ORIGINAL RESEARCH PAPER

Obstetrics & Gynecology

BIRTH WEIGHT BY MATERNAL AGE, GESTATIONAL AGE AND SEX AT A TERTIARY CARE INSTITUTE OF SHIMLA, HIMACHAL PRADESH.

KEY WORDS:

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ABSTRACT

Background: Birth weight is an indicator of social and economic development of any country. The proportion of low birth weight (LBW) has reduced in India in the past few decades; however, we have still a long way to go. **Objective:** we aimed to determine the distribution of birth weights by maternal and gestational age and gender. **Methodology:** This cross-sectional study was conducted for a period of one year i.e. from April 2019–October 2019 on all the live babies born at IGMC, Shimla, HP. **Results:** Out of all the 4057 live newborns, 880 (21.7%) were LBW babies. Maternal age was not associated with LBW however, gender, gestational age nad mode of delivery were significantly associated with LBW.

INTRODUCTION:

A baby's weight at birth is a strong indicator of maternal and newborn nutrition. Being undernourished in the womb increases the risk of death in the early life of a child[1]. Those who survive, have impaired immunity remain undernourished, with reduced muscle strength, decreased cognitive abilities and low intelligence quotient throughout their lives[2,3]. Also LBW shares higher proportion of global neonatal mortality which is estimated to be around 60–80% [4].

World Health Organization (WHO) defines low birth weight (LBW) as the birth weight of live born infants below 2500 g, regardless of gestational age [5].

Despite consistent efforts to improve the quality of maternal and child health; more than twenty million LBW babies are born every year throughout the world with low-income countries accounting for majority of share. Half of the children with LBW were born in South Asia and among these countries, India and Bangladesh have highest prevalence of LBW (30%)[6].

Global prevalence of low birth weight is estimated to be 14.6% with prevalence varying across regions from 7.2% in developed regions to 17.3% in Asia and within region from 5.6% in central Asia to 27.2% in Southern Asia [7].

In 2011, the Indian Statistical Institute reported nearly 20% of newborn having LBW in India[5]. District Level Health Survey-4 (2012–2013) in Himachal Pradesh reported the prevalence of LBW as 13.8%[8].

Information regarding birth weight is of great importance as it is an indirect indicator of maternal nutrition and predictive indicator of potential neonatal death and malnutrition if the child survives [9].

LBW is a multifactorial origin. Socioeconomic factors associated with LBW include place of residence, occupation, educational status, and wealth index [10]. Similarly, maternal factors and obstetric factors associated with LBW include preterm delivery, maternal age, height, uncontrolled fertility, nutritional status of mother, and adequate care during pregnancy[11-19]. Majority of these factors are interrelated, influencing each other and predispose a women to give birth to an infant with LBW.

There is a strong association between lack of ANC and adverse pregnancy outcomes[16,19]. Antenatal clinics are an essential element of the health services and provide services such as screening, prevention, and treatment of pregnancy-related complications. WHO recommends at least four standard quality ANC visits[20]. There is a paucity of literature about determinants of LBW in women in sub-himalayan region. With this background, this study was undertaken to estimate proportion of LBW babies born at tertiary health care institution and to find out relation of the LBW among babies to maternal and gestational age and sex of baby.

METHODS

This hospital based cross-sectional study of 1 year (April 2019–October 2019) was conducted at the labour room wards of a Tertiary Care Center of IGMC, Shimla, Himachal Pradesh. During this period 4057 live newborns were screened who were delivered in Kamla Nehru Hospital Shimla.

RESULTS:

Table 1: Birth weight distribution of newborns

BIRTH WEIGHT	NUMBER	PERCENTAGE
<1499	57	1.4
1500-2499	823	20.3
2500-3499	2930	72.2
>3500	247	6.1
TOTAL	4057	100

Table 2: Predictors of LBW in newborns

Parameters		Birth weight		P Value
		<2.5 Kg	>2.5Kg	
Maternal age group	<20	32	109	0.293
	21-30	672	2495	
	>31	176	563	
Sex of baby	Male	419	1650	0.023
	Female	461	1527	
Gestational age	<28	4	0	<0.001
	28 to <32	48	2	
	32 to <37	421	137	
	37 to <41	405	3005	
	>41	2	33	
Mode of delivery	NVD	604	2316	<0.001
	LSCS	265	723	
	Assisted	11	138	

DISCUSSION:

The proportion of LBW in the present study was found to be 21.7%, which was slightly less than the national average of rural India (23%)[1]. Similar to our study, a study by Borah et al reported 21.8% LBW in institutional births[21]. Present study was carried out at tertiary health care institution where women with optimum utilization of health care facilities like ANC, adequate use of iron and folic acid tablets and optimum utilization of ICDS services might have helped in declining LBW. In the present study no significant association was found between the birth weight and teenage pregnancy. It may be due to the fact that teenage mothers in the present study are lesser in number. No doubt that teen pregnant mothers are both physically and mentally less capable for bearing the

burden of pregnancy. Banerjee et al also found that the incidence of LBW was significantly higher among the teenage mothers[22].

LBW of newborns in this study was significantly associated with female sex. Nascimento LCF also concluded that female sex is significantly associated with low birth weight of baby[23].

Premature delivery is a known predictor as mentioned by other studies from Nepal and Ahmedabad.[24,25] Anitha et al also reported that increase in gestational age contributes to increase in birth weight of the baby.[26] This indicates that mothers with a history of premature delivery may need special care during the antenatal period and highlights the role of our forefront workers.

Vaginal route of delivery had significantly higher chance of LBW, and this is reduced in assisted vaginal route as compared to LSCS. This is self-explanatory; as the weight of baby increases the assisted technique has to be used to deliver the fetus. The health-care systems in India have been divided into three tiers of primary, secondary, and tertiary in the form of a pyramid with tertiary at apex and primary forming the larger part of base.[27] Those on demand side have faith in hospital-based care or curative approach rather than preventive approach and thus demotivate the service providers leading to low-quality preventive services. This is the reason we witness a load of LBWs in tertiary centers as the focus of preventive aspect is shifted to diagnosis and treatment of a condition rather than its prevention.

Limitations

The data obtained from records of tertiary center give us the tip of iceberg and limit ability to understand the pattern and associations at peripheral level. The findings of this analysis cannot be generalized among all the settings of the country as it was a single-centric study.

Recommendation

The social status of any family is difficult to change; hence, the focus of intervention should be the nutrition status of women and the number of pregnancies. Secondary prevention in the form of early identification of high-risk cases and timely referral to higher centers is the next step which is functioning well in this part of the country.

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