



Original Article

Frequency of Low Birth Weight in Patients with Gestational Hypertension

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ABSTRACT

Preterm birth and low birth weight are just two negative fetal outcomes that are linked to PIH. The WHO divides infants into three categories based on birth weight and gestational age: Small for gestational age, Appropriate for gestational age, and Large for gestational age. LBW babies are those who weigh less than 2.5kg within 24 hours of birth, according to these standards.

Objectives: To determine the frequency of low birth weight in patients with gestational hypertension. **Methods:** This Descriptive study was done in department of Obstetrics and Gynecology unit III, Civil Hospital Karachi from 16th February 2019 to 15th August 2019. We enrolled 89 women diagnosed with gestational hypertension meeting the criteria. Informed consent was taken. **Results:** Age range in this study was from 20 to 45 years with majority of the patients 52 (58.43%) were between 18 to 30 years of age. Mean gestational age was 39.51±2.7 weeks. Frequency of low birth weight in patients with gestational hypertension was found in 27 (30.34%) patients. **Conclusion:** This study concluded that frequency of low birth weight in patients with gestational hypertension is very high.

INTRODUCTION

According to WHO hypertension during pregnancy accounts for 10% of all pregnancies and carries major risk of fetal and maternal morbidity and mortality globally [1]. Pregnancy induced hypertension accounts for about major proportion around 8% of all hypertension cases during pregnancy, PIH is majorly comprises of essential hypertension before pregnancy, gestational hypertension, preeclampsia and eclampsia. Pregnancy-induced hypertension (PIH) is defined as blood pressure that is greater than 140/90 mmHg on two occasions after a period

of rest or greater than 160/110 mmHg on one occasion in a woman who was previously normotensive [2]. PIH is a significant pregnancy complication linked to early birth, intrauterine growth retardation (IUGR), abruptio placentae, intrauterine death, along with maternal morbidity and mortality [3]. According to estimates, hypertensive disorders during pregnancy account for 9.1% of maternal mortality in Africa. Preterm birth problems, birth asphyxia, and newborn sepsis are three neonatal causes of under-five mortality in Zimbabwe that account for 29% of all

deaths. Difficulties related to preterm birth account for 39% of newborn fatalities. 6.5-7% of pregnancies are impacted by pre-eclampsia [4]. Pre-eclampsia with convulsions present that are not related to another neurologic condition is considered to have eclampsia. Premature birth, intrauterine growth retardation (IUGR), abruptio placentae, and intrauterine mortality are among serious pregnancy complications that can occur. Pregnancy-induced hypertension has a bad prognosis of fetal death and morbidity, although the literature demonstrating the frequency of preterm birth and low birth weight in these patients is outdated. Significant progress has been made in the treatment of pregnancy-induced hypertension, but Pakistan is not now equipped to deal with the prevalence of preterm birth and low birth weight. According to the maternal care institution, fetal outcomes vary from population to population as was indicated in the introduction [5]. Due to paucity of data, we designed this study to help us to determine the frequency of low birth weight babies in patients with gestational hypertension in our population in current era so that the burden of disease can be identified and additive measures can be considered in case of high frequency.

METHODS

This Cross-Sectional study was conducted in Department of Obstetrics & Gynecology unit III, Civil Hospital Karachi from 16th February 2019 to 15th August 2019. By using WHO calculator with confidence level of 95% with error of margin 8% and anticipated Population around 18% sample size is 89. We enrolled patients 89 patients by using non-probability, consecutive sampling of age of patients 20 to 45 years, and diagnosed with gestational hypertension, gestational age more than 20 weeks as calculated by earlier scan. Singleton gestation diagnosed on ultrasound scan. We excluded Women with diagnosed case of hypertension and diabetes mellitus. After approval from ethical committee of hospital, all 89 patients admitted in the labor room who fulfill the inclusion criteria was enrolled after taking their consent. Detailed history and record were reviewed. Pregnancy induced hypertension (PIH) is defined as BP \geq 140/90 mmHg, taken after a period of rest on two occasions or \geq 160/110 mmHg on one occasion in a previously normotensive woman. Low birth weight labelled when fetal birth weight less than 2500 gm. The collected data were analyzed by using SPSS version 22.0. Mean and standard deviation was computed for quantitative variables like age, height, weight, BMI, gravida, gestational age and baby birth weight. Effect modifier was adjusted through stratification, by applying chi square test, p-value less than or equal to 0.05 was taken as significant.

RESULTS

A total of 89 women with diagnosed cases of gestational diabetes in index pregnancy were included in this study. Age ranges from 20-45 years with average age of the patients was 31.31 ± 3.5 years, whereas majority lies between 26 to 35 years. Gestational age varies from 38 to 40 weeks with average of 39.51 ± 2.7 weeks while Mean BMI of the patients was 26.74 ± 1.3 . The average weight of the neonate was 2.3 ± 4.52 kg as shown in Table 1.

Table 1: Descriptive Statistics of Demographic Characteristics

Variables	Range	Mean
Age (Years)	20-30	29.09 \pm 4.23
Gestational Age (Weeks)	38-40	39.51 \pm 2.7
BMI (kg/m ²)	27.95-29.21	26.74 \pm 1.3
Baby Weight (kg)	2.1-2.4	2.3 \pm 4.52

Out of 89 male neonates were 52 (58.4%) and 37 (41.5%) were female neonates. 55 (61.7%) women had history of primigravida while 34 (38.2%) women were multigravida. Frequency of low birth weight 27 (30.34%) as shown as shown in Table 2.

Table 2: Descriptive statistics of variable

Variables	Frequency (%)
Gravida	
Multigravida	34 (38.2%)
Primi-gravida	55 (61.7%)
Gender	
Male babies	52 (58.4%)
Female babies	37 (41.5%)
Low birth weight	27 (30.34%)

Stratification for low birth weight was done with respect to effect modifiers like maternal age, gestational age and BMI as shown in Table 3.

Table 3: Stratification of low birth weight with variable

Variables	Low birth weight		Total	p-value
	Yes	No		
Maternal age				
20-30	16 (30.7)	36 (69.2)	52	0.91
30-45	11 (29.7)	26 (70.2)	37	
Gestational age				
<35	9 (39.1)	14 (60.8)	23	0.28
>35	18 (27.2)	26 (70.2)	66	
Parity				
1	15 (25.4)	44 (74.5)	59	0.15
>1	12 (40)	18 (60)	30	

DISCUSSION

Hypertension during pregnancy is not rare problems to be encountered and accounts for 10% pregnancies. Disturbance of normal fetal growth can result in abnormal body weight or body mass resulting in misappropriate growth and may result either low birth weight or macrosomia. Both disorders carry high fetal and maternal

morbidity and mortality. According to Lubchenco and colleagues' observation Low birth weight is labeled as weight fetal weight is less the 2500 gm while very low <1500 and extremely low birth weight if < 100gM [6]. In one study 40 % of neonates with the birth weight blow the 10th percentile did not have growth restriction based on the ponderal index. A gold standard for birth weight criteria for distinguishes physiologic and abnormal growth pattern is highly desirable for understanding between neonatal growth and outcome [7]. In this study we have enrolled 89 women with pregnancy induced hypertension most of them were from 20 to 30 years with mean age of 29.09 ± 4.23 years this was consistent with the findings by Parmar *et al.*, who observed that more pregnant mothers were 21-30 years [8]. Similarly, other studies also observed this age pattern of 21-25 years of age while in other study 15-20 years comprises majority (52.63%) pool [9, 10]. It was also in agreement with Khosravi *et al.*, noted that 55.6% mother having PIH was 21-30 years of age [11]. In our study PIH and low birth weight was more seen in Primipara women accounting for 61.7% and 55.5% (15 out of 27) respectively. Similar finding was reported in a study where 55% in Primipara women [12]. This was in contrast the observation of other studies where primiparous women account for 43.15% and 32.8% respectively, this may be due to sample collection and regional population [13, 14]. We found low birth weight in patients with gestational hypertension around 27 (30.34%) patients. This was in agreement with the observation of Fatemeh *et al.*, who note low birth weight was 24.2% and this was also consistent with another study Patel and Baria were out of 64 deliveries 26.2% were low birth weight and 18.75% were hospitalized while 1.56% of neonatal death occurred [15, 16]. In the study by Seyom *et al.*, on maternal and fetal outcome of pregnancy with gestational hypertension observed low birth weight of 30.5% and preterm delivery 31.4%. Similar higher proportion was also seen in other study where they found 40% babies with low birth weight [17]. Poor prenatal outcomes, including IUGR, low birth weight, a low Apgar score at the five-minute mark, a greater need for NICU stays, and neonatal fatalities, have been associated to preeclampsia. Recent studies have shown that babies born to preeclamptic mothers have increased rates of NICU hospitalization. The most significant factor driving the need for NICU hospitalization is the rise in preterm births in preeclampsia [18, 19]. In one study by Ahmed *et al.*, out of 250 deliveries, 72 (28.8%) of the newborns weighed less than 2 kg, and 69 (27.61%) needed hospitalization [20].

CONCLUSIONS

This study found that 30.34% of individuals with

gestational hypertension frequently had low birth weights. We advise that a proper protocol and early diagnosis of high-risk patients for antenatal monitoring should to done to decrease fetal and maternal mortality.

Authors Contribution

Conceptualization: AF

Methodology: ST, MT

Formal Analysis: HSB

Writing-review and editing: AF, ST, DK, SC, KF

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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