



NEONATAL MORBIDITY AND MORTALITY PATTERNS IN NICU AT TERTIARY CARE HOSPITAL, KARNATAKA

Paediatric Medicine

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ABSTRACT

Introduction: Despite Improvements In Perinatal Care, there Is Still A Highrate Of Neonatal Morbidity And Mortality In Developing Nations Like India. Neonatal Period Is Defined As Upto First 28 Days Of Life. **Aims And Objective:** To Study The Morbidity And Mortality Pattern In Nicu, To Determine The Cause And Disease Pattern Of Neonatal Morbidity And Mortality In Nicu At Tertiary Care Hospital ,karnataka. **Materials And Methods:** Observational Prospective Study Done With Sample Size Of As Many Babies Admitted In Nicu At Tertiary Care Hospital. During 24 Months Period Of Study. Data Will Be Collected Based On Babies Admitted With Respect To Gestational Age, Weight, Day Of Life. **Results:** Total Of 1200 Neonates Were Included In The Study During Period Of January 2021 To January 2023. The Data Analysis For Morbidity Showed That Respiratory Distress Syndrome 24.6%, Birth Asphyxia With Hie 18.7%, Jaundice 17.5%, Sepsis 12.3%, meconium Aspiration Syndrome 4.7%, Major Congenital Anomaly 3.4%, Respiratory Distress(other Causes) 1.8%, Others 17.3%. The Disease Wise Mortality Among Neonates Admitted To Nicu Was Studied And Were Found That Respiratory Distress Syndrome 35.5%, Birth Asphyxia With Hie 25.4%, Sepsis 23.3%, Major Congenital Malformations 6.1%, Meconium Aspiration Syndrome 5.5%, Others 4.1%. **Conclusion:** The Commonest Causes Of Admission Were Respiratory Distress Syndrome, Birth Asphyxia, Jaundice, Sepsis, Meconium Aspiration Syndrome, Major Congenital Anomaly. The Most Common Causes Of Mortality Was Respiratory Distress Syndrome, Birth Asphyxia, Sepsis, Major Congenital Malformation.

KEYWORDS

Respiratory distress syndrome, Birth asphyxia with HIE(hypoxic ischemic encephalopathy), sepsis, Neonatal morbidity, neonatal mortality.

INTRODUCTION:

1.Despite improvements in perinatal and neonatal care, there is still a high rate of neonatal morbidity and mortality in developing nations like India. Neonatal period is defined as upto first 28 days of life. It is the most vulnerable time in a person's life because there is a high rate of morbidity and mortality during this time, most of which can be preventable¹. Prematurity, LBW, sepsis, and birth asphyxia are major global causes of NMR, whereas malformations and premature birth are the main causes of death in developed nations. Neonatal jaundice, premature birth, perinatal asphyxia, sepsis, and respiratory distress were the most common causes of neonatal morbidity².

2.It is crucial to understand how different factors contribute to neonatal deaths in order to prioritise resources and plan a strategy to reduce NNM rates. Neonatal mortality (NNM) statistics serve as sensitive indicators of the availability, utilization, and effectiveness of maternal child health service in the community³.

AIM & OBJECTIVES:

1. To study the morbidity and mortality pattern in NICU at tertiary care hospital, Karnataka.
2. To determine the cause and disease pattern of neonatal morbidity and mortality in NICU at tertiary care hospital, karnataka .

METHODS:

1.This is a hospital based prospective study conducted in the department of pediatrics in NICU at tertiary care hospital, karnataka. Data will be collected based on babies admitted with respect to gestational age, weight, day of life. Details regarding history, examination and investigation of all the babies in NICU were recorded in predesigned proforma.

2. Various morbidities are noted, analysed and will be discharged as per facility based newborn care (FBNC-NHM) guidelines. Mortality will be noted and analysed with respect to gestational age, weight, disease, diagnosis, hospital stay duration. Impact of gestational age, weight and various factors which help to prioritize resources to strengthen the primary care and preventable field of mortality and morbidity.

RESULTS:

Total of 1200 neonates were included in the study during period of January 2021 to August 2022. Admitted from (inborn) our hospital delivery were 612 (51%), and 588(48%) were referred from other

hospitals(outborn).

1) Admission profile based on gender, birth weight, gestational age:

There were 706 (58.7 %) male babies and 494 (41.2 %) female babies. weight parameter analysis revealed 571 (47.9%) were >2.5kg, and 452 (37.3%) were between 1500 – 2499gm, 136(11.5 %) were between 1000 – 1499gm, 38 (3.2%) were <1000gm. There were 666 (55.4 %) babies >37 weeks, 196 (16.6 %) babies between 34-37 weeks, 338 (27.9 %) babies < 34 weeks of GA. Regarding mode of delivery 436 (36.4%) were born by LSCS, and 764(63.6%) by normal vaginal delivery and instrumental delivery.

Table 1. Admission profile based on gender, birth weight, gestational age

	Inborn	Outborn	Total
Gender			
Male	358(29.6%)	348 (29.1 %)	706(58.7%)
Females	254(21.1%)	240 (20 %)	494(41.2%)
p = 0.567, NS			
Birth weight(in grams)			
>2500	318 (26.5%)	256 (21.3%)	574(47.9%)
1500-2499	228(18.6%)	224 (18.7 %)	452(37.3%)
1000-1499	56 (4.7 %)	80 (6.7 %)	136(11.5%)
< 1000	10 (0.8%)	28 (2.3 %)	38((3.2%)
p = 0.000, S			
Gestational age (in weeks)			
>37	370 (30.8 %)	296 (24.6 %)	666 (55.4%)
34-37	50(4.1 %)	146(12.4 %)	196(16.6 %)
<34	192 (15.8%)	146 (12.4%)	338(27.9%)
p = 0.000, S			

2) Morbidity profile of neonates admitted in NICU:

The data analysis for morbidity showed that Respiratory distress syndrome 296 (24.6%), birth asphyxia with HIE 224 (18.7%), jaundice 210(17.5%), sepsis 148 (12.3%), meconium aspiration syndrome 56 (4.7%), major congenital anomaly 40 (3.4%), respiratory distress (other causes) 22 (1.8%), others 208 (17.3%).

Table 2. Morbidity profile of neonates admitted in NICU

Morbidity	Inborn	Outborn	N	Total %
Respiratory distress syndrome	200 (16.7 %)	94 (7.8 %)	294	24.6 %

Meconium aspiration syndrome	14 (1.1 %)	42 (3.5 %)	56	4.7%
Respiratory distress (other causes)	4(0.3 %)	16 (1.4 %)	20	1.8%
Birth asphyxia with HIE	90(7.5 %)	128 (10.6%)	218	18.17%
Sepsis/pneumonia/meningitis	38 (3.2 %)	108 (9.0 %)	146	12.3%
Jaundice	158 (13.2 %)	50 (4.2 %)	208	17.5%
Major congenital anomaly	10(0.8 %)	30 (2.5 %)	40	3.4%
Hypothermia	2 (0.05 %)	4(0.3 %)	6	0.3%
Hypoglycemia	4 (0.27 %)	2 (0.16 %)	6	0.4%
Prematurity	54(4.5 %)	76(6.4 %)	130	10.9%
Others	32(2.7 %)	274 (2.8 %)	306	5.6 %
p = 0.000, S				

Respiratory distress syndrome was major cause of morbidity in inborn babies, Birth asphyxia was major cause of morbidity in outborn babies.

3) Mortality profile of neonates admitted to NICU:

Out of 1200 babies, there were 212 deaths and overall mortality rate was 17.6 %. Among 612 inborn babies , 114 (18.6%) babies died and among 588 out born babies 98 (16.5 %) babies died. The disease wise mortality among neonates admitted to NICU was studied and were found that respiratory distress syndrome 76 (35.5%), birth asphyxia with HIE 54(25.4%), sepsis 50 (23.3%),major congenital malformations14 (6.1%), meconium aspiration syndrome 12 (5.5%), others 10 (4.1%).

Table 3. Mortality profile of neonates admitted to NICU

Mortality	Inborn	Outborn	Number	Total %
Respiratory distress syndrome	42 (37.5 %)	32 (32.5 %)	74	35.5%
Meconium aspiration syndrome	8 (6.8 %)	6 (5.2 %)	14	5.5%
Hypoxic ischemic encephalopathy/ birth asphyxia	30 (26.1 %)	24 (24.1 %)	54	25.4%
Sepsis/ pneumonia/ meningitis	24 (19.8 %)	26 (27.2 %)	50	23.3%
Major congenital Malformations	8(5.3 %)	8(6.9 %)	16	6.1%
Others	4(4.2 %)	2(2.09 %)	6	4.1%
Total	114	98		
p = 0.126, NS				

The major cause of mortality was respiratory distress syndrome 76 (35.5 %), followed by birth asphyxia 54 (25.4 %) and sepsis 50 (23.3 %). Mortality rate due to respiratory distress syndrome were more in inborn 44 (37.5 %) than out born 32 (32.5 %).

DISCUSSION

1. This study shows the pattern of morbidity and mortality in our NICU. The male to female ratio in this study was 1.4:1, which was similar to the findings of the study done by Sridhar et al.
2. The major cause of morbidity was RDS which was similar to that study conducted by Modi R et.al. The major cause of mortality was RDS which was similar to study conducted by saini et.al.
3. RDS, birth asphyxia, and neonatal sepsis are the major causes of death, according to the current study. The obstetric and neonatology unit needs to be developed further in order to provide better care while utilising more advanced technologies.

CONCLUSION & LIMITATIONS:

1. The commonest causes of admission were respiratory distress syndrome, birth asphyxia, jaundice, sepsis, meconium aspiration syndrome, major congenital anomaly.
2. The most common causes of mortality was respiratory distress syndrome, birth asphyxia, sepsis, major congenital malformation.
3. By taking the necessary precautions and having antenatal exams, the incidence of preterm and LBW can be reduced, improving the neonatal outcome significantly.

Review of literature:

1. Saini et al¹ conducted study on 6509 live births, of which 50 were

twin pairs and 6409 were singleton birth. Hyperbilirubinemia, sepsis, and respiratory distress were the leading causes of morbidity in this study. Birth asphyxia, prematurity, and neonatal sepsis were the leading causes of neonatal mortality in this study.

2. Malik s et al⁵ conducted study on 1388 newborns admitted within 24 h of birth were included in the study. concluded that respiratory distress, perinatal asphyxia, and sepsis as the predominant causes of neonatal morbidity. The preterm and low birth weight babies had significantly high mortality even with standard intensive care.

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