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A STUDY OF BACTERIAL PROFILE IN PROVEN SEPSIS IN NICU:

Pediatrics

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ABSTRACT

In developing countries, neonatal mortality (death in the first 28days of life per 1000 live births) due to all causes is about 34 per 1000 live births, most of these deaths occur in the first week of life. In developing countries sepsis is the commonest cause of mortality responsible for 30% to 50% of 5 million neonatal deaths every year. A Sincere effort has been put in this study to understand Clinical Manifestations among clinical sepsis and Blood Culture Positive Sepsis Patients in NICU. A Sincer effort has been put to Study of Bacterial Profile in Proven Sepsis in NICU.

KEYWORDS

Bacteria, Sepsis, NICU, Paediatrics.

Introduction:

Organisms causing infection would vary from place to place and time of onset of infection. EOS would be mostly vertically acquired from mother where maternal flora would be the predominant organisms causing bacterial sepsis.

In contrast LOS would generally be acquired from surroundings and hence the organism would be determined by prevailing micro flora of surroundings. Similarly the organism would vary depending upon whether baby was kept in intensive care unit or at home with mother[1].

During the 1940's β-hemolytic streptococcus was the most common pathogen. During 1950's staphylococcus aureus became a major problem.

Gram negative bacteria especially E.coli predominated in 1960's (Gluck et al) [2]. During early 1980's reports from England & USA suggest that Coagulase Negative Streptococci (CONS). But in India since 1960 Gram negative bacteria where the most common cause followed by gram positive organisms

In developing countries gram negative organism are more common and are mainly represented by Klebsiella, E.coli, Pseudomonas[3,4,5].

Among Gram positive organisms Staphylococcus aureus, Coagulase Negative Streptococci (CONS) and Streptococcus pneumoniae are most common[6-9].

Due to unknown reasons Group-B streptococcus (GBS) is rare or not seen at all.

A Sincer effort has been put to Study of Bacterial Profile in Proven Sepsis in NICU.

Aims and Objectives:

Study of Bacterial Profile in Proven Sepsis in NICU

Materials and Methods:

Design: It is an observational cross sectional study.
Source: Travancore Medical College, Kollam
Period of Study: April 2015 to March 2017.

INCLUSION CRITERIA:

1. Neonates were included when at least three of the following risk factors were present[1]:
2. More than 3 vaginal examinations during labor.
3. Febrile illness in the mother during or within two weeks of delivery (more than 38^0 C, oral temperature).

EXCLUSION CRITERIA:

1. Neonates with lethal congenital anomalies

Table no. 1. BACTERIAL PROFILE IN PROVEN SEPSIS

ORGANISM	NO OF PATIENTS
Gram negative	86(43.65%)
Klebsiella	64(32.48%)
E.coli	11(5.58%)
Pseudomonas	6(3.04%)
Proteus	4(2.03%)
Serratio	1(0.5%)
Gram positive	99(50.25%)
Coagulasepositive Staphylococcus	50(25.38%)
CONS	41(20.81%)
Streptococcus pneumonia	8(4.06%)
Candida	12(6.09%)
Total	197

Table. no.2 BACTERIAL PROFILE IN GRAM POSITIVE ANDGRAM NEGETIVE BLOOD CULTURE SEPSIS:

	Gram positive blood culture sepsis	Gram negative blood culture sepsis	Bacterial sepsis(total)
No of organisms	86(46.48%)	99(53.5%)	185
			p-value 0.17

Out of 419 clinical sepsis 197 (47.01%) were blood culture positive. Out of 197 organisms isolated in blood culture ,99(50.25%)were gram positive , 86(43.65%)were gram negative and 12(6.09%) were fungal sepsis (candida).

Gram positive and gram negative sepsis occurred in equal proportions in the present study(p-value 0.17).

Klebsiella (32.48%) was the most common organism in our study followed by Coagulase positive Staphylococcus(25.38%) and CONS(20.81%).In gram positive organisms most common are coagulase positive Staphylococcus (25.38%),CONS(20.81%) followed by Streptococcus pneumonia(4.06%).In Gram negative organisms most common are Klebsiella(32.48%), followed by E.coli(5.58%),Pseudomonas (3.04%),Proteus(2.03%) and Serratio(0.5%).

Discussion:

Out of 419 clinical sepsis 197 (47.01%)were blood culture positive. Out of 197 organisms isolated in blood culture 99(50.25%)were gram positive , 86(43.65%)were gram negative and 12(6.09%) were fungal sepsis (candida).Gram positive and gram negative sepsis occurred in equal proportions in the present study.

Klebsiella (32.48%) was the most common organism in our study followed by coagulase positive Staphylococcus.(25.38%) and CONS(20.81%).Among gram positive organisms most common were Coagulase positive Staphylococcus (25.38%),CONS(20.81%) followed by Streptococcus pneumonia(4.06%).Among Gram negative neonatal sepsis most common are Klebsiella(32.48%), followed by

E.coli(5.58%),Pseudomonas (3.04%),Proteus(2.03%) and Serratio.(0.5%).

In the study done by **Viswanathan R et al(2012)**[4]among 216 cases of clinical sepsis,100(46.3%) cases had blood culture positive,which was similar to our study.In their study gram negative infection were predominant(58/100 cases).Most common organism was Klebsiella followed by E.coli ,Enterobacter sp.

In the study done by **Shrestha S et al(2013)** blood culture yield by conventional method was 44.13%[7] ,which is similar to our study.Gram positive organisms were 39.36% in which Staphylococcus aureus most common followed by CONS.Gram negative organisms were 60.64%, amongst Klebsiella most common followed by pseudomonas.

In the present study 78.6% cases were EOS and 21.3% were LOS. EOS was common presentation of proven sepsis,Klebsiella(37.4%) was common organism causing EOS.Where as CONS (35.7%) was commonest in LOS .Similar observations were made by **Shrestha S et al(2013)** in which 84.08% were culture proven early onset sepsis and 15.95% were late onset sepsis[7].

Conclusion:

Klebsiella (32.48%) was the most common organism in our study followed by Coagulase positive Staphylococcus(25.38%) and CONS(20.81%)

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