

EVALUATION OF FACTORS ASSOCIATED WITH LOW-BIRTH-WEIGHT BABIES**Dr.Satish Kumar Srivastav¹***1. Associate Professor , Department of Peadiatric, BRD Medical College, Gorakhpur****Email id of the corresponding author: sksrivastav@hotmail.com****Received: 10/01/2016****Revised: 09/03/2016****Accepted: 22/03/2016****ABSTRACT:**

Background: The WHO defines low birth weight as a birth weight below 2500 grams. Birth weight serves as a crucial indicator offering insights into the quality of life, socio-economic status, health awareness, and nutritional well-being within a community. Across all population groups, birth weight stands as the primary determinant influencing a newborn's chances of survival and their potential for normal growth and development. **Material & Methods:** The present cross sectional, prospective study was carried out at department of pediatrics, at our tertiary care hospital. The study duration was of six months from January 2012 to June 2012. A sample size of 100 was calculated at 95% confidence interval at 10% acceptable margin of error by epi info software version 7.3. **Results:** In the present study, out of total enrolled participants, on the basis of gender 8% male babies had birth weight of less than 2.5kg and 10% of female babies had birth weight of less than 2.5kg. However, this difference was statistically non-significant. On the basis of age of mother, 6% of mothers aged 19 to 25 years had birth weight of less than 2.5kg, 5% of mothers aged 25 to 30 years had birth weight of less than 2.5kg and 7% of mothers aged 30 years or above had birth weight of less than 2.5kg. However, this difference was statistically non-significant. On the basis of parity of mother, 8% of mothers of parity 1 had birth weight of less than 2.5kg, 6% of mothers of parity 2 had birth weight of less than 2.5kg and 4% of parity 3 or above had birth weight of less than 2.5kg. however, this difference was statistically non-significant. **Conclusion:** Several factors were stated as significant contributors to Low Birth Weight (LBW), including antenatal care, parity, inter-pregnancy interval, gestational weight, and a history of adverse obstetric events. However, the present study did not establish a statistically significant relationship between newborn gender, maternal age and parity of mother ($p > .05$).

Keywords: low birth weight, new born, outcome indicator.

INTRODUCTION:

The World Health Organization (WHO) defines low birth weight as a birth weight below 2500 grams (1). Birth weight serves as a crucial indicator offering insights into the quality of life, socio-economic status, health awareness, and nutritional well-being within a community. Across all population groups, birth weight stands as the primary determinant influencing a newborn's chances of survival and their potential for normal growth and development (2). The

association between the environment in which pregnant mothers reside and fetal growth underscores a multifactorial relationship. Public health experts advocate considering the distribution of birth weight and the prevalence of Low Birth Weight (LBW) as indicators of socio-economic development and as a outcome indicator of health service (3).

Low birth weight emerges as a significant contributor to elevated mortality and morbidity rates. Globally, among 139 million live births, approximately 23 million infants exhibit low birth weight (i.e., below 2.5 kg) (4). In India, the prevalence of LBW infants is approximately 33%, in stark contrast to the 4.5% seen in industrially developed countries. Perinatal mortality among LBW infants is approximately eight times higher than infants weighing more than 2.5 kg. LBW poses a formidable challenge to maternal and child health in both developed and developing nations, representing the most critical factor influencing child survival (5).

Nearly 50% of neonatal deaths occur among LBW babies, and survivors face a heightened risk of malnutrition, recurrent infections, and neuro-developmental challenges (6). The objective of this study is to estimate the proportion of low-birth-weight babies and analyse the risk factors associated with low-birth-weight babies at our tertiary care centre.

MATERIALS & METHODS

The present cross sectional, prospective study was carried out at department of pediatrics, at our tertiary care hospital. The study duration was of six months from January 2012 to June 2012. A sample size of 100 was calculated at 95% confidence interval at 10% acceptable margin of error by epi info software version 7.3. In this prospective study we enrolled 100 new born babies at our tertiary care center and enrolled them in our study by simple random sampling. Institutional Ethics Committee Clearance was obtained before start of study and written and informed consent from their mother and father for the study was obtained from all the patients. Strict confidentiality was maintained with patient identity and data and not revealed, at any point of time.

Detailed clinical history was taken from all the study participants along with maternal age,

parity, child birth weight and gender. The World Health Organization (WHO) has defined the low birth weight babies whose birth weight is less than 2500 grams. All data were entered in the MS office 2010 spread sheet and Epi Info v7. Data analysis was carried out using SPSS v22. Qualitative data was expressed as percentage (%) and Pearson's chi square test was used to find out statistical differences between the study groups and sensitivity, specificity, positive predictive value and negative predictive value were calculated. If the expected cell count was < 5 in more than 20% of the cells then Fisher's exact test was used. All tests were done at alpha (level significance) of 5%; means a significant association present if p value was less than 0.05 and highly significant if p value less than 0.01.

RESULTS

In the present study, we enrolled 100 new born babies at our tertiary care hospital during the study duration. Out of the total new born babies 46% were males and 54% were females. Out of the total new born babies average birth weight was 2.74 ± 0.38 kg. out of total 18% newborns had birth weight of less than 2.5 kg. (Table 1)

Table 1: Distribution of study participants according to study parameters.

| Parameters | No. of patients |
|-----------------------|--------------------|
| Male | 46% |
| Female | 54% |
| Avg birth weight | 2.74 ± 0.38 kg |
| birth weight < 2.5 kg | 18% |
| birth weight > 2.5 kg | 82% |

In the present study, out of total enrolled participants, on the basis of gender 8% male

babies had birth weight of less than 2.5kg and 10% of female babies had birth weight of less than 2.5kg. However, this difference was statistically non-significant. In the present study, out of total enrolled participants, on the basis of age of mother, 6% of mothers aged 19 to 25 years had birth weight of less than 2.5kg, 5% of mothers aged 25 to 30 years had birth weight of less than 2.5kg and 7% of mothers aged 30 years or above had birth weight of less than 2.5kg. However, this difference was statistically non-significant. In the present study, out of total enrolled participants, on the basis of parity of mother, 8% of mothers of parity 1 had birth weight of less than 2.5kg, 6% of mothers of parity 2 had birth weight of less than 2.5kg and 4% of parity 3 or above had birth weight of less than 2.5kg. however, this difference was statistically non-significant. (Table 2)

Table 2: Comparison of study parameters among participants.

| Parameters | | birth weight < 2.5 kg | birth weight > 2.5 kg | P value |
|------------------------------|-----------------|-----------------------|-----------------------|---------|
| Gender | Male | 8% | 38% | >0.05 |
| | Female | 10% | 44% | |
| Age of mother (years) | 19-25 | 6% | 26% | >0.05 |
| | 25-30 | 5% | 29% | |
| | > 30 | 7% | 27% | |
| Parity | 1 | 8% | 30% | >0.05 |
| | 2 | 6% | 32% | |
| | Parity ≥ 3 | 4% | 20% | |

DISCUSSION

In the present study, we enrolled 100 new born babies at our tertiary care hospital during the study duration. Out of the total new born babies 46% were males and 54% were females. Out of the total new born babies average birth weight was 2.74 ± 0.38 kg. out of total 18% newborns had birth weight of less than 2.5 kg. Similar findings were reported in a study conducted by P Chhabra et al conducted to assess the burden of low birth weight babies. They reported prevalence of LBW was 39.1%. Occurrence of LBW was associated with to age, weight, parity and height of the mother (7).

In the present study, out of total enrolled participants, on the basis of gender 8% male babies had birth weight of less than 2.5kg and 10% of female babies had birth weight of less than 2.5kg. however, this difference was statistically non-significant. Similar findings were reported in a study conducted by K Makhija et al conducted to assess the burden of low-birth-weight babies. They reported the average birth weight was 2.715 kg (S.D. .453kg). they reported mean birth weight of male new born babies was 92 g more than female new born babies (8).

In the present study, out of total enrolled participants, on the basis of age of mother, 6% of mothers aged 19 to 25 years had birth weight of less than 2.5kg, 5% of mothers aged 25 to 30 years had birth weight of less than 2.5kg and 7% of mothers aged 30 years or above had birth weight of less than 2.5kg. however, this difference was statistically non-significant. Similar findings were reported in a study conducted by TS Raghu Raman et al conducted to assess the burden of low-birth-weight babies. They reported the mothers in the age group of 19-25 years delivered the maximum number of low birth weight newborns (618) and of these 82.8% were small for gestational age newborns (9).

In the present study, out of total enrolled participants, on the basis of parity of mother, 8% of mothers of parity 1 had birth weight of less than 2.5kg, 6% of mothers of parity 2 had birth weight of less than 2.5kg and 4% of parity 3 or above had birth weight of less than 2.5kg. However, this difference was statistically non-significant. Similar findings were reported in a study conducted by KS Negi et al conducted to assess the burden of low-birth-weight babies. They reported the non-significant association (p value >0.05) between parity of mother and low-birth-weight babies (10).

CONCLUSION

Several factors were stated as significant contributors to Low Birth Weight (LBW), including antenatal care, parity, inter-pregnancy interval, gestational weight, and a history of adverse obstetric events. However, the present study did not establish a statistically significant relationship between newborn gender, maternal age and parity of mother ($p > .05$). Hence, further elaborative research will be required to generalize the results.

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