

Frequency and Outcome of Low Birth Weight Babies Admitted in Tertiary Care Hospital

Juverya Naqvi¹, Ali Akbar Siyal¹ and Tabinda Taqi²

ABSTRACT

Objective: To assess the incidence of LBW babies along with outcome and morbidity profile in our setup, as previously no such data is available.

Study Design: Retrospective study

Place and Duration of Study: This study was conducted at the Pediatric Ward of Peoples Medical College Hospital, Nawabshah from January to December 2016.

Materials and Methods: The data was extracted from file records of the patients admitted in NICU, regarding birth weight, their morbidity and mortality.

Results: Out of total admissions 4525 in NICU, low birth weight babies were 1177 (26%). Out of these 1177 babies 706 (60.11%) were male neonates and rest were females. The main reason for admission in these neonates were prematurity 439 (37.3%), sepsis 144 (12.23%), hypothermia and RDS 82 (7%), metabolic fits 42 (3.5%) and miscellaneous 65 (3%). The mortality was seen in 919 patients (43%).

Conclusion: Low birth weight was found in 26% of admitted neonates and associated morbidities included prematurity, sepsis, RDS, metabolic fits.

Key Words: Low birth weight, prematurity, Mortality, Nawabshah

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INTRODUCTION

Any baby's weight at birth is a chief indicator of its' as well as the mother's health and nutrition during and before conception. By definition the low birth weight is weight at birth of <2500 grams¹. In year 2013, nearly 22 million newborns (16%) of all babies born worldwide that year had low birth weight. Exact estimation is quite difficult, because almost 50% of the world's newborns are not weighed at birth². Pakistan is in south Asian region and unfortunately the incidence of LBW babies is highest in this region, according to data from UNICEF, one out of four newborns babies has a weight less than 2500 grams², and as far as the outcome of such low birth weight babies is concerned, infants having <2.5 Kg weight are almost 20 times more die than good weight infants. According to Bhutta et al the incidence of low birth weight in Pakistan is around 32% out of total child births.

Despite terrifying low birth weight situation in Pakistan, there is grim lack of research in this area³. It is documented that more than 20 million babies worldwide, and about 95.6% of them in developing countries are less than 2500 grams at birth. The %age of LBW in developing countries (16.5 per cent) is almost twice as in developed countries (7 per cent)². LBW cases babies are at an increase risk of complications at birth, and beyond, including hypothermia, hypoglycemia, sepsis, intraventricular hemorrhage, respiratory distress syndrome, patent ductus arteriosus, necrotizing enterocolitis and delayed complication including learning problems³. Low birth weight is a vast group of babies that include babies born before 37 complete weeks of gestation (preterm), intrauterine growth restricted babies, and sometimes even syndromic babies and babies affected by TORCH infection. Low birth weight is in most cases an outcome of poor maternal health and nutrition and thus there are many factors that are mostly related with intrauterine nutrition deprivation, along with decreased gestational age. Other risk factors associated with low birth weight are male gender, multiple pregnancy, ethnicity, delayed conception, advanced maternal age, maternal smoking, and babies with severe congenital deformities are reported in previous work^{5,6,9,10}. In another study the association of paternal factors like paternal age, education, employment, income and consanguinity was seen⁶⁻⁸. But these risk factors were not studied in this study.

¹. Department of Pediatric Medicine / Physiology², Peoples University of Medical & Health Sciences, Nawabshah.

Correspondence: Juverya Naqvi, Assistant Professor of Pediatric Medicine, Peoples University of Medical & Health Sciences, Nawabshah.

Contact No: 0334-2192884

Email: doc20sept@yahoo.com

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MATERIALS AND METHODS

This is a retrospective study done at NICU of Pediatric Medicine Department of People's Medical College Hospital Nawabshah from January to December 2016. The newborn babies weighing less than 2500g admitted in neonatal care unit of our hospital were included in our study. The statistical tests used are percentages and proportions.

RESULTS

Out of total admissions 4525 in NICU, low birth weight babies were 1177 (26%). Out of these 1177 babies 706 (60.11%) were male neonates and rest were females. The main reason for admission are shown in table-1, in these neonates were prematurity 439(37.3%), sepsis 144 (12.23%), hypothermia and RDS 82 (7%), metabolic fits 42 (3.5%) and miscellaneous 65(3%). The mortality was seen in 919 patients (43%) (Fig-1).

Table No.1: Disease frequency for admission

S.No	Disease/Condition	Frequency and Percentage
1	Prematurity	439(37.3%)
2	Sepsis	144(12.23%)
3	Hypothermia+RDS	82 (7%)
4	Metabolic fits	42 (3.5%)
5	Miscellaneous	65(3%).

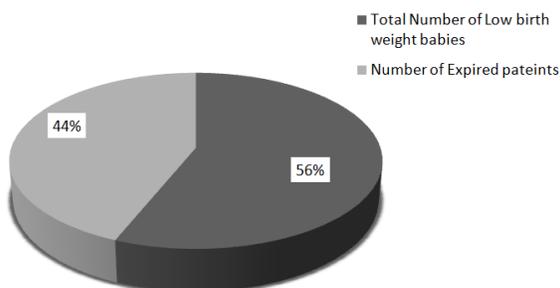


Figure No.1: Mortality percentages

DISCUSSION

We conducted this study at NICU of paediatric ward of PMCH Nawabshah to determine problems associated with LBW babies during their stay at hospital. Variations in incidence and characteristics of LBW reflects numerous risk factors and may be due to maternal malnutrition, medical illness, low income, insufficient knowledge about antenatal care and/or no antenatal care, scholastic, and ethnic backgrounds, while paternal risk factors like smoking, joblessness and many other that were not studied here but nevertheless have major impact on results^{11,12}.

In our study the frequency of LBW newborns was found to be 26% (1177 out of 4525, if we compare this to the incidence of LBW worldwide, it is 31% in South Asia followed by Middle East and North Africa (15%), Sub-Saharan Africa (14%) and East Asia and Pacific

7%¹³. In South Asian region the incidence of LBW is 36%, out of that 30% in Bangladesh and India respectively, and 19% in Pakistan¹³. A study from Peshawar shows that the overall incidence of low birth weight is 9.9%¹⁴, while a study from Abbotabad shows 30.3% much higher incidence compared to our set up¹⁵. The male to female ratio was 60:40, means a higher percentage of male babies as seen in other studies also¹⁶⁻²⁰.

The main reasons for admission in the low birth weight babies seen in our study was prematurity in 439 (37.3%) new WHO assessments of worldwide rate of preterm births indicate that of the 135 million live births in world during year 2010, 14.9 million babies were born before term, representing a preterm birth rate of 11.1%¹⁶. The high number of these before term births in Africa and Asia are linked, in part, to high fecundity and the huge number of births in these regions in contrast to other parts of the world¹⁶. The 10 countries with the highest numbers of estimated preterm births are India, China, Nigeria, Pakistan, Indonesia, United States, Bangladesh, the Philippines, Democratic Republic of the Congo and Brazil. These 10 countries constitute for 60% of all preterm births worldwide¹⁷. The fact that Mortality rates increase with decreasing gestational age, and babies who are both preterm and small for gestational age are at even higher risk is again well studied¹⁸. Next major reason for admission was sepsis, due to which 144(12.23%) babies were admitted that were low birth weight, internationally, it is estimated that more than 1.4 million neonatal deaths per annum are the consequence of invasive infections. Risk factors for early-onset neonatal sepsis (EOS) include prematurity, immunologic immaturity, maternal Group B streptococcal colonization, prolonged rupture of membranes, and maternal intra-amniotic infection¹⁹, and especially in low income countries risk of sepsis are increased. Hypothermia and RDS was the reason for seeking admissions in 82 (7%) patients in our setup, an international multicenter study shows that the RDS and sepsis to be the main reasons for morbidity and mortality in low birth weight babies²⁰, other reasons for admissions and in patient morbidity were metabolic fits in 42 (3.5%) and miscellaneous in 65(3%). In miscellaneous group in our study, newborns with congenital malformation and syndromes were included, Ismail et al study on premature and low birth weight neonates and their management at Shaikh Zayed hospital, Lahore reported that the proportion of preterm and LBW with congenital malformations was 7.3% as compared to 5.4% among remaining deliveries²¹. A study from Hyderabad²² show slow birth weight in 37.4%, major problems diagnosed on the first day of life in that study included Birth asphyxia in 61 (25.7%), RDS in 50 (21.1), hypoglycemia in 33 (13.9%), hypothermia in 31 (13.1%), jaundice in 23 (9.7%) and congenital malformation in 15 (6.35%) babies and IVH

was diagnosed in only 2 (0.8%) babies on first day of life²². The mortality seen in our setup was 43%. Many studies have been conducted regarding morbidities and mortality in LBW babies showing increased mortality and same patterns of problems in LBW babies with decreasing gestational age and birth weight²³⁻²⁴ Study conducted in Peshawar reported 52.52% mortality in LBW babies with neonatal sepsis, birth asphyxia and respiratory distress syndrome contributing to 91% mortality in them²⁵.

CONCLUSION

Our study showed that LBW is an important risk factor for various complications including RDS, hypoglycemia, hypothermia, sepsis, IVH, NEC and congenital malformations. Frequency of these problems increased with decreasing gestational age and birth weight. this is highly recommend that health education of mothers including better nutrition, vaccination and antenatal care and strengthening of health care facilities at both community and facility levels should be done to overcome the burden of LBW.

Author's Contribution:

Concept & Design of Study: Juverya Naqvi
 Drafting: Ali Akbar Siyal
 Data Analysis: Tabinda Taqi
 Revisiting Critically: Juverya Naqvi, Ali Akbar Siyal
 Final Approval of version: Juverya Naqvi

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