

# Clinicoepidemiological Profile and Predictors of Mortality in LBW Babies: A Hospital Based Observational Study

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## Abstract

**Introduction:** Low birth weight has a significant impact on the survival of a newborn. Low birth weight babies are at risk for a number of serious clinical problems and as such contribute to overall neonatal mortality and morbidity.

**Aims:** The aim was to study the clinicoepidemiological profile and predictors of mortality in low birth weight babies in resource limited settings.

**Materials and methods:** This was a prospective observational study conducted from July 2013 to May 2015. The study group included neonates admitted in NICU having birth weight less than 2500 gms. Newborns with congenital or chromosomal anomalies were excluded from the study. Data was collected regarding various epidemiological and clinical parameters and entered as per a preset proforma.

**Results and inference:** Total of 100 eligible LBW newborns were studied. Incidence of LBW admission was found to be 17.3%. There were 26 deaths among LBW neonates. Birth weight, gestational age, mechanical ventilation, shock on admission, NEC, sepsis, and CRIB score were found to have a statistically significant association with mortality.

**Keywords:** LBW babies; Mortality risk factors; Sepsis; Shock; Mechanical ventilation; Crib score

## Introduction

Low birth weight has been defined by the World Health Organization (WHO) as weight at birth of less than 2500 grams (5.5 pounds) [1]. It is practical cut-off for international comparison is based on epidemiological observations that infants weighing less than 2500 grams are approximately 20 times more likely to die than heavier babies [2]. India, the most populous country in South Asia shares a very high prevalence of low birth weight babies (LBW). The incidence of low birth weight in India has been reported to range from 21% to 33% as compared to 4.5% in industrially developed countries [3]. Survival of LBW infants is a rising trend more so in developed countries. However LBW neonatal deaths continue to constitute a major part of infant mortality rate in developing countries. A number of indicators like birth weight, gestational age, apgar score, antenatal steroids, gender and CRIB score have been evaluated in low birth weight neonates for predicting mortality in different studies. However there is paucity of studies done in evaluating low birth weight neonates with reference to risk factors associated with their mortality and their epidemiological characteristics in our resource limited settings.

## Materials and Methods

This study was conducted in the neonatal I.C.U Skims Soura. The sample consisted of all those neonates admitted in NICU, who were born as LBW. The cut-off weight for including the neonates in the study

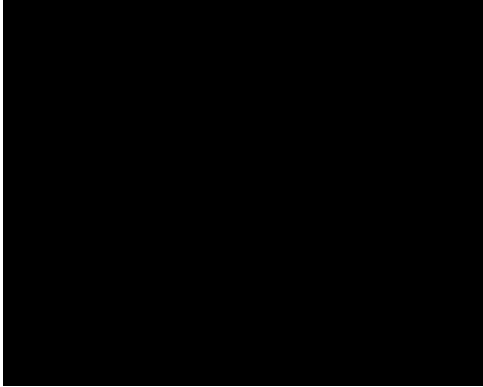
was taken as birth weight of less than 2500 gms. All those neonates who were born with congenital malformations or chromosomal anomalies were not included in the study. Eligible candidates were followed up to 28 days of postnatal life. A detailed history was collected about the baby as well as the mother. Relevant data regarding course of events during the gestational period was sought.

A detailed general physical and systemic examination was performed. Gestational age was recorded according to LMP and by new Ballards scoring. A CRIB score was assigned to each baby based on gender, gestational age, presence or absence of congenital malformations, base excess on admission, minimum and maximum Fio<sub>2</sub> requirement during first 12 hours of admission. During the NICU stay monitoring for common neonatal problems like sepsis, meningitis, hypoglycaemia, hyperglycaemia, hypocalcaemia, polycythaemia, jaundice, hypoxia/acidosis, necrotizing enterocolitis, feed intolerance, hypothermia etc. was done. Investigations were done as required according to the condition of the neonate. The daily examination, complications and investigations during the NICU stay were entered as per the preset proforma. The study collected data about the outcome of NICU stay during first 28 days of life. The neonatal outcome was studied and various risk factors were assessed with regard to their statistical significance in predicting mortality in LBW neonates.

## Results

There were total of 100 admissions during the study period. 869 were

sample were females (55%) and 45 were males (45%). The number of neonates born at term in the study population was 44 and those admitted as preterm were 56. 80 neonates were born by vaginal delivery and 20 were born by LSCS. 81 neonates were born at a hospital and 19 were born at home. The number of neonates whose mothers had antenatal visits was 78 and 22 mothers had not visited any antenatal clinic during pregnancy. From the study population 74 patients were low birth weight (LBW), 13 were very low birth weight (VLBW) and 13 were extremely low birth weight (ELBW). The number of appropriate for gestational age (AGA) neonates was 53 and the number of small for gestational age (SGA) neonates was 47. The mean gestational age of the study population was 34.70 weeks with standard deviation of 4.82. Minimum gestational age was 24 weeks and maximum gestational age was 40 weeks. The mean birth weight was 1.80 kg with a standard deviation of 0.56. Minimum birth weight recorded in the study was 0.50 kg while as maximum was 2.42 kg. Mean Apgar score at one minute was 5.69 with standard deviation 1.47. Mean Apgar score at 5 minutes was 7.11 with standard deviation of 1.22. Mean Crib score was 4.08 with minimum score of 0 and maximum score of 15. Mean maternal age was 27.41 years with standard deviation of 3.97. Minimum age was 20 years and maximum was 35 years (Table 1).



**Figure 3**

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