7% respectively.

Relation with prematurity & Low Birth Weight:

The sample picked-up 42.8% prematurity and 37.2% low birth weight babies with positive bacteriological culture.
Relation with Sex:

A well documented fact that neonatal septicemia is more common in males, was proved by the present study. It was observed that 71.4% cases of neonatal septicemia were male in this study.

Relation with Perinatal adverse factors:

Association of premature rupture of membrane with development of neonatal septicemia later on, was highly significant. 65.7% cases of neonatal septicemia were having history of premature rupture of membrane 7-12 hrs. in this study.

Clinical manifestations related to Neonatal Septicemia:

In the present study it was observed that lethargy, poor feeding, hyporeflexia and fever were the clinical features most commonly encountered with the neonatal septicemia. Sclerema was associated with almost 100% mortality.

Hematological Tests:

In the present study, it was observed that 65.7% of babies having neonatal septicemia presented with leucopenia. Leucopenia was found to be having sensitivity of 65.7%, specificity of 69%, positive predictive accuracy of 88.4% and negative predictive accuracy of 64.7%.
Band Cell count $>10\%$ was found to be present in 74.3\% cases of neonatal septicemia. Band cell count had sensitivity of 74.3\%, specificity of 92\%, positive predictive accuracy of 92.8\% and negative predictive accuracy of 71.8\%.

Band/Neutrophil ratio $>0.2$ was present in 77\% of cases, which had sensitivity of 77\%, specificity of 96\%, positive predictive accuracy of 96.4\%, and negative predictive accuracy of 75\%.

Micro Erythrocytic Sedimentation Rate ($>76$ mm in 1st hour) was found to be raised in 77\% of cases, which had sensitivity of 77\%, specificity of 84\%, positive predictive accuracy of 87\% and 72.4\% negative predictive accuracy.

In conclusion it was found that Band/Neutrophil ratio $>0.2$ got maximum sensitivity, specificity, positive predictive accuracy and negative predictive accuracy.