Morbidity and Mortality Among Neonates Admitted to a Neonatal Intensive Care Unit of a Tertiary Care Teaching Hospital of Jammu and Kashmir (India)

Kotwal YS[1,2]*, Yatoo GH[1] and Ahmed Jan FA[1]

[1]*Department of Hospital Administration, Sher-i-Kashmir Institute of Medical Sciences, Srinagar, Jammu and Kashmir, India*

[2]*Sub District Hospital Bhaderwah, Jammu and Kashmir, India*

*****Corresponding author:** Kotwal YS, Block Medical Officer, Sub District Hospital Bhaderwah, Jammu and Kashmi, India, Tel: 918494054661; E-mail: doctorkotwal@yahoo.com

Abstract

Context: World over, four million newborn babies die in the first month of life out of which India contributes to about 1.2 million deaths every year. India thus accounts for a quarter of global neonatal deaths and thus faces the biggest newborn health challenge of any country in the world.

Aims: The study was under taken with the objective to determine the morbidity and mortality pattern of among the neonates admitted to a NICU.

Settings and design: The study was conducted at Neonatal Intensive Care Unit of Sher-i-Kashmir Institute of Medical Sciences Srinagar (Jammu & Kashmir). This NICU is a level-III NICU center is a tertiary health care institute, where most of the babies referred are high-risk babies.

Methods and material: For the objective a descriptive case series, hospital based prospective study was conducted at NICU of SKIMS Srinagar w.e.f. 1st Jan-31st Dec 2013 by following neonates from admission to discharge, LAMA or death collecting the data by using a predesigned standardized proforma.

Statistical analysis used: The data collected was analyzed by SPSS version 20 and the frequency and percentages of various parameters of morbidity and mortality were calculated.

Results: 1017 neonates were admitted in the NICU during the year 2013. Neonatal Jaundice (NNJ) (26.7%) was the most common cause of admission to NICU followed by Septicemia (19.1%) and Prematurity (12.5%) whereas Prematurity (24.2%) was the most common cause of death followed by Septicemia (18.2%), Birth Asphyxia (11.1%) and Meconium Aspiration Syndrome (10.1%).

Conclusions: The Neonatal Jaundice (NNJ) was the commonest causes of admission and Prematurity was the most common cause of death and Meconium Aspiration Syndrome was the most common cause of case fatality in NICU in a Tertiary Care Teaching Hospital in Jammu and Kashmir.

advances, the judicious implementation of neonatal intensive care measures can result in reduction of morbidity and mortality. To determine the burden of neonatal disease, understand patient needs, planning and organization the present study was under taken at SKIMS Srinagar to determine the morbidity and mortality pattern of among the neonates admitted to a NICU. e present study will help us to f nd out gaps if any in the required infrastructure for NICU of SKIMS Srinagar. e study was under taken with the objective to determine the morbidity and mortality pattern of among the neonates admitted to a NICU.

Methods

is descriptive case series, hospital based prospective study was conducted over a period of one year from with e ect from 1st January

Gestational Age at birth

e data analysis for the morbidity showed that the Neonatal Jaundice (NNJ) (26.7%) was the most common cause of admission to NICU followed by Septicemia (19.1%) Prematurity (12.5%), Birth Asphyxia (7%) and Respiratory Distress Syndrome (RDS) (5.7%) (Table 2). e data was analyzed for outcome of the total admitted neonates during the study period. It was observed that out of 1017 neonates admitted most were discharged (90.07%) whereas as 9.73% expired and only 0.2% le against medical advice (LAMA) (Table 3).

Outcome	Frequency (N)	Percentage (%)
Discharged	916	90.07
Expired	99	9.73
LAMA	2	0.2
Grand Total	1017	100

Table 3: Outcome of the neonates who were admitted to NICU.

e mortality among the neonates admitted to NICU was studied and it was found that prematurity (24.2%) followed by Septicemia (18.2%), Birth Asphyxia (11.1%), Meconium Aspiration Syndrome (10.1%) and Respiratory Distress Syndrome (9.1%) were the top f ve major contributors to the mortality (Table 4). ere were 1017 neonates admitted out of which the two (2) neonates that le against medical advice (LAMA). Being insignif cant in numbers these two neonates were excluded from further analysis for the case fatality rate.

Congenital Anomalies	Total	Expired	Mortality Rate
Neonatal Jaundice (NNJ)	272	2	2
Septicemia	194	18	18.2
Prematurity	127	24	24.2
Birth Asphyxia	71	11	11.1
Respiratory Distress Syndrome (RDS)	58	9	9.1
Hypernatremic Dehydration	43	2	2
Hypoglycemia	40	1	1
Seizure Disorder	35	1	1
Transient Tachypnoea of Neonates (TTN)	33	3	3
Meconium Aspiration Syndrome (MAS)	30	10	

studies from Pakistan by Seyal et al. [12] (59.55% male versus 40.5% female) and by Ugwu GiMG [13] of Nigeria (54.3% male versus 45.7% female).

e ratio of males (590) and female (427) neonates was 1:0.7 almost similar to a study conducted by Nahar et al. [14]. In contrast to our f ndings, Aijaz et al. [9] found that the female's babies outnumbered their male's counterpart with a ratio of 2:1.3.

e average age of gestation of neonates was 36.15 week which was similar to a study conducted by Nahar et al. [14] in which it was 35.6 ± 3.4 weeks.

In this study about two-third of the neonates were of full term (60.6%) gestation and one-third were preterm (38.5%) which was similar to another study conducted by Gauchan et al. [15] in which there were 67.5% term babies and 31.3% preterm babies. In contrast to our f ndings a study conducted by Seyal et al. [12] found that 42.8% neonates were preterm. Our f ndings are understandable because probably Janani Suraksha Yojana (JSY) and Janani Shishi Sawasthaya Karyakram (JSSK) Scheme of National Rural Health Mission (NRHM) has enhanced the Ante-natal check up, hospital deliveries and neonatal care among the general population.

e average weight of the neonates on admission in our study was 2525.7 grams which was similar to a study conducted by Nahar et al. [14] in which it was 2420 ± 808 gm. e weight parameter analysis revealed that the number of neonates having weight Extremely Low Weight (<1000 grams), Very Low Weight (1000-1499 grams) and Low Weight (1500-2499 grams), Normal Weight (2500-4000 grams) and High Weight (>4000 g) was 0.4%, 6.7% and 32.9%, 58.3% and 1.7% respectively. e results of our study are comparable to a similar study done by Hussain [16] which revealed that 2.25% were <1000 grams, 12.2% were between 1000-1499 gram, 39.35% were between 1500-2499 grams, 42.25% between 2500-4000 grams, and 3.95% were more than 4000 g. e weight parameter analysis by Rahim et al. [17] found that the number of babies with Extremely Low Birth Weight (ELBW), Very Low Birth Weight (VLBW) and Low Birth Weight (LBW) was 0.17% and 4.66% and 41.20% respectively.

Our study also revealed that most of the admitted neonates were delivered in health institutions (90%) and only small number was delivered at home (10%). e f ndings of our study are comparable the f ndings of Rahim et al. [17] and Seyal et al. [12] studies. Rahim et al. [17] at Khyber Teaching Hospital Peshawar found that 27.03% of the neonates were homes delivered whereas Seyal et al. [12] at Sir Ganga Ram Hospital Lahore found that only 3.9% were delivered at home. Nahar et al. [14] found that most of the babies were born in hospital (83%) whereas Jan et al. [18] found that 66% were delivered at hospital, 28% were delivered in home and 6% were delivered at other place. e f ndings of more number of health institution deliveries in our study are probably due to Janani Suraksha Yojana and Janani Shishu Sawasthaya Karyakram Scheme of National Rural Health Mission.

causes of admission to NICU. In Ali, et al. [27] study Prematurity, infections, Birth asphyxia and NNJ were the main causes of admission to the neonatal unit, at 27.9%, 20.33%, 13%, and 11.3% respectively.

It is essential to know the outcome of the admissions for evaluating the e ectiveness of care provided in a hospital setting. ere is a great variation in neonatal mortality statistics between NICUs from di erent parts of the world. is variation probably ref ects the di erence in the attending population, antenatal care, admission criteria, specif c exclusion and inclusion criteria and level of neonatal care.

In our study it was observed that out of 1017 neonates admitted, 916 (90.07%) of the neonates were discharged, 99 (9.73%) died and 2 (0.2%) le against medical advice (LAMA). However, there were only 63 (6.19%) were institutional deaths.

 e neonatal mortality (9.73%) in NICU of SKIMS Srinagar is similar to a study conducted by Sarkar, et al. (9.7%), Tariq, et al. (9%). Unlike observations in our study higher rates have been reported by Arafa, et al. (22.4%), Kasirye-Bainda E, et al. (24.6%) Agbere et al. (27%) Aijaz, et al. (13.8%) Islam, et al. (20.6%) Kumar, et al. (13.6%) Hoque et al. (13.8%) Rahim, et al. (14.87%) Parkash, et al. (25.5%), Seyal, et al. (30.9%) and Prasad, et al. (18.69%) [9,11,12,17,22,23,25-32]. Low neonatal mortality rates were found by Sankaran, et al. [33] (4%) and Zullini, et al. [34] (6%) respectively.

 e type of diseases contributing of neonatal mortality provides us an indication for the area of neglect and the need to take corrective

References

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