Prevalence and Factors Related to Low Birth Weight in a Tertiary Hospital in Ajman UAE

Bushra Nasir[1], Jaweria Zaman[1*], Najla Alqemzi[1], Narges Musavi[1], Tasneem Adbullah[1], Rizwana Burhanuddin Shaikh[2]

[1]MBBS students, Department of Community Medicine, [2]Department of Community Medicine, Gulf Medical University, Ajman, UAE

*Presenting Author

ABSTRACT

Objectives: To estimate the prevalence of low birth weight infants born in GMC hospital Ajman (JAN 2011-DEC 2013) and identify the maternal and fetal risk factors for the low birth weight.

Materials and Methods: A record based study was done in Gulf Medical College Hospital and Research Center, Ajman UAE. The study included records of all neonates born with low birth weight in GMC Hospital from Jan 2011-Dec 2012. Tool for data collection was prepared and content validated by subject experts from department of Obstetrics and Gynecology and Community medicine; the tool included maternal and fetal factors. Data was collected after getting approval from ethics committee. All the data obtained was then entered into Excel spread sheet and analyzed using SPSS 20 software.

Results: The frequency of low birth weight (LBW) was approximately 20/1000 live births of which 96% were low birth weight and 4% very low birth weight. A high percentage of LBW babies were born to women of the group 20-34 years and most of them were unemployed. Of the mothers who had a low birth weight baby 47% had 3-5 children, 35% had previous abortions, 47% had anemia, 41% hypertension and 25% had ante partum hemorrhage. 71.7% of LBW were preterm and most of them were a result of a single birth, 12% of the LBW babies were born with some disability and 47% required admission in an NICU. Mode of delivery was by Caesarian-section in 58% of the deliveries.

Conclusion: Interventions to improve care during pregnancy, childbirth and the post natal period as well as feeding are likely to improve the immediate and longer –term health and well-being of the newborn and have a significant impact on neonatal and infant mortality at a population level

Key words: Low Birth Weight, UAE, maternal factors, fetal factors

INTRODUCTION

As defined by the World Health Organization (WHO), an infant is considered to be of low birth weight if his/her weight at birth is less than 2500 grams (up to and including 2499 g), irrespective of the gestational age of the infant[1]. LBW contributes upto 60% to 80% of all neonatal deaths. Preterm birth is the most common direct cause of newborn mortality. Preterm birth and being small for gestational age (SGA) are important indirect causes of neonatal deaths and LBW infants[2]. Small for gestational age is defined as an infant being below the 10% percentile of the recommended gender-specific birth weight for gestational age reference curves[3]. Interventions to improve care during pregnancy, childbirth and the postnatal period as well as feeding are likely to improve the immediate and longer-term health and well-being of the individual infant and have a significant impact on neonatal and infant mortality at a population level[2]. Prevalence of Low Birth weight published in 2006 by UNICEF[4] indicated that it was 15% of all live births in Middle East/North Africa. According to World Bank report, Low Birth Weight babies (% of births) in the United Arab Emirates were 6.10% in 2009[5]. A total of 19 million newborns each year in the developing world weight less than 2500 grams. More than half are born in Southern Asia - India alone has more than 7 million annually. More than 96 percent of low birth weight occurs in the developing world[6]. This research was done because LBW is a very common cause of neonatal death with a significant rate of morbidity and mortality and contributes 60% to 80% of all neonatal deaths world wide, literature search did not yield information regarding the prevalence and the contributing risk factors of LBW in UAE. The objective of the research is to estimate the frequency of low birth weight and identify the maternal and fetal risk factors for the low birth weight in infants born in GMC hospital Ajman.

MATERIALS AND METHODS

A cross sectional study was conducted in GMC hospital Ajman. Data was collected from the records of all low birth weight deliveries from Jan 2011 – Dec 2012. The researchers prepared an instrument for data collection after extensive review of literature. A faculty in the OBG department and community medicine department validated it. The instrument was then modified based on the information available in the records. The proforma had two section, 1 - maternal factors 2 - fetal factors. Data was collected only after getting the approval of the ethics committee of Gulf Medical University. Data was analyzed using the SPSS 21 and data was presented as percentages, tables and graphs.

RESULTS

Hospital record based study was undertaken among 197 low birth weight new born in the Dept. of gynaecology in GMC hospital out of total 9786 births reported from January 2011 till December 2012.The frequency of low birth weight in the duration Jan 2011 to Dec 2012 in GMC Hospital was 20/1000 live births

The profile of mothers with low birth weight infants is as follows

Table 1: Socio-demographic characteristics of the participants (N=197)

Socio-demographic Characteristics	Groups	No.	%	Non response
Age in years	<20 years	6	3.0	
	20-34 years	159	80.7	--
	>34 years	32	16.2	
Nationality	Arabs	73	38.0	5
	Non Arabs	119	62.0	
Occupation	Working	16	14.8	89
	Housewife	92	85.2	
Marital Status	Married	191	99.5	5
	Divorced	1	.5	

It was seen in our research that 80.7% LBW cases were from the women aged between 20-34 years out of which 62% were non Arabs and 99.5%were married .Most of the data regarding the occupation and residence of the mother was missing but a high percentage of cases were from Ajman and housewives.

Table 2: Distribution of pregnancy details (N=197)

Pregnancy Details	Groups	No.	%	Non response
First Pregnancy	Yes	66	33.5	--
	NO	131	66.5	
No of Gravida	≤2 children	59	45.0	--
	3-5 children	65	49.6	
	>5 children	7	5.3	
No. of Parity	≤2 children	106	86.9	
	3-5 children	14	11.5	75
	>5 children	2	1.6	
LBW in previous	Yes	24	35.3	

pregnancy	No	44	64.7	63
Abortion	Yes	46	37.1	7
	No	78	62.9	

LBW was found 33% less in first pregnancy cases and only 5% of women who had more than 5 children,45% who had 2 or less than 2 children and 49.9% of women had 3-5 childrens.64.7% of them had normal child weight for previous pregnancies but 37.1% had history of abortion.

Table 3 Distribution of Medical History and Pregnancy Care (N=197)

Pregnancy Care	Groups	No.	%
Antenatal Care	Yes	151	76.6
	No	46	23.4
Frequency of Antenatal Care	Regular	109	72.2
	Occasional	42	27.8

76.6% of women took antenatal care from which 72.2% took regular antenatal care

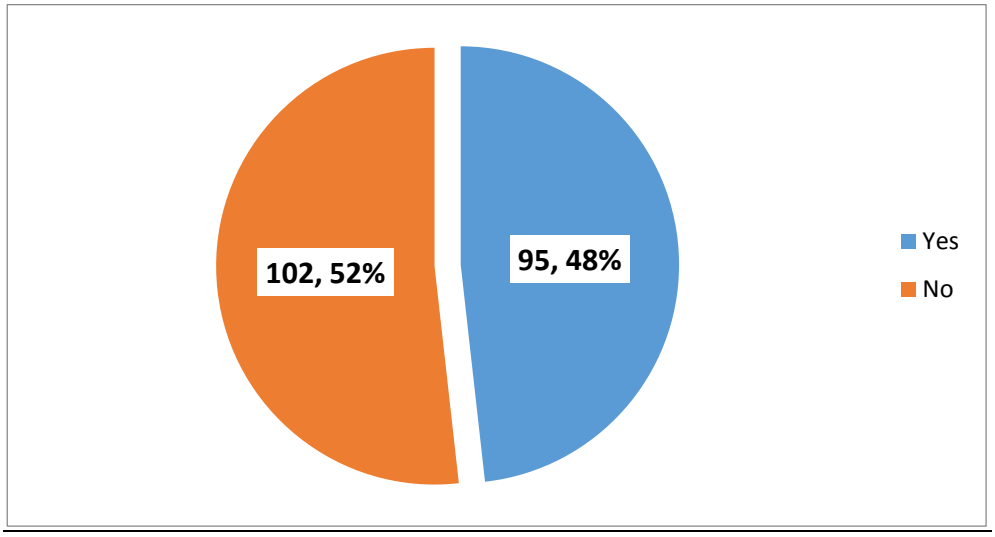

Figure 1. Illness during present pregnancy

48% had some illness in the present pregnancy.

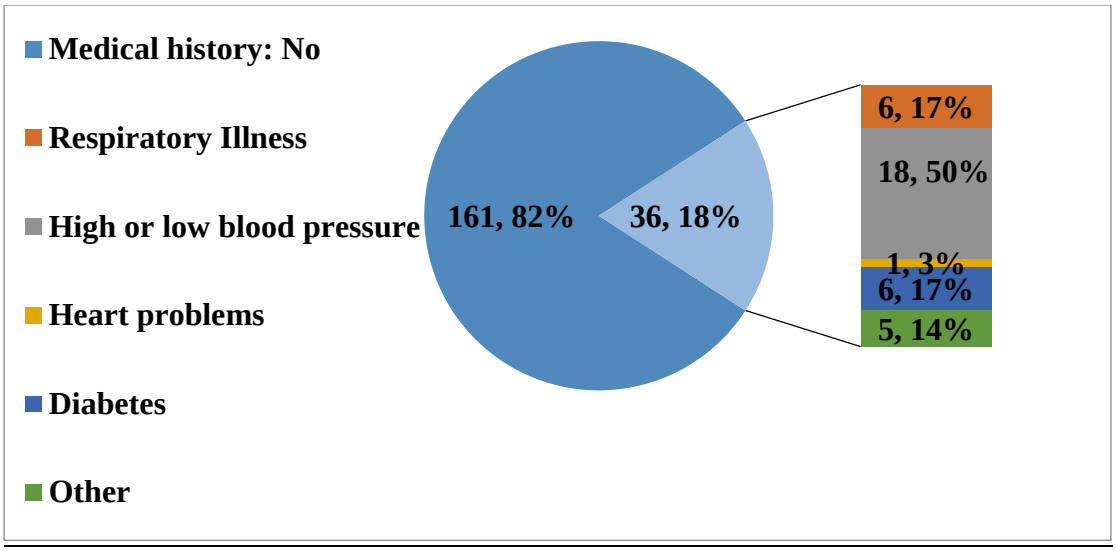

Figure 2. History of medical conditions during previous pregnancy

Of the 36% who had history of illnesses 50% had hypertension followed by diabetes, respiratory illnesses and other cardiovascular disorders.

Table 4: Distribution of nature of delivery (N=197)

Delivery Details	Groups	No.	%	Non response
Mode of Delivery	Normal	78	42.4	
	C-section	106	57.6	13
	Preterm (<37)	134	71.7	
Gestational Period	Early term (37-38)	44	23.5	10
	Full-term (>38)	9	4.8	
Child birth	Single	162	82.7	1
	Multiple	34	17.3	

57.6%of deliveries were done by c-section and a high percentage of which had preterm deliveries only 4.8% were full term.

Table 5: Distribution of LBW babies (N=197)

Details of New Born Babies	Groups	No.	%	Non response
Gender	Male	98	50.0	1
	Female	98	50.0	
Weight of Baby	VLBW (<1.50 kg)	7	4	1

	LBW (1.50 - 2.50 kg)	189	96	
Baby with Disabilities	Yes	19	11.9	37
	No	141	88.1	
Neonatal ICU after birth	Yes	76	47.2	36
	No	85	52.8	
Condition at discharge	Normal	194	99.0	1
	with complications	2	1.0	

The number of males and females were equal, 4% of the babies were less than 1.5 kgs or very low birth weight (VLBW). Approximately 12% were born with disabilities and 47% required admission in the neonatal intensive care unit

DISCUSSION

As a background information from the mothers we assessed their age, nationality, occupation, marital status, number of pregnancy, number of abortions, addiction, maternal history, antenatal care, mode of delivery, resuscitation, disabilities and if the baby was sent to the NICU or not.

Our study indicates that 80.7% of the LBW cases were among the women aged between 20-34 years while only 16.2% were more than the age of 34. Maternal age has been linked to LBW so that the lowest risk mothers are those between the ages of 20-34 years[7]. Prenatal care has long been endorsed as a means to identify mothers at risk of delivering a preterm or growth-retarded infant and to provide an array of available medical, nutritional, and educational interventions intended to reduce the determinants and incidence of low birth weight and other adverse pregnancy conditions and outcomes[8]. Younger maternal age, history of LBW infants, prematurity and hypertension have been recognized as predictors of LBW infants in a study done in Malaysia[9] A descriptive retrospective cross - sectional study using existing data from a one-year (2001) block of birth registers of 3464 pregnant women was done at Kilimanjaro Christian Medical Centre in Moshi, Tanzania. Hypertension, pre-eclampsia and eclampsia disease complex had the highest prevalence 46.67%. Bleeding and schistosomiasis had the same prevalence 33.33% of LBW babies. Other complications and diseases, which contributed to high prevalence of LBW, included anaemia 25%, thromboembolic diseases 20%, tuberculosis 17% and malaria 14.8%. Prevalence of LBW was high in women with premature rupture of membrane 38%, placenta previa 17% and abruption of placenta 15.5%. LBW was strongly associated with gestational age below 37 weeks contributing to 42% of LBW deliveries in the study population. Pregnant women with malnutrition (BMI < 18) gave the highest proportions 17% of LBW children followed by underweight (BMI; 18-22) who gave 15.5% of LBW neonates. There was a statistical significant difference between the proportions of LBW infants from mothers who did not receive antenatal care 28.6% and those who attended for the services 13.8%[9]. Our research shows that of the 36% who had history of illnesses 50% had hypertension followed by diabetes, respiratory illnesses and other cardiovascular disorders.

The incidence of preterm birth was found very high in our study,71.1% in a period of only two years whereas according to a study done in U.S for 25 years only 10% low birth weight were found to be preterm.[10] After delivery a wide range of

resuscitation are used in order to protect the neonate which mostly includes the use of respirators and oxygen.[11] Cesarean delivery is the mode of delivery observed in most of the low birth weight cases this mode of delivery is usually preferred in order to protect the neonatal, from any sort of trauma or sometimes even vaginal infections[12].

An interesting finding is that although the overall socio economic status in the UAE is high, many women did not have regular ante-natal care where 23% were un-booked cases and 29% had occasional antenatal care.

CONCLUSION

Health education to pregnant women should focus on the importance of regular antenatal care. Results of this study cannot be generalized due to limited sample size from only one tertiary hospital; the scope of the study is limited as normal controls could not be included for comparison. A larger study with normal controls can be planned for more conclusive results.

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