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ORIGINAL ARTICLE

RISK OF LOW BIRTH WEIGHT INFANTS IN TEENAGE PREGNANCY

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ABSTRACT: BACKGROUND: Having a low birth weight (LBW) baby can cause emotional, social and financial stress for the family. **SETTINGS AND DESIGN:** A cross sectional study, of 1-year duration, was conducted in department of gynecology and obstetrics GSL Medical College and General hospital. Universal sampling method was employed and every antenatal woman with the age of 15-19 years were registered in department of gynecology and obstetrics GSL Medical college and General hospital from June2013 to July 2014 were included as study participants. **MATERIALS AND METHODS:** 238 pregnant teenage subjects with in 34weeks of gestational age were included in the study. After the delivery of teenage pregnant subjects, babies with only live birth are included. Statistical Analysis: Statistical analysis was performed using SPSS version 20. Chi-square test was performed to find the significant association among the teenage mothers, low birth weight of the babies and causes of low birth weight of the babies. P value < 0.05 was considered as statically significant. **RESULTS:** Totally there are 123 babies were born with normal birth weight with 51.7% and 115 babies were born with low birth weight with 48.3% when compared with total number of babies born (238).Subjects born to teenage mothers were statistically associated with low birth weight of the babies. i.e., p=0.001 and causes of low birth weight of the babies were also statistically associated with Teenage mothers. i.e., p=0.003. **CONCLUSIONS:** More numbers of babies with low birth weight were born to teenage mothers as the age of the mother progresses the rate of low birth weight was decreased. So, it is advisable to do marriage for a girl according to the Indian law (>21 years) in order to prevent risks that occur to mother and to newborn.

KEYWORDS: Teenage, low birth weight, low birth weight causes.

INTRODUCTION: In our country, it has always been observed that law does not work satisfactorily in matters of religious acts, social and behavioral practices. India, the largest and most prosperous nation in South Asia, has maintained laws against child marriage since 1929, although at that time the legal age of marriage was set at 12 years. For girls, defined as female children younger than 12 years of age, the legal age for marriage were increased to 18 years in 1978. The most recent population-based estimate for child marriage (1998–99) shows that 50% of Indian women aged20–24 years were married as children. One vivid example is teenage pregnancy.

Despite the fact that legal age of marriage for girls is 18 years in India: 10-15 percent of total pregnancies occurs in teenagers (<19 years).[1] Birth weight is a reliable index of intrauterine growth restriction (IUGR) and it is a good indicator not only of mother's health and nutritional status but also the newborns chances for survival, growth, long term health, and psychosocial development.[2,3] LBW has a significant impact on the financial status of the family.[4]

Birth weight is the first weight of the fetus or newborn obtained after birth, preferably measured within the first hour of life before significant postnatal weight loss has occurred. Low birth weight (LBW) by international agreement has been defined as a birth weight of less than 2500 grams

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WHO[5] According to the WHO's estimate, the global rate of LBW in 2000AD was 15.5%, and the rate in developing countries (16.5%)was more than double that of developed countries(7.0%).[6]

Of the 19 million newborns weigh less than 2, 500 g in the developing world, more than half in South Asia. India alone has more than 7 million low birth babies. Preterm babies are those born before the end of 37 weeks of gestation (less than259 days). In countries where the population of LBW infants is less, short gestational period is the major cause. In countries where the population is high (e.g. India), the majority of cases can be attributed to fetal growth restriction.

The combination of poor nutrition and early childbearing expose young women to serious health risks during pregnancy and childbirth, including damage to the reproductive tract, pregnancy related complications, such as anemia, pregnancy induced hypertension, preterm labour, cephalopelvic disproportion, maternal mortality, prenatal and neonatal mortality, and low birth weight.[7,8]

The purpose of the study is to gain an insight into the maternal and socioeconomic factors influencing the birth weight. The prevalence of LBW babies in India has not decreased to a much extent in the last few decades despite of the continuous efforts of the Government to improve maternal and child health care services. The study will also provide information of the various socioeconomic determinants affecting birth weight and thus suggestion of measures to reduce their influence on birth weight.

MATERIALS AND METHODS: A longitudinal study of 1-year duration, from June 2013 to July 2014 was conducted in department of gynecology and obstetrics GSL Medical College and General hospital. The Universal sampling method was employed and every antenatal woman with age 15-19 years were registered at the urban health center from June 2013 to july2014were included as the study subjects. The study was approved by institutional ethical committee.

Inclusion and Exclusion Criteria: All ANC subjects with in age of 15-19years registered department of gynecology and obstetrics GSL Medical College and General hospital within 32weeks of their gestational age were included as the study subjects. Those subjects with history of any congenital malformed child, twins, or with any preexisting co morbid illness such as, hypertension, bronchial asthma, heart disease, cancer, etc., were excluded from the study.

Total 238 pregnant women registered, at the time of registration, we have taken their informed consent, information on age, religion, education, and occupation of women, information on family income per month, menstrual and obstetrical history was recorded. Information pertaining to personal habits such as tobacco use and smoking were also noted down. After the delivery of each individual, the weight of the baby is measured using standard weighing machine with nearest 50 Gms.

Statistical analysis was performed by using SPSS trail version 16.0 and p value <0.05 consider as statistically significant.

RESULTS: In this study there are 238 teenage pregnant individuals are registered. The individuals are divided depending upon the age group of 15, 16, 17, 18, 19 years respectively. Totally there was 123 babies are born with normal birth weight with 51.7%and 115 babies are born with low birth weight with 48.3% when compared with total number of babies born (238).

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Table 1 shows The individual with the age of 15 years, there are only 5 cases, they delivered babies with all are with low birth weight with 4.3% within the Low birth weight category and 2.1%when compared to total birth category. The individual with the age of 16 years, there are totally 21 cases, they delivered babies all are with low birth weight with 18.3% within the Low birth weight category and 8.8%when compared to total birth category. The individual with the age of 17 years, there are 26 cases, out of 26 babies born, 3 are with normal birth weight with 11.5% within the age category and 2.4%within normal birth weight category. 23 babies born with low birth weight with 88.5% within age category and 20% when compared to low birth category.

The individuals with the age of 18 years, there are 75 cases, out of 75 babies born, 52 are with normal birth weight with 69.3% within the age category and 42.3% within normal birth weight category. 23 babies born with low birth weight with 30.7% within age category and 20% when compared to low birth category. The individual with the age of 19 years, there are 111 teenage pregnant women are registered they are about 46.6% when compared to total number of teenage pregnant women registered out of 238, 68 teenage pregnant woman gave birth to babies with normal birth weight with 61.3% within age category and 55.3% within normal birth weight category. 43 teenage pregnant women babies born with low birth weight it comprises about 38.7% within age category and 37.4% when compared to low birth category.

Table 2 shows causes for low birth weight in infants born to teenage individuals. In this study anemia, low economic status, IUGR, preterm and primis are includes as causes for low birth weight out of 115 low birth subjects, preterm play major role (30.4%) for the cause low birth weight followed by anemia (22.6%), low economic status (18.3%), intrauterine growth restriction (18.3%)and primes (10.4%). If age is less, higher chance of low birth weight due to anemia as the age progress chance of preterm deliveries are decreased.

DISCUSSION: This study indicated that teenage pregnancy was associated with increased risks of low birth weight, pre-term delivery with a general tendency of poorer outcomes in younger teenagers.

The proportion of LBW among the study subjects was in the present study 48.3% nearly equal to the study done by Gagan Agarwal et al.[9] In a study in rural Ballabgarh, Haryana, incidence of LBW was 8.8% [10] which was much lower than the present study.

Such a low proportion of LBW could be because of good follow up and no addiction among the subjects. The rate of LBW was found to be 24.6% in a study done in rural Tamil Nadu which was lower than the present study probably because of higher literacy rates in the study subjects.[11]

This study found that teenage mothers had a higher incidence of anemia. The incidence rate of anemia among teenage pregnancies was 22.6%, higher than to that found by Suebnukarn et al.

Maternal anemia predicted 2.4 times greater risk of preterm delivery and increased risk of low birth weight .Maternal iron deficiency predicted a 2.5-fold higher risk of preterm delivery and iron deficiency anemia predicted a three-fold greater risk of preterm delivery. Anemia, iron deficiency anemia are common in pregnant Indian women and are associated with increased risk of adverse pregnancy.[12]

The present study showed that there was a statistically significant inverse association between family income per month and LBW and incidence is 18.3%. Similar findings were observed in an urban slum of Mumbai.[13] This was because of the poor maternal nutritional intake during pregnancy, which was recorded in the lower socioeconomic class study subjects.

Low socio-economic status is one of the strongest predictors of LBW in low-income countries. In contrast to previous findings, low socio-economic status was not significantly associated with LBW in this study. Perhaps in spite of poor socio-economic status if a woman could maintain a good nutritional status and avoid potential medical complications during pregnancy, giving birth to a normal weight baby might be a possibility.[14]

In this study, we find that incidence of low birth weight by intrauterine growth restriction is 18.3% similar to the study in Nepal urban population, globally, about 20 million infants are born with low birth weight. Of all LBW infants, approximately 95% are born in developing countries. The greatest incidence of LBW occurs in South-Central Asia; the second greatest is in Africa. The two main reasons for LBW are preterm birth (<37 weeks) and intrauterine growth restriction (IUGR), which are risk factors for increased morbidity and mortality in newborn infants.

Maternal nutrition status is one of the most important risk factors for LBW/IUGR. Providing balanced protein energy and multiple micronutrient supplements to pregnant women will reduce incidence of IUGR. Calcium supplementation during pregnancy will reduce the incidence of preterm birth in developing countries Kangaroo mother care for preterm infants will reduce severe morbidity and mortality as well. Community-based intervention packages are among the most effective methods of reducing morbidity and mortality in mothers and children. Future research should focus on improving triage of preterm and IUGR infants.[15]

CONCLUSION: More numbers of babies with low birth weight are born to mother with in teenage, as the age of the mother progress the rate of low birth weight is decreased. Therefore, it is advisable to do marriage for a girl according to the Indian law (>21 years) in order to prevent risks that occur to mother and to newborn.

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Age	Low birth weight	Normal birth weight	Total	p- value
15	5	0	5	0.000
	100.0%	0%	100.0%	
	4.3%	0%	2.1%	
16	21	0	21	
	100.0%	0%	100.0%	
	18.3%	0%	8.8%	
17	23	3	26	
	88.5%	11.5%	100.0%	
	20.0%	2.4%	10.9%	
18	23	52	75	
	30.7%	69.3%	100.0%	
	20.0%	42.3%	31.5%	
19	43	68	111	
	38.7%	61.3%	100.0%	
	37.4%	55.3%	46.6%	
Total	**115**	**123**	**238**	
	48.3%	**51.7%**	**100.0%**	
	100.0%	**100.0%**	**100.0%**	

Table1: distribution of birth weights of the babies depending upon mother's age

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Age	CAUSEOFLBW					Total	p-value
	ANAEMIA	LOWSES	IUGR	PRETERM	PRIMI		
15	2	0	3	0	0		0.003
	40.0%	0%	60.0%	0%	0%	100.0%	
	7.7%	0%	14.3%	0%	0%	4.3%	
16	6	3	5	7	0	21	
	28.6%	14.3%	23.8%	33.3%	0%	100.0%	
	23.1%	14.3%	23.8%	20.0%	0%	18.3%	
17	2	5	6	10	0	23	
	8.7%	21.7%	26.1%	43.5%	.0%	100.0%	
	7.7%	23.8%	28.6%	28.6%	0%	20.0%	
18	7	0	2	10	4	23	
	30.4%	.0%	8.7%	43.5%	17.4%	100.0%	
	26.9%	.0%	9.5%	28.6%	33.3%	20.0%	
19	9	13	5	8	8	43	
	20.9%	30.2%	11.6%	18.6%	18.6%	100.0%	
	34.6%	61.9%	23.8%	22.9%	66.7%	37.4%	
Total	**26**	**21**	**21**	**35**	**12**	**115**	
	22.6%	**18.3%**	**18.3%**	**30.4%**	**10.4%**	**100.0%**	
	100.0%	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	

Table 2: distribution of causes of low birth weights of the babies depending upon mother's age

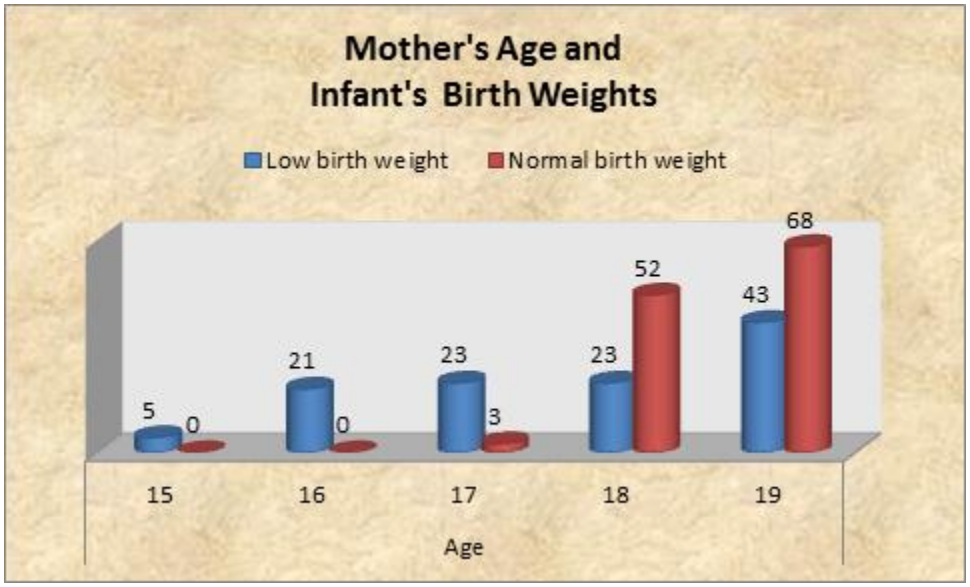

Fig. 1

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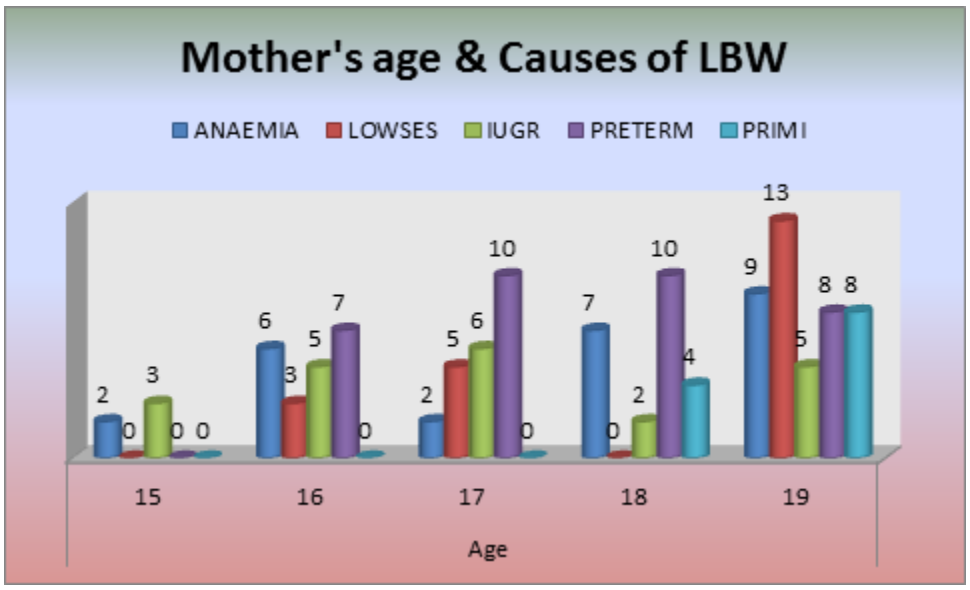

Fig. 2

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