



MORTALITY AND MORBIDITY PROFILE OF NICU AT A TERTIARY CARE HOSPITAL IN EASTERN PART OF UTTAR PRADESH, A RETROSPECTIVE STUDY

Dr. Satish Kumar Srivastava*

Associate Professor, Paediatrics, BRD Medical College & Hospital, Gorakhpur, U.P.
*Corresponding Author

Dr. Sandesh Srivastava

Senior Resident, Paediatrics, AIIMS – Gorakhpur, U.P.

Dr. Mahima Mittal

Professor, Paediatrics, BRD Medical College, Gorakhpur, U.P.

ABSTRACT

Introduction: Neonatal period is a very crucial & vulnerable period in human life. In depth knowledge of the profile of neonatal diseases helps in proper management of common neonatal problems & leads to better survival rates along with improved quality of life among survivors. **Method:** A hospital based retrospective study was conducted after approval from the hospital ethical committee during the period of Jan 2015 to Jan 2016. A total of 1380 newborns were admitted to NICU during this period. **Result:** The morbidity pattern i.e. cause of hospital admissions was perinatal asphyxia – 331 (23.9%), neonatal hyperbilirubinemia requiring phototherapy or exchange transfusion was 212 (15.3%), sepsis – 192 (13.9%), pneumonia – 124 (8.9%), TTN – 70(8%), meningitis-113(8.18%), RDS- 102(7.39%), MAS - 102(7.39%), bilirubin encephalopathy 20(1.44%), CHD- 62(4.49%), congenital anomalies- 21 (1.52%) Neonatal; hypoglycemia – 19(1.37%), Pneumothorax- 12(0.86%) The overall mortality was 162(11.7%). The major causes of mortality in this study were perinatal asphyxia 61(37.6%), sepsis- 38(23.4%), RDS- 24(14.8%),MAS- 15(9.2%), Meningitis- 6(3.7%), CHD- 5 (3%), Pneumonia – 9 (5.5%), bilirubin encephalopathy 4(2.4%), 113(8.18%) babies were taken away against medical advice. **Conclusion:** This study identifies perinatal asphyxia being the most important cause of morbidity and mortality. Improving the antenatal care, maternal health and timely intervention by referral to tertiary centers may go a long way in improving neonatal period.

KEYWORDS : Neonatal morbidity, perinatal mortality, Low Birth Weight, hypoxic ischemic encephalopathy

INTRODUCTION

The first 28 days of life, sometimes known as the newborn phase, are an extremely sensitive time because of a variety of issues, the majority of which are preventable.^(1,2,3,4) Neonatal morbidity and mortality rates are highly sensitive and useful metrics for assessing hospital healthcare quality and patient care. Less than 0.5 percent of an average human being's life duration is made up of the first seven days of life. In many developing nations, there are more deaths during this time than throughout the ensuing 30 to 40 years of life.^(1,2,4,5) According to a research published in the Lancet, preterm births account for 21% of deaths during the newborn period, followed by infections (26%), asphyxia (23%), congenital malformations 7%, tetanus 7%, diarrhoea 3%, and other causes 7%. The death rates may decline as a result of better newborn care. India has the highest rate of neonatal mortality worldwide, with about 0.75 million newborn deaths annually. India accounts for more than 25% of all newborn fatalities worldwide.^(1,2,6,7) The rate of decline in the newborn mortality rate (NMR) in India has been modest, falling behind the rates of infant and under-five child mortality. It decreased from 52 per 1000 live births in 1990 to 28 per 1000 live births in 2013^(1,2,8). An estimated 26 million children are born in India each year. According to the 2011 Census, children aged 0 to 6 make up 13% of the nation's total population. The National Health Mission's (NHM) child health plan targets the factors that lead to infant and under-five mortality as well as thoroughly incorporates therapies that increase child survival^{1, 2, 3}. It is now well acknowledged that addressing child survival in isolation is not possible due to its profound connection with the mother's health, which is further influenced by her development as an adolescent. Consequently, the national programme adheres to the continuum of care idea, which places an emphasis on providing care during crucial life stages in order to increase child survival. Making sure that essential services are provided at home, through community outreach, and at different levels of health institutions (primary, first referral units, and tertiary health care facilities) is another aspect of this strategy. The Reproductive, Maternal, Newborn, Child, and Adolescent Health (RMNCH+A) strategy approach now has the newborn and child health as its two main pillars, as of 2013^{4,5,16,17}. The 2015 Millennium Development Goals were not met, despite the government of India and other health authorities' concentrated efforts. Although major efforts are being made to improve the infant death rate in India, their focus was on bringing the rate down to fewer than 10.

MATERIALS AND METHODS

This study was conducted in the Department of Pediatrics at a tertiary medical college & Hospital in eastern part of Uttar Pradesh which has

well trained & dedicated staff along with latest medical equipments. This was a hospital based retrospective study over a period of one year i.e. Jan 2015 to Jan 2016. All neonates inborn and out born were included in this study.

Inclusion Criteria:

1. All neonates brought to NICU.
2. All newborns in which parental consent was obtained.

Exclusion Criteria:

1. Babies whose parents/guardians not gave consent for study were excluded.

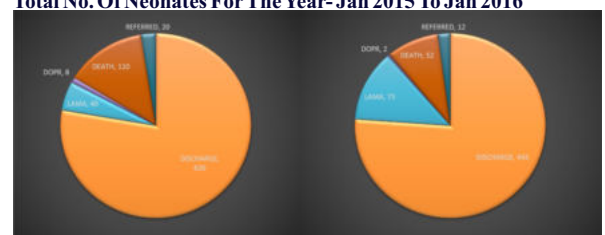
Study Period: One year

RESULTS

Total number of admissions in NICU during the period Jan 2015 to Jan 2016 was 1380. There was a clear gender bias. The number of male babies was 850(61.59%) and that of female babies was 530(38.4%).

The morbidity pattern i.e. cause of hospital admissions was perinatal asphyxia – 331 (23.9%), neonatal hyperbilirubinemia requiring phototherapy or exchange transfusion was 212 (15.3%), sepsis – 192 (13.9%), pneumonia – 124 (8.9%), TTN – 70(8%), meningitis-113(8.18%), RDS- 102(7.39%), MAS -102(7.39%), bilirubin encephalopathy 20(1.44%), CHD- 62(4.49%), congenital anomalies- 21 (1.52%) Neonatal; hypoglycemia – 19(1.37%), Pneumothorax-12(0.86%) The overall mortality was 162(11.7%). The major causes of mortality in this study were perinatal asphyxia 61(37.6%), sepsis- 38(23.4%), RDS- 24(14.8%),MAS- 15(9.2%), Meningitis- 6(3.7%), CHD- 5 (3%), Pneumonia – 9 (5.5%), bilirubin encephalopathy 4(2.4%), 113(8.18%) babies were taken away against medical advice.

Total No. Of Neonates For The Year- Jan 2015 To Jan 2016



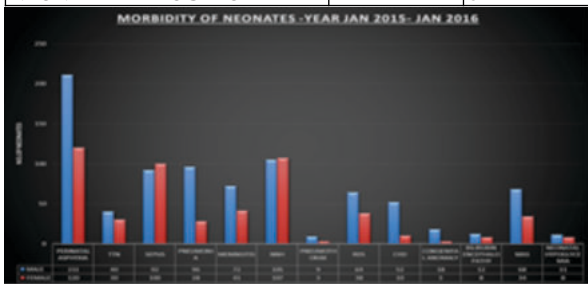
Total Admission(Male)-850

Total Admission(Female)-530

	MALE	FEMALES	TOTAL
ADMISSION	850	530	1380
DISCHARGE	620	443	1063
LAMA	40	73	113
DOPR	8	2	10
DEATH	110	52	162

Morbidity Of Neonates Jan 2015-Jan 2016

	MALE	FEMALE
PERINATAL ASPHYXIA	211	120
TTN	40	30
SEPSIS	92	100
PNEUMONIA	96	28
MENINGITIS	72	41
NNH	105	107
PNEUMOTHORAX	9	3
RDS	64	38
CHD	52	10
CONGENITAL ANOMALY	18	3
BILIRUBIN ENCEPHALOPATHY	12	8
MAS	68	34
NEONATAL HYPOGLYCEMIA	11	8



Mortality Of Neonates - Jan 2015-jan 2016

	End-M	End-F	Lnd-M	Lnd-F
Perinatal Asphyxia	26	10	18	7
Congenital Heart Disease	3	1	1	1
Bilirubin Encephalopathy	2	1	1	0
Meconium Aspiration Syndrome	7	2	3	3
Pneumonia	4	2	2	1
Sepsis	10	8	2	4
Meningitis	2	2	1	1
Respiratory Distress Syndrome	8	7	5	4



DISCUSSION:

In this study 1380 newborns were admitted in NICU of BRD Medical College & Hospital. The male to female ratio was biased. The male was 850 males and 530 females which is contrary to various studies in India including National Neonatal Perinatal Database^(1,2,9, 10, 11). The main causes of NICU admissions was perinatal asphyxia – 331 (23.9%), neonatal hyperbilirubinemia requiring phototherapy or exchange transfusion was 212 (15.3%) , sepsis – 192 (13.9%), pneumonia -124 (8.9%), TTN – 70(8%), meningitis-113(8.18%), RDS- 102(7.39%), MAS -102(7.39%), bilirubin encephalopathy 20(1.44%), CHD- 62(4.49%), congenital anomalies- 21 (1.52%) Neonatal; hypoglycemia – 19(1.37%), Pneumothorax- 12(0.86%) The overall mortality was 162(11.7%). Studies from Africa by Orimadegun AE et al, Owa JA, and Simiyu DE show more admissions due to sepsis, jaundice and tetanus.^(14,15,16) In developed countries extreme prematurity and congenital anomalies are the main causes^(12,17) The incidence of perinatal asphyxia was 23.9% in our study which is more

than most of the other Indian Studies⁽¹⁷⁾ published. The mortality rate observed was 11.7 % which is more when compared to various studies reported in India ,Africa and most of the western countries^(18,19) This could have been much more if the critical babies who were taken away against medical advice were included. The major causes of mortality in this study were perinatal asphyxia 61(37.6%) , sepsis- 38(23.4%), RDS- 24(14.8%),MAS- 15(9.2%), Meningitis- 6(3.7%), CHD- 5 (3%), Pneumonia – 9 (5.5%), bilirubin encephalopathy 4(2.4%), 113(8.18%) babies were taken away against medical advice.

CONCLUSION

Morbidity and Mortality rates are good indicators to measure the level of health and health care in a hospital, district, state or country. It is also useful for evaluating a nation's overall socioeconomic growth. Although the neonatal period accounts for less than 0.5 percent (less than 168 hours) of the average lifespan, the rate of infant mortality has come to be regarded as a more important indicator of the quality of obstetric and Paediatric care before and around the time of birth. In many developing nations, more deaths occur during this time than during the subsequent 30 to 40 years of life. This study identifies perinatal asphyxia being the major cause of morbidity (23.9%) The major causes of mortality in this study were perinatal asphyxia 61(37.6%) , sepsis- 38(23.4%), RDS- 24(14.8%),MAS- 15(9.2%), Meningitis- 6(3.7%), CHD- 5 (3%), Pneumonia – 9 (5.5%), bilirubin encephalopathy 4(2.4%), 113(8.18%) babies were taken away against medical advice. This study shows an unusually high frequency of perinatal asphyxia, which may be brought on by a lack of access to health care, inadequate education, and unfavourable economic circumstances. Improving maternal health, prenatal care, and prompt intervention through tertiary centre referrals will undoubtedly contribute to better newborn outcomes.

Limitations

This was a retrospective hospital based study. The extent of morbidity and mortality was based on the official hospital records and this may not be the exact reflection of morbidities and mortality of newborn in the society at large.

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