A COMPARISON OF SOCIO DEMOGRAPHIC AND CLINICAL RISK FACTORS FOR THE PREVALENCE OF LOW BIRTH WEIGHT IN CITY DISTRICT FAISALABAD

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ABSTRACT: Objective: *Low birth weight (LBW) is associated with various clinical and socio demographical variables. Especially vulnerable to the health and survival probability of a new born. This study aimed to estimates the risk factors for prevalence of the low birth weight among children in city district Faisalabad.*

Material and Methods: *A retrospective hospital based cross section study was conducted at obstetrics and gynaecology department, District Headquarter (DHQ) hospital Faisalabad. Where registration files of all patients admitted for child birth during May, 2013 to August, 2013 were considered.* ***Conclusions:*** *Our findings suggests that prevalence of LBW was as high in urban as in rural areas. Pre term births, teen age* pregnancies, un-booked status, gender female, c section deliveries were found to be significantly associated with LBW.

Keywords: Low Birth Weight, C-Section, Booked and Un-booked Patients

INTRODUCTION:

LBW is defined as a birth weight less than 2.5 kg. by WHO. Majority of low birth weight babies are born premature. Preterm birth is the main cause of death, morbidity and disability. The shorter the gestation, the smaller the baby and the higher the risk of death, morbidity and disability [1]. Inverse relation of birth weight to mortality does not only make a low birth weight a major risk factor for neonatal infant morbidity, mortality, learning disabilities and premature death but also indicates maternal health and nutrient status as well [2,3].

According to WHO low birth weight is an important predictor of new born health and survival. 15.5 percent of all births or more than 20 million infants worldwide are born with low birth weight. More than 95 per cent of low birth weight babies are born in developing countries. The level of low birth weight in developing countries (16.5 percent) is more than double the level in developed regions (7 percent) [4]. In overall percentage prevalence of LBW in South Asia, Pakistan contributes 25 percent low birth weights which accounts 1,337,000 children bearing with low birth weights per year.

Low fetal growth and premature birth (infant born before term or less than 37 weeks gestation) are considering major causes of LBW. Various infections, illness, working hard during pregnancy, low maternal food intake are factors associated with LBW [5,6] teen age, alcohol intake [7] and close birth spacing are also considered as major risk factors for LBW according to some studies [8]. Disadvantages associated with LBW are not only vulnerable to the survival chances of a neonates its self but also for the health of mother as a new study shows that severity in HIV infections in pregnant woman increase the risk of giving birth to LBW infants [9].

The demographical and clinical risk factors being studied in our study are easily manageable and their prevention cost is also in reach of a developing country like Pakistan [10]. Therefore our study aims to identify major risk factors for LBW so that effective strategies should be suggested to the administration for their prevention.

This study aimed to evaluate the prevalence of clinical and demographical risk factors responsible for low birth weight and the hypothesis to be tested in this study is that there is no association between in the incidence of low weight birth pregnancies with socio demographic and clinical risk factors. The comparison of effect of various risk factors between LBW infants and normal birth weight infants is made at DHQ hospital Faisalabad.

MATERIAL AND METHODS:

In this study data source is medical files of 223 patients with single pregnancy delivered babies alive or still born. Information regarding to clinical and demographic characteristics associated with LBW according to previous studies was extracted from these files [11,12]. Information on gestational age, maternal age, area, mode of delivery, child sex and weight, registration status, delivery type and previous obstetric history was noted. Permission to conduct study was obtained from MS and Head of Department of Gynaecology and Obstetrics, DHQ hospital Faisalabad and maximum confidentiality of data was maintained.

Babies weights are categorized as low birth weight (<2500grams), normal weight (>=2500grams) and gestational age categorized as pre term (<37 weeks) and full term (>=37 weeks) [13]. Since area is considered as a major demographical risk factor to contribute in prevalence of LBW. Area to which patient belongs to is sub divided in two categories of rural and urban. Maternal age in (years) was categorized under three groups <20 years, 20-35 and >35 [13]. Patients registered before delivery for regular pre neonatal medical examination were categorized as booked patients and those who were brought to labour room in emergency were as un-booked patients, delivery type is

categorized as vaginal or normal and c section if child birth is through abdomen using cut on bikini line.

Significance of both variables is studied over various medical and socio demographic risk factors. Chi squares, relative risks, odds ratio with 95% CI are presented.

RESULTS AND DISCUSSION:

Table-1: Distribution of infant birth weight according to sex, gestational age and child status

Variables	Categories	LBW No (%)	NBW No (%)	Total No (%)	Prevalence of Relative Risk (95% CI)	Odds Ratio (95% CI) χ^2
Gestational Age	<37 weeks	32(14.3)	50(22.4)	82(36.8)	6.878 (3.33-14.20)	10.640 (4.592-24.64) χ^2=39.17
	>37 weeks	8(3.6)	133(59.6)	141(63.2)	0.646 (0.541-0.77)	
	Total No (%)	40(17.9)	183(82.1)	223(100)		
Child Gender	Male	16(7.2)	107(48)	123(55.2)	0.542 (0.305-0.963)	0.474 (0.236-0.951) χ^2=4.52
	Female	24(10.8)	76(34.1)	100(44.8)	1.145 (1.005-1.303)	
	Total No (%)	40(17.9)	183(82.1)	223(100)		
Child Status	Surviving Infant	25(11.2)	168(75.3)	193(86.5)	0.259 (0.155-0.432)	0.149 (0.065-0.341) χ^2=24.20
	Died	15(6.7)	15(6.7)	30(13.3)	1.741 (1.212-2.500)	
	Total No (%)	40(4.9)	183(19.3)	223(100)		

Table-2: Distribution of neonates birth weights according to demographical and clinical history of mother

Variables		LBW No (%)	NBW No (%)	Total No (%)	Prevalence of Relative Risk (95% CI)	Odds Ratio (95% CI) χ^2
Maternal Age	<=20	3(1.3)	17(7.6)	20(9)	0.621 (0.242-1.591)	0.59 (0.119-2.36) χ^2=1.14
	21-34	30(13.5)	145(65)	175(78.5)	1.437 (0.763-2.703)	
	>=35	7(3.1)	21(9.4)	28(12.6)	NA	
	Total No (%)	40(17.9)	183(82.1)	223(100)		
Area	Urban	17(7.6)	80(35.9)	97(43.5)	0.960 (0.544-1.695)	0.952 (0.477-1.900) χ^2=0.02
	Rural	23(10.3)	103(46.2)	126(56.5)	1.009 (0.892-1.141)	
	Total No (%)	40(17.9)	183(82.1)	223(100)		
Type of Delivery	Normal	14(6.3)	38(17)	52(23.3)	1.771 (1.001-3.134)	2.055 (0.979-4.313) χ^2=3.72
	C Section	26(11.7)	145(65)	171(76.7)	0.862 (0.722-1.028)	
	Total No (%)	40(17.9)	183(82.1)	223(100)		
Patient	Booked Patient	6(2.7)	36(16.1)	42(18.8)	0.761 (0.342-1.693)	0.721 (0.281-1.847) χ^2=0.69
	Un-booked Patient	34(15.2)	147(65.9)	181(81.2)	1.055 (0.916-1.216)	
	Total No (%)	40(17.9)	183(82.1)	223(100)		
Previous Abortion	No	10(4.5)	32(14.3)	42(18.8)	1.437 (0.763-2.703)	1.573 (0.699-3.539) χ^2=1.21
	Yes	30(13.5)	151(67.7)	181(81.2)	0.913 (0.762-1.095)	
	Total No (%)	40(17.9)	183(82.1)	223(100)		
Previous C-Section	No	29(13)	140(62.8)	169(75.8)	0.842 (0.452-1.570)	0.810 (0.374-1.755) χ^2=0.28
	Yes	11(4.9)	43(19.3)	54(24.2)	1.040 (0.894-1.210)	
	Total No (%)	40(17.9)	183(82.1)	223(100)		

A total of 223 pregnant women delivered at DHQ hospital during May, 2013 to August, 2013. Of these 40 (17.9%) gave birth to low birth weight neonates. Most 175 (78.5%) of the registered pregnant women were in age group 21-34 with mean age 35.41± 5.643 kg. Out of 126 pregnant women from rural areas 23 (18.25% of 126) gave birth to low birth infants whereas 17 (17.53% of 97) mothers from urban areas with LBW infants were reported. No statistical significant difference in low birth weight as variation in area (χ^2 = 0.02) was found. The risk of low birth weight in rural area is 0.952 (OR = 0.952, (95% CI: 0.477-1.90)) times more likely that of LBW in urban areas (RR = 0.960, (95% CI: 0.544-1.69)). Significance association among birth weight and type of delivery was observe (χ^2 = 3.72). Astoundingly high proportion of births with c section 171 (76.7%) was observed where 26 (15.20% of 171) low birth weight infants were delivered through c section. Births with c section were almost twice (RR=1.771; (95% CI=1.00 - 3.134)) as likely to have LBW infants as normal deliveries. Booked or un-booked status reveals the antenatal care provided to the pregnant woman. Since antenatal care is considered as a major contributing to the child weight and maternal health. Our study found a large proportion 81.2 (181) of pregnant women to be un-booked at time of delivery and were brought to the hospital at time of emergency. Out of 40 (17.9%) low weight births 15.2% (34) low weight births were with pregnant woman lacking antenatal care. Woman with previous abortions due to any complications had the highest proportion

30 (16.57% of 181) of low birth weight infants. Pregnant women with any previous abortion were 1.573 times as likely to give births to low birth weight infants (OR = 1.573 (95% CI: 0.699-3.539)). No statistical significant difference in low birth weight and previous C-section ($\chi^2 = 0.28$) was found.

CONCLUSIONS AND SUGGESTIONS:

- Primary obstetric cause of LBW is preterm birth which is consistent with WHO reports[4]. Poor maternal nutrioned status and diet around the period of pregnancy could be one of the main reasons for this according to similar studies [14].
- Findings from our studies suggests that pregnant women who delivered new born in DHQ hospital Faisalabad belonged to the age group 21-34. Despite of being best fertile age group was responsible for a large proportion of low birth weight neonates. The low birth weight percentage found in our study was almost similar to that reported in Asia and other similar studies [11].
- Since rate of c section is raised globally past few decades high percentage of c section deliveries was found in our study which suggests that the higher risk of giving births to low birth weight babies through c section deliveries in urban and rural areas as well increases the patients expenses of surgery and medications as compared to regular deliveries which puts a burden on financially low income groups [15].
- The high percentage (56.5) of c section deliveries in rural areas in our study is striking. Our hypothesis that c section mode of delivery rate would be substantially lower than in urban areas proved in correct. We believe that there would be two possible reasons for these findings. First there is increasing trend towards hospital births in this community where home births are highly practiced [16]. Second that, despite of increasing awareness of importance of hospital births women from rural areas are brought to the hospital with severe complications and lack of antenatal care [17,18] at time of emergency where c section deliveries becomes un avoidable to save the life of mother and baby as well [19]. We there for suggest regular visits for medical examination and early antenatal booking before delivery could reduce c section rate among rural areas.
- Our study reports more females' births with LBW then males. Gender differential would be the possible reason for these findings. Un interested behaviours towards antenatal care for girl birth as compared to boy birth are generally in practiced in south Asia [20].
- Pregnant women who had any previous abortion were at high risk of giving births to low birth weight infants. Our findings were in line with study which considered pervious miscarriages as an important predictor of low birth weight [21].
- Although previous c section is consider as a risk factor for low birth weight in babies no association was found among low birth weight and previous c section history.
- High statistical significant association was found among child weight and child status in our study. High percentage of infant surviving with low birth weight calls for the need of studies on complications and disabilities attributed to low birth weight new born has to face after survival.

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