MATERNAL FACTORS CAUSING TWIN BIRTH WEIGHT DISCORDANCE AND ITS FREQUENCY

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ABSTRACT

Objective: To know about the maternal factors causing twin birth weight discordance and its frequency.
Study Design: Cross sectional study.
Place and Duration of Study: Combined Military Hospital Kohat, from Jan 2017 to Sep 2017.
Methodology: In this study total 100 women with twin pregnancy with labor pains were included. After delivery babies were weighed by a trained staff nurse within 30 minutes of delivery. The definition of birth weight discordance is carried as more than 15% difference between the twins. In this study gestational age of less than 37 weeks, confirmed by ultrasonography was labeled as preterm delivery. Pregnant ladies having more than 5 children were taken as grand multipart. If raised blood pressure after 20 weeks of gestation they were labeled as pregnancy induced hypertension.
Results: Birth weight discordance was found as 23.3%. The mean age was 28.6 ± 2.9 years. The frequency of discordance found higher 25.7% in women with preterm delivery, 13.3% in women with grand multi parity and 22.2% in pregnancy induced hypertension.
Conclusion: Preterm delivery was the most common factor of birth weight discordance while grand multi parity was least common factor.

Keywords: Birth weight discordance, Grand multiparity, Hypertension, Pregnancy Induced, Twin pregnancy.

INTRODUCTION

Twin pregnancy is a high risk pregnancy in the view of potential maternal complications like pre eclampsia, gestational diabetes and anti partum hemorrhage etc. It is high risk too as far as fetal complications are concerned, which includes preterm delivery, poor perinatal outcome, low birth weight, growth restrictions, congenital abnormalities and admission to neonatal intensive care[1-3].

The incidence of twin pregnancy is 3.2% and further increasing due to advanced maternal age at first pregnancy and use of assisted reproductive techniques[4,5]. Twin birth weight discordance is not an uncommon phenomenon as the incidence varies between 12% to 32%[6,7]. According to American College of Obstetrics and Gynaecology (ACOG) birth weight difference of 15% to 25% is used as definition for discordance. It is most often defined by using larger twin as standard for growth. Discordant twins is associated with increased morbidity and mortality like congenital skeletal and CNS, digestive system, renopelvic malformations, increased need for invasive ventilation, preterm birth and increases risk of caesarean section[8]. But some studies suggest that a great number of birth weight discordance twins do well despite of weight differences[7].

The explanation for difference in weight can be carried out by genetic factors (in case of dizygosity) or the influence of sex hormones inutero (in case of unlike sex pair) but it seems mostly due to unequal sharing of monochorionic placenta or to a difference in size of two dichorionic placentas[9,10]. For the prediction of individual birth weight sonographic estimation of fetal weight seems to be a reliable tool with certain margin of error. Although there are conflicting results about the accuracy in the detection of discordant growth[11].

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The most predictive variables for discordance are not clear, however studies suggest that recurrence of artificial reproductive techniques, advanced maternal age, multiparity, diabetes, maternal hypertension eclampsia, monochorionicity, difference of sex in twin fetus, cytomegalovirus congenital infection, velamentous insertion of umbilical cord are potential risk factors causing discordant twin[7].

This study will provide the responsible factors causing twin weight discordance and its frequency, as there are pregnancy induced hypertension, preterm delivery, grand multiparity so that strategies could be devised to focus on these factors.

METHODOLOGY

This cross sectional study was performed at department of Gynecology and Obstetrics Combined Military Hospital (CMH) Kohat, from January 2017 to September 2017 after approval of the institutional review committee. A total of 100 patients were randomly included from CMH Kohat after informed consent. The inclusion criteria included patients who were booked, age 25-35 years with twin pregnancy having gestational age between 28-38 weeks confirmed by ultrasonography, who were admitted in labor room with labor pains. Exclusion criteria included patients who were, unbooked, age <25 years or >35 year. Informed consents were taken from patients. Birth weight discordance was expressed by following formula.

Birth Weight Discordance =

$$\frac{\text{Weight difference between twin (grams)}}{\text{Larger twin weight (grams)}} \times 100$$

After delivery babies were weighed by staff nurse within 30 minutes after delivery using digital scale and recorded.

Data obtained were statistically analyzed using SPSS-11. Frequency and percentages were calculated for birth weight discordance, pregnancy induced hypertension, grand multiparity, preterm delivery. Mean ± standard deviation were calculated and stratification was done for age of women, gestational age, duration of pregnancy induced hypertension.

RESULTS

In this study, results showed 100 booked women having twin pregnancies with gestational age between 28 to 38 weeks, about 60% of women had age between 25 to 29 years (figure), 40% were above 29 years. A total of 15% were grand multipara. Birth weight discordance was found in 23.3% of women. Preterm was most common factor for birth weight discordance 25.7%, followed by pregnancy induced hypertension in 22.2% and grand multiparity in 13.3% (table-I). Birth weight discordance was high 28.3% in women with age from 25 to 29 years, while 15% in age more 29 years. Mean age of women was 28 ± 2.9 years (table-II).

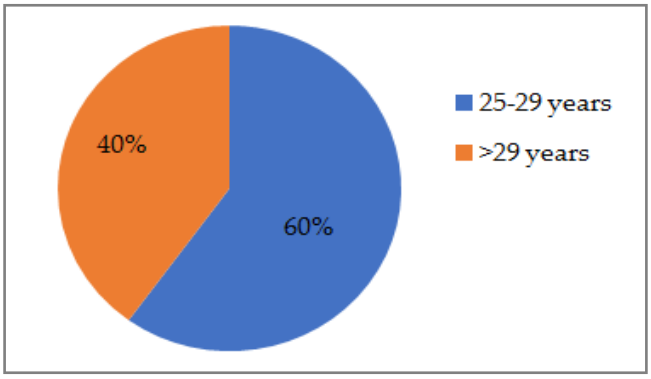

Figure: Distribution of age in years.

Table-I: Birth weight discordance in women with twins according to maternal factors (n=100).

	n (%)
Grand Multi-parity	2 (13.3%)
Pregnancy Induced Hypertension	6 (22.2%)
Preterm Delivery	15 (25.7%)

Table-II: Birthweight discordance in women with twins according age (n=100).

Age (Years)	n (%)
25-29	17 (28.3%)
>29	6 (15%)

DISCUSSION

Twin and higher order pregnancies are high risk pregnancy, inspite of global advancement in perinatal care. Multiple challenges are therefor

obstetricians to face while managing such pregnancies. In a study conducted in India, twin pregnancies causes 10% of perinatal mortality[12,13,14].

As discordant twin pregnancies have higher rates of morbidity and mortality, serial ultra sonographic evaluation for chorionicity, growth pattern and fetal weight has become a popular way to detect at risk pregnancy. Previously it was thought that degree of discordance of first trimester crown rump length (CRL) measurement correlates with weight discordance[15]. However its sensitivity is poor to detect birth weight discordance.

In this study frequency of birth weight discordance was 23.3%. The rate was slightly different from other studies. In a study conducted in Rome it was 37.8%[6]. This rate is higher than the literature available[16]. In United States the rate of discordance was 15% where 6.9% had 20-25% discordance while 8.1% had >25% difference[17]. The difference in reported rate might be due to different population and the definition used.

There are certain factors which can identify twin pregnancy at high risk of birth weight discordance. In a local study it was found that older, grand multiparous women and those with hypertension were more likely to deliver discordant twin[7].

In this study preterm delivery was more associated with birth weight discordance found in 23.3% women followed by pregnancy induced hypertension. In Pakistan where a number of women deliver at home significantly more booking among mother with discordant twin at the study center maybe related to the associated grand multiparity and hypertension in these women resulting in seeking better care for their conception.

Discordant fetal growth in multiple pregnancy correlates with abnormal course of pregnancy and poor outcome. As the rate of twin birth increases, early detection and timely appropriate management of birth weight discordance will become an increasingly important consideration in the management of twin pregnancies to improve both maternal and neonatal outcome.

CONCLUSION

Preterm delivery was the most common factor of birth weight discordance while grand multi parity was least common factor.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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