Study of low birth weight babies in Nepal Medical College

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ABSTRACT

This was a retrospective study conducted to study the newborns weigth less than 2500gm delivered in Nepal medical college in the year 2005 and 2006. The cases were studied to find out the incidence and relation of maternal age, parity, gestational age, sex, etiological factors, mode of deliveries with Low Birth Weight (LBW) babies. There were 172 patients with LBW babies out of 1517 patient. Including the 9 twin babies, there were total 181 babies with LBW. Thus the incidence of LBW babies was 11.9%.There were only 26 (15.0%) under 20 of age. As for parity, 92 (53.0%) were primigravida and 80 (46.0%) were multigravida. There were 6 (3.5%) of the babies less than 28 weeks, 22 (13.0%) between 29 to 32 weeks, 61 (33.7%) between 33 to36 weeks, 78 (43.1%) between 37 to 40 weeks and 14 (7.7%) 41 weeks or above. The babies under 1000gm or 1000 gms were 7 (4.1%),1001-1500 gms were 15 (8.7%), 1501-2000 gms were 40 (23.0%) and 2001-2500 gms were 119 (69.2%). Male babies were 94 (52.0%) and female babies were 87 (48.0%). Caesarian section was 15.7% remaining babies were delivered vaginally. Among the risk factor for LBW babies, spontaeneous preterm labour were 61 (35.5%), intrauterine growth restriction were 51 (29.0%), antepartum haemorrhage 10 (5.8%), twin 9 (5.2%), pregnancy induced hypertension 12 (7.0%), preterm premature rupture of labour 8 (4.7%), anomalies were 4 (2.3%) and urinary tract infection were 20 (11.6%). Other infection were Typhoid 4 (2.3%) and chest infection 2 (1.2%). Thus the incidence of LBW babies in our hospital is quite high in comparision to the Western world and primigravida has more chance of delivering LBW babies. Spontaeneous preterm labour and intra-uterine growth restriction are major risk factor leading to LBW babies. Urinary tract infection also plays important role in spontaeneous preterm labour. So to reduce the prevalence of LBW babies, we should identify in early the high risk pregnancy, taking more care to primigravida, treating clinical and subclinical infection in time to prevent spontaeneous preterm labour, diagonosing and managing the intra uterine growth restricted babies in time .

Keywords: Low birth weight babies, parity, Kathmandu, Nepal.

INTRODUCTION

WHO has defined low birth babies Low Birth Weight (LBW) as weight at birth of less than 2500 grams.[1] LBW is an essential determinant of neonatal mortality [2] and a reliable indicater in monitering and evaluating the success of maternal and child health programmes.[3] Worldwide, about 16.0% of live births or some 20 million infants per year are LBW.[4] Over 90.0% of these infants are born in developing countries. Asia is the region with the highest incidence (19.7%) , almost 3 times that of Europe (6.5%) or the USA (7.0%).[5,6] A direct correlation between the neonatal mortality rate and LBW exists.[7] It is illustrated by the fact that the risk of neonatal mortality for LBW infants is 25 to 30 times than for infants with birth weight exceeding 2500 grams, and it increases sharply as birth weight decreases.[8,9]

Fetal growth and birth weight is influenced by a variety of factors, along with specific medical conditions that may be present or that may developed during pregnancy. Also mean birth weight shows a degree of variation from country to country and area to area within the same country.[10] Therefore it is essential to have data on the local patient population the prevalence and determinant of LBW. So that we can plan special care pattern for prevention and management of LBW babies in maternity units. There by can reduce the neonatal and perinatal morbidity and mortality rate.

MATERIALS AND METHODS

It was a retrospective study of new borns weighing less than 2500 grams delivered in Nepal Medical College in the year 2005 and 2006. All the babies delivered at 28 weeks of gestations or more with birth weight less than 2500 grams were included in the study. All the charts of the cases were studied to find out the incidence and relation of maternal age, parity, gestational age, etiological factors, mode of deliveries with LBW babies.

RESULTS

There were total 172 patients who delivered LBW babies. Including the nine twin babies, there were 181 LBW babies. So the incidence of the LBW was 11.9% out of total 1517 live birth.. Out of which less than 20 years were 26 (15.0%), between 20 to 30 years were 129 (75.0%) and above 30 years were 17 (10.0%). As for parity, 92 (53.0%) were primigravida and 80 (46.0%) were multigravida. There were only 6 (3.5%) of babies at 28 weeks, 22 (13.0%) between 29 to 32 weeks, 61 (33.7%) babies between 33 to36 weeks , 78 (43.1%) babies between 37 to 40 weeks and 14 (7.7%) babies of 41 weeks or above. The babies of

1000 grams or less than 1000 grams were 7 (4.1%), between 1001 to1500 grams were 15 (8.7%), between 1501 to 2000 grams were 40 (23.0%) and between 2001 to 2500 grams were 119 (69.2%). There were 94 (52.0%) male and 87 (48.0%) female LBW babies.

As regarding mode of delivery normal deliveries were 71 (41.0%), preterm deliveries were 54 (31.4%), Breech deliveries 11 (6.4%), Twin deliveries 9 (5.2%) and caesarean section 27 (15.7%).

Among the risk facters for LBW babies, spontaeneous preterm deliveries were 61 (35.5%), intra uterine growth restriction 51 (29.0%), antepartum haemorrhage were 10 (5.8%), in which placenta pravia 8 (4.7%) and abruptio placenta 2 (1.2%). There were 9 (5.2%) twin pregnancies, 12 (7.0%) pregnancy induced hypertension 12 (7.0%) and 1 (0.6%) eclapsia. There were 4 (2.3%) cases of rheumatic heart disease. Among the anomlies 4 (2.3%), there were 3 anencephalies and 1 (0.6%) omphalocele. Infection is important risk factor for LBW babies mainly urinary tract infection 20 (11.6%). Other infections were Typhoid 4 (2.3%), chest infection 2 (1.2%) and pulmonary tuberculosis taking antituberculosis was 1 (0.6%)). Out of 61 (35.5%) spontaeneous preterm labour 10 (5.8%) were associated with urinary tract infection. Last of all, there was 1 (0.6%) case of hypothyroidism.

DISCUSSION

The prevalence of LBW is a good indicator of mother's health and nutritional status.The incidence of LBW in Asia as a whole is 19.7% that of Europe is 6.5% and USA 7.0%. Our incidence of LBW is 11.9% is quite less than that of Asia but high in comparision to the Western world. Also it is not the incidence of the general community of our country because maximum of the deliveries take place at home attended by untrained midwives. (Gurbacharya and Karki 2006)[11] in their study , carried in Kathmandu Medical College and a private hospital B and B in Kathmandu reported their incidence of LBW babies to be 9.0%. The difference of incidence may be due to the difference of socioeconomic and nutritional status of the two groups of people.

Classical studies of neonates in USA shows that the age of mother at conception is an important determinant factor of birth weight .The incidence of LBW were high for babies of young mother.[12,13] Contradicting to the above fact, the prevalence of LBW in teenage mother in our study was only 6.3%. Primigravida were 53.0% in our study which shows that pramigravidity is important determinant for LBW and this finding correlates with study done by Moor[9] in which the prevalence of LBW in primigravida reported to be 52.0%. In our study, good number of LBW babies had normal deliveries and caeserian section was only 15.0% indicating that LBW babies are not associated with operative deliveries.

Among the the risk facters for LBW , spontaeneous preterm labour accounts for 35.0% of LBW and the second commonest factor was intra utrine growth restriction.(29.0%). This findings are not consistent with the study done by Mhaskar and Mhaskar *et al*[14] where the commonest risk factor was pregnancy induced hypertension and pre-eclapsia (50.0%). But the prevalence of twin pregnancy in both the studies correlates to each other (4.6% in our study vs 5.0% in their study) indicating the twin pregnancy itself is an important determinant for LBW. In developed world iatrogenic deliveriy is responsible for almost half of the birth between 28 to 35 weeks mainly due to pregnancy induced hypertension and pre-eclapsia,[15] leading to LBW babies . Surprisingly in our study LBW associated with pregnancy induced hypertension and pre-eclapsia was only 7.0%. Other risk factor for LBW in our study were mainly antepartum haemorrhage, congenital anomlies specially neural tube defect , rheumatic heart disease and infection like urinary tract infection. Thus risk factors for LBW babies were mainly spontaeneous preterm labour, intra uterine growth restriction, twin pregnancy and infection , mainly urinary tract infection .

There has been growing evidence to support the view that clinical and subclinical infection is an important cause of preterm birth.[16,17] Organism of Bacterial vaginosis group has been strongly linked to infection induced preterm birth.[18] Also it has already proved that periodontal disease is a major inflammatory precursor to sponteneuos preterm labour and may be implicated in up to 50.0% of cases.[19] So in our setup to reduce the prevalence of LBW babies and preterm deliveries, we should treat the women with the evidence of any infection with appropriate antibiotic .If there is not apparent infection in high risk groups search for subclinical infections like Bacterial vaginosis or periodontal infection and do the intervention in time. David Osrin and co-workers reported in their randomized trail of the effect on birth weight of a daily multiple micronutrient supplement given to Nepalese women during pregnancy , that there was average increase in birth weight of 77gms and a 25.0% reduction in the rate of LBW who received iron and folate.[20] Thus we should identify in early, the pregnant woman with high risk factors and provide adequate care ,nutrition and micronutrient like iron, folate .We should carry out necessary investigations like Doppler study of umbilical arteries and uterine arteries, Biophysical study of the foetus if required so that timly diagonosis can be made. It is necessary to conduct a study in general community to determine the incidence and risk factors for LBW babies so that comprehensive measures might be taken in order to decrease the incidence of LBW. Last of all, we should develop a special and well equipped neonatal intensive unit to improve survival and reduce morbidity and mortality associated with LBW neonate.

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Table -1: Age of the patient who delivered LBW babies

Age of the patient	No of the patient	Percentage
19 years or less	26	15.0%
20 years to 29years	129	75.0%
30 years or above	17	10.0%

Table -2: Parity of the patient who delivered LBW babies

Parity	No of the patient	Percentage
Primigravida	92	53.0%
Multigravida	80	46.0%

Table-3: Number of LBW in relation to gestation

Gestation	No of the LBW	Percentage
28 wks to 32 wks	28	16.5%
33 wks to 36 wks	61	33.7%
37 wks to 40 wks	78	43.0%
41 wks or above	14	7.7%

Table-4: Number of LBW babies in relation to birth wt.

Birth wt.	No of the babies	percentage
1000 gms or less	7	4.1%
1001 gms -1500 gms	15	8.7%
1501 gms-2000 gms	40	23.0%
Less than 2500 gms	119	69.2%

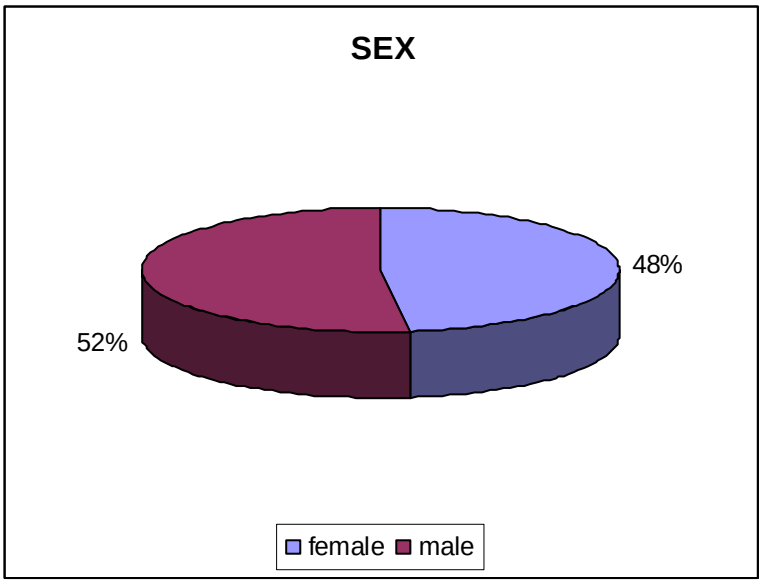

Fig. 1. Sex ratio of LBW babies

Table-5: Mode of delivery of LBW babies

Mode of delivery	No of the babies	percentage
Normal delivery	71	4.0%
Preterm delivery	54	31.4%
Breech delivery	11	6.4%
Twin delivery	9	5.2%
C/S	27	15.7%

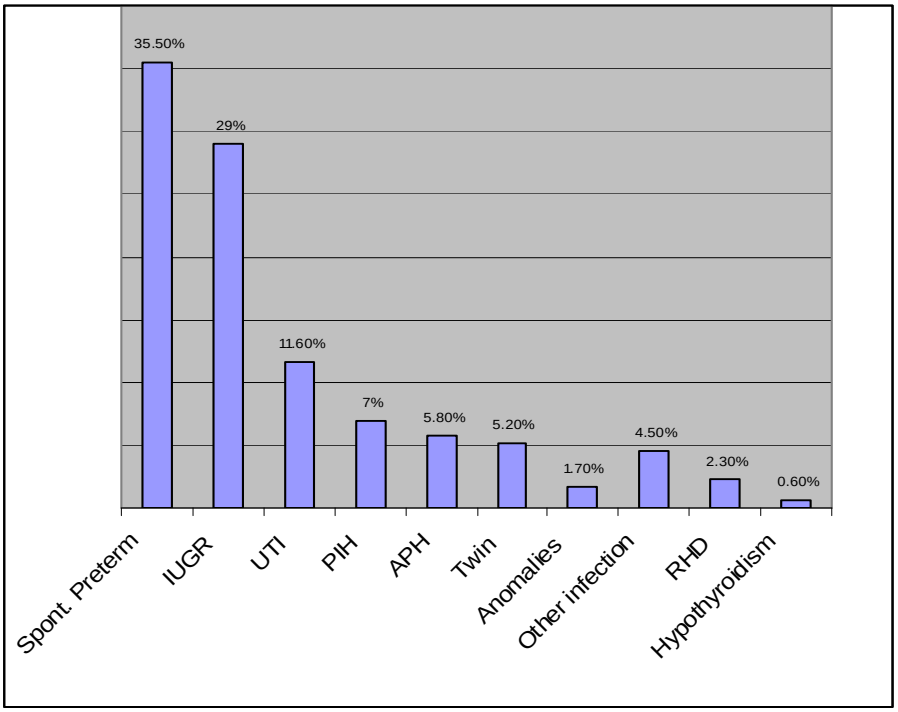

Fig. 2. Risk factors for LBW babies