



A CROSS SECTIONAL STUDY: ASSESSMENT OF MATERNAL RISK FACTORS FOUND IN LOW BIRTH WEIGHT NEONATES

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ABSTRACT

Introduction Birth weight is one of the important factors for the survival, normal growth and development of a child. LBW is associated with compromised growth, disabilities, hospitalizations, brain damage, and poorer language development, increased risk of cardiovascular and metabolic disorders in adult life. Maternal risk factor that may contribute to LBW include age, stature, socioeconomic status, multiple pregnancies, previous LBW infants and poor nutrition. **Method:** The present cross-sectional study was carried out in the postnatal care wards and NICU of Janta trust hospital, Patan. All live born babies born at Janta Hospital with birth weight of less than 2.5kg during July 2019 to June 2020 were included after written consent from parents. The information regarding the study variables was recorded on predesigned, pretested questionnaire. **Result:** Out of 65 LBW babies, 46.2% were boys. Percentage of LBW babies was similar in second para and above (52.3%) as compared to primiparous mothers (47.7%). Eighteen babies (18, 27.7%) were born pre term. About 3.1% LBW babies had very low birth weight. The proportion of LBW babies was higher in 20-24 year age group (52.3%). Majority of mothers studied up to primary (84.8%). Total 63.1% had an antenatal registration with in the first trimester. Half of mothers (52.3%) visited adequately during antenatal period. Most common maternal factors found in LBW mothers were anemia (55.4%), PIH (12.0%) followed by UTI (7.7%) fever (6.2%) and APH (6.2%). **Conclusion:** Maternal factors like teenage pregnancy, illiteracy of the mothers, lower socioeconomic status, short birth spacing, lack of antenatal care were observed higher among low birth weight newborn. There is the need to strengthen the maternal services at community level.

KEYWORDS :

INTRODUCTION

The major causes of the infant mortality rate are low birth weight (LBW) and premature babies, birth asphyxia and infections in developing country. Birth weight is one of the important factors for the survival, normal growth and development of a child.¹ LBW has been defined by the World Health Organization (WHO) as weight at birth of less than 2,500 grams irrespective of gestational age.² There are multiple causes of LBW including early induction of labour or caesarean birth, multiple pregnancies, pre-eclampsia, eclampsia, infections and chronic conditions such as high blood pressure and diabetes.³

LBW is associated with compromised growth, disabilities, hospitalizations, brain damage, and poorer language development, increased risk of cardiovascular and metabolic disorders in adult life.^{4,5} Maternal risk factor that may contribute to LBW include age, stature, socioeconomic status, multiple pregnancies, previous LBW infants, poor nutrition, infection like tuberculosis, anemia, hemorrhage, chronic heart disease or hypertension, diabetes, urinary tract infection, any past obstetric history, maternal (medical) illness, drug addiction, alcohol abuse, smoking. Proper care is to be given even before a woman conceives, during pregnancy, delivery and after the birth.⁶ These factors are depending upon geographic, socioeconomic and cultural factors. Thus it is necessary to identify factors prevailing in a particular area are responsible for low birth weight, so as to plan the strategy to tackle this important problem. This study was conducted to study the maternal factors associated with low birth weight at Janta trust hospital, Patan.

METHODS

The present cross-sectional study was carried out in the postnatal care wards and NICU of Janta trust hospital, Patan after approval from institutional ethic committee. All live born babies born at Janta Hospital with birth weight of less than 2.5kg during July 2019 to June 2020 were included after written

consent from parents. Extramural newborn babies, still born and baby with congenital malformation were excluded. The information regarding the study variables was recorded on predesigned, pretested questionnaire. It included socio demographic details, antenatal history and natal history (labour and delivery history) of the mother, birth weight, length, and head circumference. Also their case files were reviewed for further additional information.

STATISTICAL ANALYSIS:

The data was entered into Microsoft excel 2010 and processed with EPI INFO Ver.7 software. Qualitative data was presented in frequency and percentage. However quantitative data was presented in mean and standard deviation. The "p" values less than 0.05 was considered as significant.

RESULT

Table 1 showed Characteristics of LBW babies. Out of 65 LBW babies, 30 (46.2%) were boys and 35 (53.8%) were girls. Percentage of LBW babies was similar in second para and above (34, 52.3%) as compared to primiparous mothers (31, 47.7%). Inter pregnancy interval less than 18 months was observed in 18 birth (47.1%). Eighteen babies (18, 27.7%) were born pre term. No any infant was born after 42 weeks. Six newborn (3.1%) had very low birth weight (less than 1.5 kg).

Table 1: Characteristics of LBW babies

Gender	Frequency	Percentage (%)
Male	30	46.2
Female	35	53.8
Birth order		
1 st	20	30.8
2 nd	27	41.5
3 rd	15	23.1
4 th	2	3.1
5 th	1	1.5
*Birth gap (months) n=34		

less than 18	16	47.1
18 to 23	13	38.2
≥ 24	5	14.7
Gestational age (Weeks)		
<28	1	1.5
28- 32	2	3.1
33-36	15	23.1
37-42	47	72.3
>42	0	0
Birth weight (kg)		
≤ 1	0	0.0
1.1 to 1.5	2	3.1
1.6 to 2.0	13	20.0
2.1 to 2.5	50	76.9
Total	65	100

Table 2: Characteristics of mother

Locality	Frequency	Percentage (%)
Rural	52	80.0
Urban	13	20.0
Religion		
Hindu	61	93.8
Muslim	4	6.2
other	0	0
SE class		
1 (Upper)	0	0
2 (Upper Middle)	0	0
3 (Lower Middle)	9	13.8
4 (Upper Lower)	35	53.8
5 (Lower)	21	32.3
Age of mother		
15-19	9	13.8
20-24	34	52.3
25-29	12	18.5
≥30	10	15.4
Education of mother		
Illiterate	22	33.8
Primary	33	50.8
Secondary	5	7.7
Higher secondary	3	4.6
Graduate	2	3.1
Occupation of mother		
Working women	28	43.1
Housewife	37	56.9
Antenatal registration		
Within 1st trimester	41	63.1
2 nd trimester	12	18.5
3 rd trimester	12	18.5
Adequate ANC visit		
Yes	34	52.3
No	31	47.7
Total	65	100

A majority of mothers (52, 80.0%) were from the rural areas. Total 61 (93.8%) belonged to Hindu religion followed by Muslim (4, 6.2%). The proportion of LBW babies was higher in 20-24 year age group (52.3%). Majority of mothers studied up to primary (55, 84.8%). Based on Modified Kuppuswamy's socioeconomic scale, 21 (32.3%) of total mothers were from the lower SE class. Total 41 women (63.1%) had an antenatal registration with in the first trimester. Half of mothers (34, 52.3%) visited adequately (min 4 visits) during antenatal period.

Table 3: Distribution of LBW babies according to maternal disease

Maternal Disease	Frequency	Percentage (%)
Anemia	36	55.4
Hypertension	8	12.0
Pre eclampsia	5	7.7

Eclampsia	3	4.6
UTI	5	7.7
Fever during pregnancy	4	6.2
APH	4	6.2
Gestational DM	4	6.2
Previous abortion	3	4.6
PROM >18 hrs	3	4.6
Oligohydromniosis	2	3.1
Polyhydromniosis	2	3.1
Uterine anomaly	1	1.5
Heart disease	0	0.0

Most common maternal factors found in LBW mothers were anemia (55.4%), PIH (12.0%) followed by UTI (7.7%) fever (6.2%) and APH (6.2%).

DISCUSSION

In the present study, half of the LBW newborns were (46.2%) boys. Proportion of LBW babies was similar in second para and above (52.8%) as compared with primiparous mothers (47.6%). Christopher GL et al. observed similar proportion of LBW male.⁷ A study from Nagpur reported higher percentage of LBW (43.0%) in primiparous mothers.⁸

In the present study, the proportion of LBW was high (47.1%) when interpregnancy interval was less than 18 months which is similar to the study conducted by Gawande et al (44.7%).⁸ In the present study, more than one forth babies (27.7%) were born pre term. Christopher GL et al. reported higher proportion of preterm birth (33.4%).⁷

Socio economic status of the household and education of mother strongly determines LBW status of the baby. In the present study, 52.3% mothers belonged to 20-24 year age group and one third mothers were illiterate. Nearly one third mothers (31.3%) were from the lower SE class. About 2/3rd women (62.8%) had antenatal registration with in the first trimester and half of mothers (52.3%) visited adequately during antenatal period.

A study conducted in Nagpur shows higher proportion of low birth weight in the teenage mothers (41%), which decreases as the age increases.⁷ This may be because of complications of pregnancy increases as the age advances. Significant association between antenatal care and birth weight of baby was also reported in this study.⁸ Joshi HS reported 45% of LBW babies delivered by illiterate mothers.⁹

CONCLUSION

Our results suggest that socio-economic status still determines birth weight it can be better addressed by universal antenatal care and institutional deliveries. A proportion of other factors like teenage pregnancy, illiteracy of the mothers, lower socioeconomic status, short birth spacing, lack of antenatal care were observed higher among low birth weight newborn. There is the need to strengthen the maternal services at community level.

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DECLARATIONS

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