### Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies

Journal home page: www.jamdsr.com

doi: 10.21276/jamdsr

Index Copernicus value = 85.10

(e) ISSN Online: 2321-9599;

(p) ISSN Print: 2348-6805

## **O**riginal **R**esearch

# To study the clinical pattern of early onset septicemia & mortality rate in hospital delivered babies.

<sup>1</sup>Dr. Deepak Kumar Uikey , <sup>2</sup>Dr. Umesh Patel, <sup>3</sup>Dr. Sanjay Singh

<sup>1</sup>Assistant Professor, Dept. of Paediatrics, Atal Bihari Vajpayee Government Medical College, Vidisha M.P. <sup>2</sup>Professor and Head, Department of Paediatrics, RKDF Medical College and Research Centre, Bhopal, M.P. <sup>3</sup>Demonstrator, Dept. of Microbiology, Atal Bihari Vajpayee Government Medical College, Vidisha M.P.

#### ABSTRACT:

Background & Method: Neonatal sepsis remains one of the leading causes of mortality and morbidity in developing countries. Sepsis within the first 72 hours is defined as early-onset sepsis (EOS). Most frequently, EOS is caused by vertical transmission, and despite implementation of guidelines on screening for maternal group B Streptococcus (GBS) colonization, GBS continues to be the most frequent organism causing EOS. The aim of the study to recognise the clinical pattern of early onset sepsis and mortality rate in our hospital . The present study conducted at RKDF Medical College and Research Centre, Bhopal, M.P. 300 newborns consecutive deliveries were taken and they were assessed. All the newborns were attended and assessed at the time of delivery in the labour room or operation theatre and a detailed examination was performed in a warm comfortable, well lighted quiet atmosphere. Gestational age was assessed at this first examination. 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. This study revealed streptococci in 2 cases, staph. Aureus in 10 cases, Klebsiella in 18 cases and E. coli also in 18 cases. Overall gram positive cocci were in 25% and gram negative bacilli in 75% cases. Mortality from early onset septicemia is 60.4% and death is mostly due to Klebsiella sepsis(94.4%). Conclusion: Incidence wise vomiting, regurgitation, irregular respiration, tachypnea, poor feeding, lethargy occurred more. These features however showed more false positivity as regards diagnosis of neonatal morbidity is concerned. These were present in association with prematurity and difficult labour, while temperature instability, icterus, hyporeflexia, pallour, skin mottling, had greater chance of being associated with neonatal infection. Convulsions, hepatosplenomegaly, abdominal distension and sclerema were present only when infection coexisted.Decreased activity, poor feeding in the early phase of infection and neutropenia were associated with poor outcomes. Keywords: clinical, septicemia, mortality & babies.

Received: 10 April, 2021

Accepted: 12 May, 2021

**Corresponding author:** Dr. Sanjay Singh, Demonstrator, Dept. of Microbiology, Atal Bihari Vajpayee Government Medical College, Vidisha M.P

This article may be cited as: Uikey DK, Patel U, Singh S. To study the clinical pattern of early onset septicemia & mortality rate in hospital delivered babies. J Adv Med Dent Scie Res 2021; 9(5):77-81.

#### INTRODUCTION

Although the survival rate of newborn infants has been improved by advance in neonatal intensive therapy, the incidence of infections in high-risk infants is not decreasing. The overall incidence of early-onset sepsis (EOS), defined as sepsis occurring within 72 hours of birth, is 1–4.6 per 1,000 live births worldwide [1,2], but increases to 11–36 per 1,000 live births in very low birth weight infants (VLBWIs) [1,3,4].In many cases, infants with EOS appear to be well or present with nonspecific signs often associated with normal

transition to extrauterine life [5]. This vague presentation often challenges the decision on which infants should be treated with empiric antibiotics prior to the availability of culture results [6]. The greenery colonizing the lower genital plot in the mother contains huge quantities of microorganisms and growths. As pregnancy advances there is a progressive expansion in the recurrence of colonization with Lactobacillus sps. also, a diminishing in the colonization rate with E.Coli and anaerobes. Organic entities that possess the cervix, vagina, or rectum can spread upwards into the amniotic pit through unblemished or burst layers and cause amnionitis[7]. At first they spread into choriodecidual space, and on certain occasions they cross unblemished chorioamniotic films. Intraamniotic contamination is normally polymicrobial etiology[8].

The change in the conduct and set up taking care of examples of a youngster are the early highlights of septicemia in the neonatal period. The infant who has been sucking typically. progressively or out of nowhere gets dormant, idle and lethargic. He seems debilitated, pale with grayish blue circumoral cyanosis and has an empty gaze. These side effects are reminiscent of finding septicemia[9].

The clinical picture of septicemia is very unclear and vague in early earliest stages. The principal sign might

be inability to flourish or the child isn't progressing nicely. The clinical appearance of disease relies upon destructiveness of the organic entity and body's incendiary reaction to the organism[10]. The term foundational incendiary reaction disorder (SIRS) most regularly used to portray this interesting cycle of contamination and the resulting fundamental reaction.

#### **MATERIAL & METHOD**

The present study extended over a period from January 2017 - December 2018. 300 newborns born out of consecutive deliveries in RKDF Medical College and Research Centre, Bhopal, M.P. were taken and they were assessed.

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 a warm comfortable, well lighted quiet 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, pallour, cyanosis, abdominal distension, icterus, seizures, hepatosplenomegaly.

#### RESULTS

HSS or sepsis score positive	No. of patients	Culture positive
Positive	60	47
Negative	240	01
Total	300	48

#### TABLE-01: HEMATOLOGICAL AND SEPSIS SCORE WITH EOS

Sensitivity: 97.9 % Specificity: 94.8 %

Positive predictive value: 78.3 %

Negative predictive value: 99.5 %

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.

Signs/symptoms	No. of patients	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%)
Pallour	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%)

#### TABLE-02: VARIOUS CLINICAL FEATURES OF EOS

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%.

Bacteria	No. of patients	Death
E. Coli	18(37.5%)	6(33.33%)
Klebsiella	18(%37.5)	17(94.4%)
Staph. aureus	10(20.8%)	06(60%)
Streptococci	02(4.1%)	Nil
Total	48	29(60.4%)

#### TABLE-03: ISOLATED BACTERIA IN VARIOUS CULTURES

This study revealed streptococci in two cases, staph. Aureus in 10 cases, Klebsiella in 18 cases and E. coli also in 18 cases. Overall gram positive cocci were in 25% and gram negative bacilli in 75% cases. Mortality from early onset septicemia is 60.4% and death is mostly due to Klebsiella sepsis(94.4%)

#### DISCUSSION

Information from writing shows that there is little contrast between introducing highlights ahead of schedule and late beginning neonatal contaminations. Gottof and Behrman respect stomach distension, apnea, and jaundice as the earliest signs. Namdeo et al[11] discovered diminished movement, pallour, seizures, crabbiness as normal indications in early septicemias while free movements, regurgitating and fever were more normal with late septicemia. Furthermore torpidity, snort, sclerema, seizures, pallour, were normal in early septicemia while skin mottling, hyporeflexia, skin rashes, sporadic breath were basic in late septicemia[12].

In the present investigation it was discovered that heaving, disgorging and respiratory inconsistencies or tachypnea were the most regular and normal highlights which were available in 26% and 61% had disease however it has been seen that respiratory issues were constantly present in every bleak infant. Apnea was additionally regular in preterms and infants conveyed by troublesome work. Clinical highlights introduced in different structures in various long stretches of assessments. Hyporeflexia, temperature abnormalities, fractiousness, icterus, laziness, helpless taking care of was available in less number of cases however had all the more close relationship with sickness. Stomach distension, hepatosplenomegaly, sclerema, skin mottling, were the late signs yet were constantly connected with disease and shown helpless anticipation[13].

Septicemia must be affirmed by a positive culture. Albeit lately techniques for fast finding are turning out to be well known due to their more noteworthy affectability and less necessity of time and better connection with clinical determination of septicemia 183. We just acknowledged the infective etiology within the sight of a positive culture in our examination and every one of the 300 infants were explored for bacteriological inspiration of blood. Out of 300 blood societies done in investigation bunch 48 were bacteriologically sure, and every one of them created clinical signs[14].

#### CONCLUSION

Incidence wise vomiting, regurgitation, irregular respiration, tachypnea, poor feeding, lethargy occurred more. These features however showed more false positivity as regards diagnosis of neonatal morbidity is concerned. These were present in association with prematurity and difficult labour, while temperature instability, icterus, hyporeflexia, pallour, skin mottling, had greater chance of being associated with neonatal infection. Convulsions, hepatosplenomegaly, abdominal distension and sclerema were present only when infection coexisted. Mortality from early onset septicemia Staph. Aureus is 60.4% and death is mostly due to Klebsiella (94.4%).

#### REFERENCES

- Stoll BJ, Hansen NI, Sánchez PJ, Faix RG, Poindexter BB, Van Meurs KP, et al. Early onset neonatal sepsis: the burden of group B Streptococcal and E. coli disease continues. Pediatrics. 2011;127:817–26.
- Edwards RK, Jamie WE, Sterner D, Gentry S, Counts K, Duff P. Intrapartum antibiotic prophylaxis and early-onset neonatal sepsis patterns. Infect Dis Obstet Gynecol. 2003;11:221–6.

- Stoll BJ, Hansen N, Fanaroff AA, Wright LL, Carlo WA, Ehrenkranz RA, et al. Changes in pathogens causing early-onset sepsis in very-low-birth-weight infants. N Engl J Med. 2002;347:240–7.
- Lee SM, Chang M, Kim KS. Blood culture proven early onset sepsis and late onset sepsis in very-lowbirth- weight infants in Korea. J Korean Med Sci. 2015;30 Suppl 1:S67–74.
- 5. Kuzniewicz MW, Puopolo KM, Fischer A, Walsh EM, Li S, Newman TB, et al. A quantitative, risk-based approach to the management of neonatal early-onset sepsis. JAMA Pediatr. 2017;171:365–71.
- Kuzniewicz MW, Walsh EM, Li S, Fischer A, Escobar GJ. Development and implementation of an earlyonset sepsis calculator to guide antibiotic management in late preterm and term neonates. Jt Comm J Qual Patient Saf. 2016;42:232–9
- Buetow KC, Klein SW, and Lane RB: septicemia in premature infants. Am. Jr Dis. Child. 1965: 110: 29-41.

- Grover RV, Sutherland JM. Landing E.H. et al N. Eng. J. Med. 1961,264:111.
- Silverman WA. Homan WE. Et al. Sepsis of obscure origin. J. Pediatric 1949:3:157.
- 10. Wasson D.C. A study of 45 cases of purulent meningitis. Jr. Pediatrics 1957:50:353.
- Namdeo, U.K., Singh, H.P., Rajput, V.J., Kushwaha, J. Haematological. Indices for early diagn. of NMS 17 p. 1985, 22:287, 292.
- Naye, R. C. Delfenger, w. S., Blanc vJ. A. 'Fetal and maternal features of antenatal bacterial infection. Journal of Pede 79: 733, 1971.
- Parida, S.N. Verma, J.e. Single, M.B. Thomas, S. 'Evaluation of micro ESR in diagnosis of Neonatal Sepsis, Ind. J. Paed. 47:381,1980.
- 14. Thomas, S. Verma J.C., Single, M.B., Ghai, O.P., Parida S.N., Ind. J. Paed. 47: 511, 1980.