

SEPSIS IN NURSERY

Asmat Ara Khattak and Muhammad Uzair

Department of Paediatrics,
Postgraduate Medical Institute
Lady Reading Hospital, Peshawar.

SUMMARY

The study was conducted to see the clinical presentation of neonatal sepsis in our setup. A total of 200 cases were included in the study. The main presenting symptoms were poor feeding, fever, jaundice, restlessness, vomiting, fits and difficulty in breathing beside the other uncommon symptoms. The signs found were organomegaly, abnormal neonatal reflexes, jaundice, irritability, anemia, cynosis and septic spots on the body in the majority of cases.

INTRODUCTION

Despite the development of modern medical technology, neonatal sepsis still remain a common cause of high mortality in the developing countries.^{1,2,3,4} About 22 to 66% of all admission to the neonatal unit in Pakistan are due to infections and about 50 to 88% of all neonatal deaths are somehow attributed to infection.⁵ The figure may be higher than estimated.⁶ A newborn may die of infection before anyone is aware that he is ill⁷ and the attending physician must have high index of suspicion while examining a newborn.^{8,9}

Neonatal sepsis may present as early onset (less than 7 days), late onset (more than 7 days) or as nosocomial infection (72 hours after hospitalization)¹⁰ or 8 to 28 days.

The clinical presentation are protean ranging from subtle infection to multiorgan failure syndrome (MOFOS).^{11,12,13}

This study was an effort to see the clinical presentation of neonatal sepsis in our setup. The study was designed to see the clinical presentation in neonates (under one month).

MATERIAL AND METHODS

A prospective study was carried out in the special care baby unit (S.C.B.U) of Postgraduate Medical Institute Lady Reading Hospital Peshawar from April 1998 to April 2000. All those cases of sepsis were included who fulfill the inclusion criteria i.e. prolong rupture of membranes, persistent thermal instability, feed reluctants with no other apparent cause, jaundice with feed reluctants, vomiting with no local cause, fit with no other cause, respiratory distress with no other reason, infectious focus on the body, sign and symptom of acute organ dysfunction in the absence of any other explanation than sepsis, tachycardia with no cardiac disease, tachypnoea, sclerema,

SYMPTOMS

Symptoms	Percentage
Poor feeding	88.0
Generally Unwell	87.0
Fever	68.1
Jaundice	31.9
Restlessness	28.3
Vomiting	21.7
Fits	14.5
Difficulty in breathing	14.5
Blue discoloration	9.4
Lethargy	9.4
Diarrhea	8.7

TABLE - 1

thrombocytopenia and abnormal white cell count, all or some of these features occurring in a neonate.

All those neonates were excluded from the study who had used antibiotics prior to admission, who had explanations other than sepsis for their illness, and those having nosocomial infection. Both inborn & out born patients were enrolled. Detailed history was taken and physical examination conducted. Blood, Urine and, in relevant cases, CSF and swabs from any local focus of infection were taken, using aseptic techniques. Symptoms reported in very few patients were:-

Cough, grunting, rash, screaming, persistent cry, septic spots on the body, drowsiness and skin mottling.

RESULTS

A total of 200 neonates were enrolled. 140 (70%) were males and 60 (30%) were females. 120 (60%) were poor social class. 160 (80%) were delivered at home under unhygienic conditions and 40 (20%) were either delivered at a hospital or at a

SIGNS

Signs	No. of cases	Percentage
Hepatomegaly	180	90.0
Splénomegaly	130	65.0
Abnormal/absent, Neonatal reflexes	90	45.0
Jaundice	80	40.0
Irritability	56	28.0
Pallor	40	20.0
Lethargy	40	20.0
Cyanosis	40	20.0
Septic spot/umbilicus	40	20.0
Chest finding	30	15.0
Hypotonia	30	15.0
Skin mottling	26	13.0
Abdominal distention	24	12.0
Recession	22	11.0
Sclerema	12	6.0
Heart murmurs	12	6.0
Purpura/petechiae	10	5.0

TABLE - 2

maternity clinic. 112 neonates (56%) had early onset sepsis while 88 (44%) had late onset sepsis. 40 neonates (20%) had their weight less than 2.5 Kg while 160 (80%) had their weight either 2.5 Kg or more. Each baby was followed upto 28 days age or discharge from the hospital, whichever was last. Out of 200 neonates, 56 neonates died indicating a mortality rate of 28%.

EARLY VERSUS LATE ONSET SEPSIS

Onset	No. of cases	Percentage
Early	112	56.0
Late	88	40.0
Total	200	100

TABLE - 3

BIRTH WEIGHT

Weight	No. of cases	Percentage
<2500 grams	40	20.0
>2500 grams	160	80.0
Total	200	100

TABLE - 4

DISCUSSION

This study reveals that the presenting symptoms were by and large, poor feeding, generally unwell, fever, restlessness, Jaundice, vomiting, fits and respiratory distress, those certain other complaints were noted in frequently. The signs observed were Organomagaly, abnormal neonatal reflexes, Jaundice, irritability, anemia, cyanosis and septic spirits on the body. Signs found in few patients were lethargy, chest findings, sclerema and full interior fontanel.

Parveen Tariq et al,² has also reported feed reluctant, not doing well, fever, Jaundice, Tachypnoea, chest retraction, septic umbilicus, anemia, diarrhoea, fits, cyanosis and abdominal distention as the major presenting symptom/ sign of neonatal sepsis. Herr study support our findings. The

MORTALITY

Study	Mortality
Imtiaz Ali Khan et al (1992)	40% (for 1984), 56% (for 1985)
Antia obong OE et al (1992)	30.3%
Airede et al (1992)	27.3%
Sadia abd El Fattah et al (1993)	53.3%
Anyebuno et al (1995)	37.2%
Z. Ali (1995)	26.5%
Muther NB et al (1996)	84.5%
Z.A Bhutta (1997)	22.0%
This study	20.3%

TABLE - 5

finding of Daud AS et al,¹⁴ Khan M S et al¹⁵ and Jovaria Mannan¹⁶ are also supportive of this study.

Sclerema, though found in very few cases, was an ominous sign. This is also considered an ominous sign by Steele, WR¹⁷ Marget Bowmen¹⁸ Hutchusion JH et al,¹⁹ Sadia Abd El Fattah et al.²⁰

In the light of the present study and its findings, the following recommendations are made to prevent and treat neonatal sepsis and to prevent the emergence of drug resistant strains of the causitive pathogens.

Adequate perinatal, antenatal, natal and postnatal care. Delivery should be conducted by personnels well trained in resuscitation procedures. Proper suction of the baby by clean tube is mandatory. Baby should be Breast fed immediately after delivery even before the delivery of placenta. If the baby shows one of the above signs or symptoms, he should be referred to specialist and treated immediately. Imminoglobulin should be given to every baby having suspicion of sepsis. All the cultures i.e. Urine, Blood CSF and Umbilical should be done. Colostrum should be given to the newborn. Prelactial feeds (Hamdard ke ghute, green tea etc) should be avoided. The baby should be exclusively breast fed irrespective of hot weather. Hand washing should be mandatory before touching the newborn. Physician education and limited antibiotic prescription are very important. Rational use of antibiotics. In admitted cases the number invasive procedures should be minimized. Aseptic techniques should be followed. Mothers should be actively involved in the care of their babies admitted to the unit and encouraged breast feeding through tube. Efforts should be made to improve the literacy level and promote breast feeding in the community. Frequent kissing of the newborn on their face should be avoided.

This study shows that:

- * The main predisposing factors to neonatal sepsis are Dai handling, topical applications, prelactial feeds and home delivery, usually under unhygienic conditions. Bottle feeding is also a growing problem in a significant population.
- * The signs and symptoms of neonatal sepsis are protean and non-specific and a high index of suspicion is needed to pick up maximum cases of neonatal sepsis.
- * The main organism causing neonatal sepsis is *Esch.coli*, but it also caused by other gram negative as well as other gram positive organism.
- * Appropriate cultures should be taken before starting antibiotic treatment.
- * Empirical treatment with antibiotics should include coverage for both gram positive and gram negative organism, till the results of culture and sensitivity are available.
- * Supportive and adjunctive measures will enhance the recovery and may be of vital importance.

REFERENCES

1. Ghai OP. Septicaemia in the neonatal period: *Essential Pediatrics* 3rd edition Interprint New Delhi May 1993;106.
2. Tariq P and Shaukat R. Neonatal sepsis: risk factors and clinical profile: *Pakistan Armed Medical Journal*, 1995; 45(1): 59.
3. Malik MS, Iqbal I, Khwaja Z. Neonatal morbidity and mortality: *Pakistan Pediatric Journal*, Apr-Jun 1989; XII(2):107.
4. Goldic AS, Fearon KCH, Ross JA, Barclay RG, Jackson RE, Grant IS, et al. For the sepsis Intervention Group: Natural cytokine Antagonists and Endogenous Antiendotoxins core Antibodies in sepsis Syndrome: *Journal of American Medical Association (JAMA)* 1995; 274 (2): 172.
5. Bhutta ZA. Epidemiology of neonatal sepsis in Pakistan: An analysis of available evidence and implications for care: *Journal of college of physicians and surgeons of Pakistan (JCPSP)*: Jan-Feb 1996; 6(1): 12.
6. Robittard PY, et al. Neonatal sepsis: Summaries and abstracts: *Medical Digest*, 1994; 6(5): 28.
7. Hull D, Johnston DI. Neonatal Infections: In *Essential Pediatrics*, 3rd edition Churchill Livingstone: 1993; 71.
8. Maqbool S, Hodge W. Neonatal sepsis: In *Hand Book of Neonatal care*: Nabiza Publishers Lahore: 1996; 70.
9. Steele RW, Septic shock. *The clinical Hand Book of Pediatric Infectious diseases*: The Parthenon publishing group. 1994; 38.
10. Gotoff SP. Neonatal sepsis: In *Nelson Textbook of Pediatrics: 14th Edition*: United states: WB Saunders: 1992; 501.
11. Edward CRW, Bouchier IAD. Bacteremia, Septicaemia and Bacteremic (Septic) shock: In: *Davidson's Principles and practice of Medicine*: 16th edition: churchil Livingstone: 1991; 145.
12. Gotoff SP. Neonatal Sepsis and Meningitis: In *Behraman: Kleigman and Arvin (editors) Nelson Textbook of Pediatrics: 15th edition*: Philadelphia: WB. Saunders 1996; 528.
13. Keith R, Powell. Sepsis and shock. In *Behrman; Kleigman and Arvin (editors). Nelson textbook of pediatrics, 15th edition* W.B Saunders, Philadelphia. 1996; 704.
14. Daud AS, Abuekteish F, Obeidat A el-Nassir Z, alrimawi H. The changing face of neonatal septicaemia. *Ann Trop. Paediatr*, 1995;15(1): 93.
15. Mohammad Sannaullah Khan. Muddasir Saeed. Bacteriological study in neonatal sepsis. *Pakistan Pediatric Journal*, 1991; XV(2): 69.

16. Jovaria Mannan. Neonatal Septicaemia. Pakistan Paediatric Journal, 1986; X(2): 118.
17. Anthony D, Milner, David Hull. Systemic Infections: In Hospital Paediatrics, 2nd edition, Churchill Livingstone: 1992; 435.
18. Margit Bowmen. Neonatal Infection. British Journal of Hospital Medicine, 1986; 35(3): 171.
19. James H. Hutchison and Forester Cockburn (ed). Neonatal Infections. In: Practical Paediatric problem, 6th ed. Lo-loyd-Luke, 1986; 81.
20. Sadia ABD, El Fattah, Zeinab El Kabbany, Hesham Awad, Tahany El Kardany, Hanan Ebrahim. Role of exchange transfusion in the treatment of neonatal septicaemia. New Egyptian Journal of Medicine, 1993; 8(6): 1705.