

## TO STUDY THE CLINICAL PATTERN OF EARLY ONSET SEPTICEMIA IN HOSPITAL DELIVERED BABIES

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### Abstract

**Background & Method:** The present study was carried out in nursery of Amaltas Institute of Medical Sciences, Dewas (M.P.) 300 newborns born out of consecutive deliveries in AIMS, Dewas were taken and they were assessed for the total score.

**Result:** 78% cases had vomiting/ regurgitation and 61.5% out of them proved to be septic. Tachypnea or grunting was present in 72% and only 36% of them were blood culture positive. 60% cases presented with poor feeding and out of them 36% were septic. Hypothermia was present in 16% cases and 87.5% cases out of them proved to be septic. Hyperthermia was present in 3.3% cases and out of which 60% cases became septic. Irritability and skin mottling were present in 10% cases with incidence of infection in 60% and 80% respectively. 8% cases presented with icterus and 75% had septicemia. Pallor and cyanosis was the presenting feature in 12% of newborns with incidence of infection in 83.3% and 50%.

**Conclusion:** We concluded that when both hematological scoring and sepsis scoring are clubbed the sensitivity and positive predictive value increases and sensitivity and negative predictive value remains almost same. The sensitivity, specificity, positive and negative predictive value increases when we take the sepsis screen positive when either HSS or clinical scoring system is positive.

**Keywords:** Clinical, Septicemia, Babies & Early onset.

**Study Designed:** Observational Study

### Introduction

The term "Neonatal Septicemia" refers to a bacterial disease of infants occurring during first 28 days of life. Which involves primarily blood stream and frequently meninges. Neonatal septicemia is a clinical syndrome characterized by systemic signs of infection e.g. refusal to feed, lethargy, vomiting, temperature instability, respiratory distress, hepatosplenomegaly, jaundice and bleeding tendency<sup>1</sup>.

Prevailing maternal and child health services, unhygienic condition, illiteracy and poverty in developing countries pose a high rate of bacterial infection in neonatal period. Incidence of EOS reported by different authors<sup>2,3&4</sup> ranged from 21-44% of total septicemia while Thompson PJ et al<sup>5</sup> reported EOS 6% and LOS 17% in LBW babies. Incidence of EOS reported by Andrew J.et. al.<sup>6&7</sup> as 1.15/1000 live births and 1.21000 live births in two different studies in 1998 and 2000, while Freeman et. al.<sup>8</sup> reported 0.85/1000 live births.

The rise of septicemia and infection is greater with decreasing birth weight. Hemming et al<sup>9</sup> found the risk of sepsis 2.2 time greater in newborn weighing <1500 gm as compared to babies >1500 gm, and odd risk was 8.4 in two groups compared.

### Material & Method

The present study was carried out in nursery of Amaltas Institute of Medical Sciences, Dewas (M.P.)

The present study extended over a period from Jan 2018 to Jan 2020. 300 newborns born out of consecutive deliveries in AIMS, Dewas were taken and they were assessed for the total score.

### Examination

All the mothers of study group were examined for evidence of systemic disease, signs of chorioamnionitis and fetal distress. To confirm the premature rupture of membranes sterilized speculum examination was done in good light. Criteria for Diagnosis of Chorioamnionitis.

All the newborns were attended and assessed at the time of delivery in labour room or operation theatre and a detailed examination was performed in warm comfortable, well lighted quite atmosphere. Gestational age was assessed at this first examination.

All the newborns were followed for 72 hrs of birth for clinical features like vomiting, regurgitation, tachypnea, grunting, poor feeding, dull, lethargic, hypothermia, hyperthermia, irritable, skin mottling, sclerema, pallor,

cyanosis, abdominal distension, icterus, seizures, hepatosplenomegaly.

### Results

**Table 1:** Showing distribution of newborn according to birth weight and early onset septicemia

SFD/AFD/LFD	No. of patients	Culture positive
SFD	48(16%)	24(50%)
AFD	242(80.6%)	23(9.5%)
LFD	10(3.33%)	1(10%)
Total	300	48

In this study 16% cases were SFD, 80.6% were AFD and 3.33% were LFD. Morbidity for SFD was 50%, for AFD was 9.5% and for LFD as 10%. Calculated chi square is more than the tabulated chi square for  $p=0.05$ . Therefore the association is significant.

**Table 2:** VARIOUS CLINICAL FEATURES OF EOS

Signs/symptoms	No. of patients	of Culture positive
Vomiting/regurgitation	78(26%)	48(61.5%)
Tachypnea/grunting	72(8.6%)	36(50%)
Poor feeding	60(20%)	36(60%)
Dull/lethargic	60(20%)	42(70%)
Hypothermia	48(16%)	42(87.5%)
Irritable	30(10%)	18(60%)
Hyperthermia	10(3.33%)	6(60%)
Skin mottling	30(10%)	24(80%)
Sclerema	30(10%)	30(100%)
Pallor	36(12%)	30(83.3%)
Cyanosis	36(12%)	18(50%)
Abdominal distension	18(6%)	18(100%)
Icterus	24(8%)	18(75%)
Seizures	18(6%)	18(100%)
Hepatosplenomegaly	18(6%)	18(100%)

78% cases had vomiting/ regurgitation and 61.5% out of them proved to be septic. Tachypnea or grunting was present in 72% and only 36% of them were blood culture positive. 60% cases presented with poor feeding and out of them 36% were septic. Hypothermia was present in 16% cases and 87.5% cases out of them proved to be septic. Hyperthermia was present in 3.3% cases and out of which 60% cases became septic. Irritability and skin mottling were present in 10% cases with incidence of infection in 60% and 80% respectively. 8% cases presented with icterus and 75% had septicemia. Pallor and cyanosis was the presenting feature in 12% of newborns with incidence of infection in 83.3% and 50%.

Out of above clinical features, skin lesions, hemorrhagic tendency, hepatosplenomegaly, abdominal distension, convulsions and sclerema was found only in infected newborns

Table shows that there is gross intermingling of clinical features due to various causes other than infection, blurring an early diagnosis

**Table 3:** HEMATOLOGICAL AND SEPSIS SCORE WITH EOS

HSS or sepsis score positive	No. of patients	Culture positive
Positive	60	47
Negative	240	1
Total	300	48

Sensitivity: 97.9 %

Specificity: 94.8 %

Positive predictive value: 78.3 %

Negative predictive value: 99.5 %

Above table shows that the sensitivity, specificity, positive and negative predictive value increases when we take the sepsis screen positive when either HSS or clinical scoring system is positive.

### Discussion

Data from literature shows that there is little difference between presenting features in early and late onset neonatal infections. Gottof and Behrman<sup>10</sup> regards abdominal distension, apnea, and jaundice as earliest signs. Namdeo et al<sup>11</sup> found decreased activity, pallor, convulsions, irritability as common symptoms in early septicemias while loose motions, vomiting and fever were more common with late septicemia.

In addition lethargy, grunt, sclerema, convulsions, pallor, were common in early septicemia while skin mottling, hyporeflexia, skin rashes, irregular respiration were common in late septicemia.

In present study it was found that vomiting, regurgitation and respiratory irregularities or tachypnea were the most frequent and common features which were present in 26% and 61% had infection but it has been observed that respiratory problems were invariably present in all morbid newborns. Apnea was also common in preterms and babies delivered by difficult labour. Clinical features presented in various forms in different hours of examinations<sup>12</sup>. Hyporeflexia, temperature irregularities, irritability, icterus, lethargy, poor feeding was present in less number of cases but had more close association with disease. Abdominal distension, hepatosplenomegaly, sclerema, skin mottling, were the late signs but were always associated with infection and indicated poor prognosis.

### Conclusion

We concluded that when both hematological scoring and sepsis scoring are clubbed the sensitivity and positive predictive value increases and sensitivity and negative predictive value remains almost same. The sensitivity, specificity, positive and negative predictive value increases when we take the sepsis screen positive when either HSS or clinical scoring system is positive.

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