

# Outcome of LBW Babies Admitted in the N.I.C.U. – A Hospital based Study

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## Abstract

**Background & Objective:** More than 20 million infants worldwide, representing 15.5 per cent of all births are born with low birth weight. More than 95 percent of them are born in developing countries. The incidence of low birth weight in developing countries (16.5 per cent) is more than double the incidence in developed regions (7 per cent). In India, nearly 8 million babies are born with a Low Birth Weight every year. In India, we are still struggling to get minimum care facilities for our neonates. The neonatal mortality rate in India is still 5 to 6 times higher compared to that in developed countries. Because of their susceptibility to complications, low birth weight neonates require specialized and expert care during the neonatal period. This study was undertaken to study the role of various morbidities in the mortality of LBW neonates admitted in the N.I.C.U. **Material and Methods:** The study was conducted in the N.I.C.U. of a Tertiary Health Care Centre, in Department of Pediatrics. 106 neonates with birth weight less than 2500 grams from among the neonates admitted in the NICU were included in the study. **Results:** There were 48 deaths out of 106 cases studied thus making the mortality rate of 45.28% and the survival rate of 54.72% (58/106 cases). Respiratory distress contributed maximum to mortality, followed by Septicemia/Sepsis. Neonatal Hyperbilirubinemia followed septicemia in prevalence. Among the spectrum of Respiratory distress, Hyaline Membrane Disease (HMD) contributed maximum to mortality.

**Keywords:** LBW, Low Birth Weight, Mortality, Neonatal Mortality

## 1. Introduction

Low birth weight has been defined as a birth weight of less than 2.5 kilogram (up to and including 2499 gm.) regardless of gestational age. (WHO-1960)<sup>1</sup>. More than 20 million infants worldwide, representing 15.5 per cent of all births are born with low birth weight. More than 95 percent of them are born in developing countries. The incidence of low birth weight in developing countries (16.5 per cent) is more than double the incidence in developed regions (7 per cent). In India, nearly 8 million babies are

born with a Low Birth Weight every year<sup>2</sup>. Birth weight is a strong indicator not only of a mother's health and nutritional status but also a newborn's chances for survival, growth and long-term health. Babies who are undernourished in the womb face a greatly increased risk of dying during their early months and years. Babies weighing less than 1500 gm. and particularly less than 1000 gm. are of major concern because of maximum perinatal mortality found in this group<sup>3</sup>. In India, we are still struggling to get minimum care facilities for our neonates. The neonatal mortality rate in India is still 5 to 6 times higher compared

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to that in developed countries<sup>3</sup>. Because of their susceptibility to complications, low birth weight neonates require specialized and expert care during the neonatal period. This study was thus undertaken to study the role of various morbidities in the mortality of LBW neonates admitted in the N.I.C.U. so as to provide an idea to help better management of these LBW babies to reduce mortality.

## 2. Material and Methods

The present study was an observational study

Sample size: 106 cases.

Duration of study: Aug. 2011 to Oct. 2013.

### 2.1 Inclusion Criteria

All sick neonates with documented birth weight of less than 2500gms admitted in the Neonatal Intensive Care Unit of the hospital.

### 2.2 Exclusion Criteria

- 1) Babies who were discharged against medical advice were excluded from the study.
- 2) Babies less than 2500gms in weight, with lethal congenital anomalies admitted to intensive care unit, were excluded.
- 3) Babies born outside this hospital with no documentation of birth weight were excluded from the study

### 2.3 Method

The study participants were included after satisfying the inclusion criteria. A structured questionnaire was used to collect the medical history and examination findings of the patients. All parents/guardians were explained the purpose and nature of this study and an informed written consent was taken from the parent/guardian of the patient to be included in this study. Weight was recorded on an electronic scale with an error of  $\pm 5$ gms. Gestational age of the baby was assessed by Modified New Ballard Score method. Every baby was followed till discharge or death and condition was noted at the time of discharge. Complications developing during the course of stay in NICU were studied.

## 3. Results

- In the present study, Respiratory distress (83.33%) and sepsis (81.25%) were the most common factors contributing to mortality. Neonatal Hyperbilirubinemia (39.58%) was another co-morbidity observed to be contributing in a comparatively higher proportion.
- HMD was included in the spectrum of respiratory distress, which individually was also seem to affect mortality substantially (45.85%) (Table 1, Figure 1).
- IVH : Intraventricular hemorrhage
- NEC : Necrotising Enterocolitis
- EOS : Early Onset Sepsis
- LOS : Late Onset Sepsis
- NH : Neonatal Hyperbilirubinemia
- PDA : Patent Ductus Arteriosus
- HMD : Hyaline Membrane Disease / RDS : Respiratory Distress Syndrome
- MAS : Meconium Aspiration Syndrome
- BPD : Bronchopulmonary Dysplasia
- PULM. HAEM. : Pulmonary Haemorrhage

## 4. Discussion

- Kumar GV et al.<sup>4</sup> have similarly stated Respiratory distress and septicemia to be the leading causes of mortality. Basnet et al<sup>5</sup> also have mentioned similar observations.

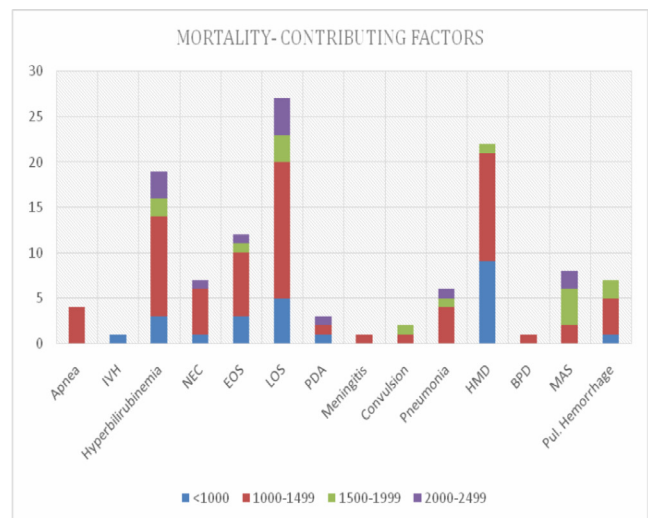


Figure 1. Mortality-contributing factors.

**Table 1.** Mortality–Contributing Factors (Percentages have been calculated row wise)

Sr. No.	Weight in grams	<1000	1000 -1499	1500 -1999	2000 - 2499	Total
	Total Deaths	10	25	7	6	48 (100%)
1	Apnea	0	4	0	0	4 (8.33%)
2	IVH	1	0	0	0	1 (2.08%)
3	NH	3	11	2	3	19 (39.58%)
4	NEC	1	5	0	1	7 (14.58%)
5	Sepsis	8	22	4	5	39 (81.25%)
	EOS	3	7	1	1	12 (25.0%)
	LOS	5	15	3	4	27 (56.25%)
6	PDA	1	1	0	1	3 (6.25%)
7	Meningitis	0	1	0	0	1 (2.08%)
8	Convulsion	0	1	1	0	2 (4.16%)
9	Total Respiratory Distress	10	21	6	3	40 (83.33%)
9-a	Pneumonia	0	4	1	1	6 (12.5%)
9-b	HMD/RDS	9	12	1	0	22 (45.83%)
9-c	BPD	0	1	0	0	1 (2.08%)
9-d	MAS	0	2	4	2	8 (16.66%)
9-e	PUL. HAEM.	1	4	2	0	7 (14.58%)

- NNPD<sup>6</sup> 2005 and National Neonatology Forum 1997, state sepsis/meningitis, HMD, IVH and Pneumonia to be major causes of mortality in decreasing order of proportion.
- The major mortality contributing factors in the present study were;
- Respiratory distress
- Sepsis
- Neonatal hyperbilirubinemia

Among the spectrum of respiratory distress, major contributors were;

- HMD (Hyaline Membrane Disease)
- MAS (Meconium Aspiration Syndrome)
- Pulmonary Hemorrhage
- Pneumonia

A generalized comparison of contributing factors is not possible as the spectrum of morbidities observed in

each setup is different with a different proportion of morbidities among different groups. Thus, the contributing factors affecting the present study group have been stated here.

## 5. Conclusion

Sepsis and Respiratory distress were the most common contributing factors to mortality. Higher mortality was seen in the lower birth weight groups, i.e. mortality reduced as the birth weight increased. Similar conclusions have been presented by various other workers. Survival was better among the higher birth weight groups i.e. survival rate increased as the birth weight increased. Higher proportion of morbidity and mortality among the lower birth weight groups suggest a higher susceptibility of the babies and thus the need for strict asepsis and rigorous management with special attention to these babies.

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