

## Evaluation of neonatal admission to neonatal intensive care unit in a tertiary care hospital in Kashmir

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### ABSTRACT

**Background:** Neonatal period is the most unguarded period which influences the survival and overall wellbeing of a child. Many illnesses affecting the neonates lead to morbidities and mortality among them. According to 2015 Global health observatory (GHO) data, neonatal deaths constitute roughly 45% of all under five deaths. Worldwide, neonatal mortality rate has seen a steady decline by 47% between 1990 and 2015 from 36 to 19 per 1000 live birth. India contributes to nearly 25% of the mortality around the world.

**Methods:** This descriptive retrospective study was carried out at LallaDed hospital, only tertiary care obstetrics and gynaecology hospital of Kashmir valley from August 2020 to January 2021. The study was conducted with records of the neonates who were admitted to NICU of this hospital during the above mentioned time period. The data regarding gestational age, sex, mode of delivery, birth weight, Apgar score at birth, indication for admission and outcome was recorded.

**Results:** The total number of NICU admission during this time period was 252. The mode of delivery was FTVD in 144 (57.1%) and LSCS in 108 (42.9%). The number of preterm babies was 175 (69.4%) and number of term babies was 77 (30.6%). Among the admitted neonates, 141 (56%) were male and 111 (44%) were female babies. The birth Apgar score 0 minutes was 8 in 24, 7 in 75, 6 in 130 and 4 in 23 babies.

**Conclusions:** This study identified RDS and MAS among the most common reasons for NICU admission. Early neonatal period is the major contributor to neonatal mortality which is influenced by birth weight and Apgar score. Understanding causes of neonatal mortality, education and training of medical and para medical staff and implementation of interventions regarding neonatal resuscitation will play major role in decreasing the neonatal NICU admission and mortality thereof.

**Keywords:** NICU, Apgar score, Newborn

### INTRODUCTION

Neonatal period is the most unguarded period which influences the survival and overall wellbeing of a child.<sup>1</sup> Many illnesses affecting the neonates lead to morbidities and mortality among them. According to 2015 GHO data, neonatal deaths constitute roughly 45% of all under five deaths.<sup>2</sup> Worldwide, neonatal mortality rate has seen a steady decline by 47% between 1990 and 2015 from 36 to

19 per 1000 live birth.<sup>2</sup> India contributes to nearly 25% of the mortality around the world.<sup>3-5</sup> Major causes of neonatal deaths are preterm birth, asphyxia, sepsis, pneumonia, congenital anomalies, diarrheal diseases and tetanus.<sup>6</sup> The most routinely used measure of health status of newborns is the Apgar score, typically quantified at 7, 5 and 10 minutes after birth.<sup>7</sup> It is widely recognised that a low Apgar score, commonly defined as a score less than 7, is associated with increased risks of neonatal mortality,

morbidity and long term outcomes.<sup>8-16</sup> The challenge ahead of us was to meet every newborn target of ten or fewer neonatal deaths per 1000 live births in every country by 2035.<sup>17</sup> Without a sound knowledge about the changing trends in morbidity and mortality, it will be difficult to formulate appropriate strategies in management, prevention and review.<sup>18</sup>

### Aim and objective

The aim and objective was to analyse and evaluate the neonatal NICU admission in tertiary care hospital in Kashmir.

### METHODS

This descriptive retrospective study was carried out at LallaDed hospital, only tertiary care obstetrics and gynaecology hospital of Kashmir valley from August 2020 to January 2021.

The study was conducted with records of the neonates who were admitted to NICU of this hospital during the above mentioned time period.

The data regarding gestational age, sex, mode of delivery, birth weight, Apgar score at birth, indication for admission and outcome was recorded.

### Statistical analysis

The data obtained were analysed using descriptive statistics.

### Ethical approval

The study was approved by the institutional ethics committee.

### RESULTS

Total number of deliveries during this time period was 8508, with 5400 LSCS and 3108 NVDS. The total number of NICU admission during this time period was 252. The mode of delivery was FTVD in 144 (57.1%) and LSCS in 108 (42.9%).

**Table 1: Mode of delivery.**

Mode	Frequency	Percent
<b>FTVD</b>	144	57.1
<b>LSCS</b>	108	42.9
<b>Total</b>	252	100.0

The number of preterm babies was 175 (69.4%) and number of term babies was 77 (30.6%).

Among the admitted neonates, 141 (56%) were male and 111 (44%) were female babies.

**Table 2: Gestation age.**

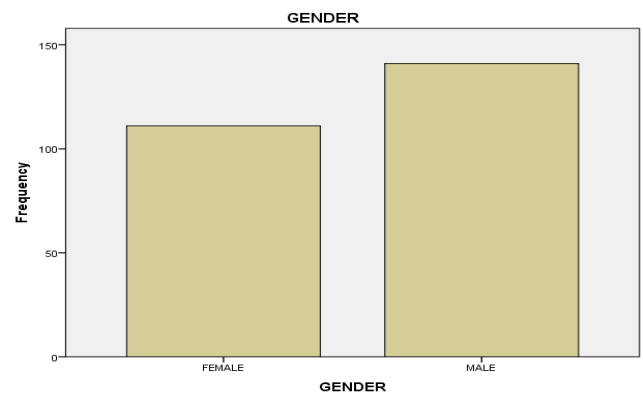
Gestation age	Frequency	Percent
<b>Preterm</b>	175	69.4
<b>Term</b>	77	30.6
<b>Total</b>	252	100.0

**Table 3: Birth Apgar.**

Score	Frequency	Percent
<b>4</b>	23	9.1
<b>6</b>	130	51.6
<b>7</b>	75	29.8
<b>8</b>	24	9.5
<b>Total</b>	252	100.0

**Table 4: Indication of NICU admission.**

Indications	Frequency	Percent
<b>RDS</b>	80	31.74
<b>MAS</b>	46	18.25
<b>Birth asphyxia</b>	37	14.68
<b>LBW</b>	19	7.54
<b>Hypoglycemia</b>	17	6.35
<b>Septic shock</b>	16	6.35
<b>Syndromic baby</b>	16	6.35
<b>Seizures</b>	10	3.97
<b>CCF</b>	8	3.20
<b>ICH</b>	3	1.19
<b>Total</b>	252	100



**Figure 1: Gender distributions.**

The birth Apgar score 0 minutes was 8 in 24, 7 in 75, 6 in 130 and 4 in 23 babies.

The mean birth weight of admitted babies was 2.30 kgs. The most common indication for NICU admission was RDS (31.74%), meconium aspiration syndrome (18.25%), birth asphyxia (14.68%), LBW (7.54%), hypoglycemia (6.75%), septic shock (6.35%), syndromic babies (6.35%), seizure disorder (3.97%), CCF (3.2%) and ICH (1.19%). Out of 252 admitted babies, 203 (80.6%) babies were

stable and 44 (17.5%) babies expired and 5 (2%) babies were shifted to other hospital.

## DISCUSSION

This study was conducted to evaluate the reasons for neonatal admission to NICU and the morbidity and mortality pattern in the tertiary care hospital in Kashmir. This study was carried out from August 2020 to January 2021 at Government LallaDed hospital Srinagar. Total number of deliveries during this time period was 8508, with 5400 LSCS and 3108 NVDS. The total number of NICU admission during this time period was 252. The mode of delivery was FTVD in 144 (57.1%) and LSCS in 108 (42.9%). The number of preterm babies among admitted neonates was 175 (69.4%) and number of term babies was 77 (30.6%). This was in line with the findings from study conducted by Modi et al.<sup>1</sup> There was male predominance with respect to NICU admissions. Similar findings were reported by several studies.<sup>1,19-23</sup> The birth Apgar score at 0 minutes was 8 in 24.7 in 75.6 in 130 and 4 in 23 babies. The mean birth weight of admitted babies was 2.30 kgs. Worldwide, prematurity, sepsis and birth asphyxia were the leading causes of death among neonates.<sup>24</sup> The most common indication for NICU admission in our study was RDS (31.74%) followed by meconium aspiration syndrome (18.25%), birth asphyxia (14.68%) and LBW (7.54%). Out of 252 admitted babies, 203 (80.6%) babies were stable and 44 (17.5%) babies expired and 5 (2%) babies were shifted to other hospital. This successful discharge and lower mortality rates were in contrast to the study done by Gauchan et al.<sup>25</sup>

### Limitations

The limitations of the study was the data was not representative of the community as it was hospital based study, still born cases were not taken into the consideration.

## CONCLUSION

Neonatal mortality is an indicator of health status of the community. This study identified RDS and MAS among the most common reasons for NICU admission. Early neonatal period is the major contributor to neonatal mortality which is influenced by birth weight and APGAR score. Understanding causes of neonatal mortality, education and training of medical and para medical staff and implementation of interventions regarding neonatal resuscitation will play major role in decreasing the neonatal NICU admission and mortality thereof.

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*Ethical approval: The study was approved by the Institutional Ethics Committee*

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