Relationship Between The Predicted Birth Weight And Actual Birth Weight of Newborn

Shanthini. M. M, Prof. Dr. Manju Bala Dash
M.Sc Nursing, Department of OBG, Mother Theresa Post Graduate & Research Institute Of Health Sciences, Puducherry, India
HOD, Department of OBG, Mother Theresa Post Graduate & Research Institute Of Health Sciences, Puducherry, India
Email: manju_narayan@rediffmail.com

Abstract

Background: Fetal weight estimation is important in modern obstetrics. Certain conditions like diabetic pregnancy, vaginal birth after caesarean section and breech presentation is guided by predicted fetal weight. In developing countries perinatal mortality was high when compared to developed countries. An extensive proportion of this problem was primarily due to birth weight which considered to be the most important parameter which determines the neonatal survival. Aim: This study was aimed to identify the relationship between predicted birth weight and actual birth weight of newborn. Subjects and Methods: The study was conducted among antenatal mothers at term in selected hospital of Puducherry who fulfill the inclusion criteria. Sample size was 35, selected through purposive sampling. The approach used was quantitative approach and design was descriptive research design. The researcher used Dare`s formula (SFH X AG) to predict the fetal weight and it is compared with actual birth weight of newborn. Result: Correlation coefficient was used to correlate the predicted birth weight with actual birth weight of new born. The value of correlation coefficient (r) was 0.85 which indicated that there was significant relationship between predicted birth weight and actual birth weight of newborn. Conclusion: The study revealed that Dare`s formula was a good indicator to predict the fetal weight. It is simple, easy and convenient method. This method can be used by the obstetrician and nurses in low resource setting where ultrasound facilities are not available and refer the patient to the tertiary level hospitals.

Keywords: Dare`s formula, Fetal weight, Term pregnancy

INTRODUCTION

Accurate prediction of fetal weight is important for the management of labour and helps the obstetrician to take decision about elective caesarean section for patients who are suspected of having macrosomic fetus, instrumental vaginal delivery and trial of labour after caesarean section. However, fetal macrosomia is associated with shoulder dystocia, birth trauma, birth asphyxia and maternal mortality [1-4]. For the past two decades prediction of fetal weight was included into the routine antepartum evaluation of high risk pregnancy. In intrauterine growth restriction and preterm deliveries measures taken to postpone the delivery, optimal route of delivery, perinatal counseling on survival and level of hospital where the delivery should take place was completely based on predicted fetal weight. In developing countries perinatal mortality was high when compared to developed countries. An extensive proportion of this problem was primarily due to birth weight which considered to be the most important parameter which determines the neonatal survival [5-9].

In recent years, although ultrasound has become much popular in predicting the fetal weight. Clinical prediction of fetal weight is an essential skill for all obstetrician. In developing countries, most patients are from rural areas, where they do not have adequate facilities and trained

operators to predict the fetal weight sonographically. In such case Dare`s formula can be used in predicting the fetal weight. It is simple, easy and convenient method [10-12].

AIM
To identify the relationship between predicted birth weight and actual birth weight of newborn.

METHODOLOGY
Quantitative research approach was found to be appropriate and non-experimental descriptive research design was used for this study. The study was conducted in a selected hospital of Puducherry. All antenatal mothers admitted in antenatal ward and labour room at term pregnancy and who comes under the inclusion criteria were chosen as a sample. The sample size comprised of 35 antenatal mothers at term. Purposive sampling technique was adopted for this study. The inclusion criteria includes: 1.All term pregnant women (36 weeks and above) 2.Who are willing to participate in the study and 3.Who are present during data collection period. Antenatal mothers with polyhydramnios, oligohydramnios, intrauterine fetal death, uterine tumour, multiple pregnancy and malpresentation were excluded from the study. The tool used for data collection were divided into two sections. Section A consists of demographic and obstetrical variables like age, residence, IP number and obstetrical score. Section B includes predicted birth weight by using Dare`s formula, weight and sex of the baby. The data was collected after obtaining permission from concerned authority. Informed consent was obtained from the individual mother prior to data collection. After collecting the demographic and obstetrical data, predicted birth weight was calculated by using Dare`s formula (Symphysis pubis fundal height X Abdominal Girth) [13]. The symphysis pubis fundal height and abdominal girth was measured by using inch tape after advising the mother to empty the bladder. Weight of the newborn was recorded after birth and it was correlated with predicted birth weight.

RESULT
The result showed that majority 17 (49%) mothers belonged to the age of 21-25 years, 20 (57%) mothers were residing in Puducherry, 34 (98%) mothers belonged to Hindu religion and 19 (54%) mothers were primigravidas. Among neonates, majority 18 (51%) newborns were female and 13 (37%) were within 2500-3000gms (Table 1).

Table 1: *Distribution of demographic and obstetrical variables of antenatal mothers in the study*   *N = 35*

DEMOGRAPHIC AND OBSTRETRICAL VARIABLES	DISTRIBUTION	FREQUENCY (N)	PERCENTAGE (%)
Age	15-20 years	3	9%
	21-25 years	17	49%
	26-30 years	11	31%
	31-35 years	4	11%
	Tamil Nadu	15	43%
Residence			
	Puducherry	20	57%
	Hindu	34	98%
Religion	Muslim	1	2%
	Primigravida	19	54%
Obstetrical Score			
	Multigravida	16	46%
	Male	17	49%
Sex of the baby	Female	18	51%
	>2000 gms	1	3%
	2000-2500 gms	6	17%
Weight of the baby	2500-3000 gms	13	37%
	3000-3500 gms	10	29%
	3500-4000 gms	5	14%

CORRELATION OF PREDICTED BIRTH WEIGHT WITH ACTUAL BIRTH WEIGHT OF NEWBORN

The value of correlation coefficient (r) was 0.85 and figure 1 indicated that there was a positive correlation between predicted birth weight and actual birth weight of newborn (Figure 1).
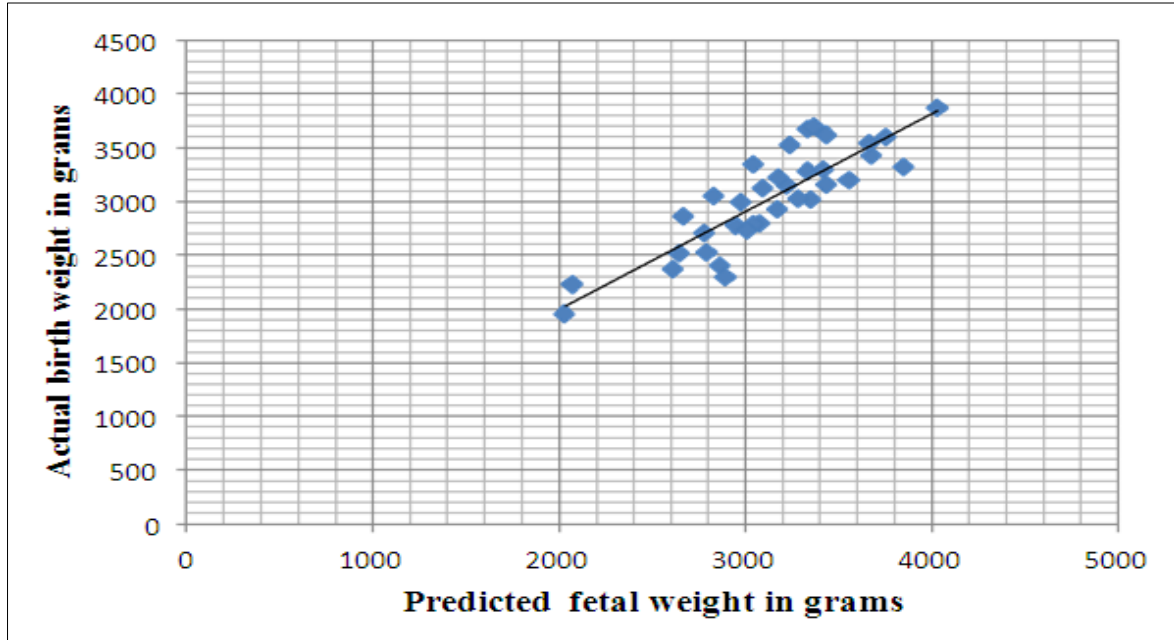

Figure 1: Correlation of predicted birth weight with actual birth weight of newborn

DISCUSSION

The result of the present study showed that majority 19 (54%) mothers were primigravidas and 16 (46%) mothers were multigravidas. The present study result was supported by the study conducted by Bhandary Amritha, Mangalore, India among 200 pregnant women who reported 54% of mothers were multigravidas and 46% of mothers were primigravidas [14].

The result of the present study showed that predicted birth weight by using Dares formula had positive correlation value of (r) 0.85 with actual birth weight. The present study result was supported by the study conducted by Uma Thombarapu, Karnataka, India among 150 antenatal mothers who reported Dare`s formula had a slight closer correlation value of (r) 0.726 with actual birth weight at $p < 0.001$[15].

The result of the present study found that predicted birth weight by product of symphysio fundal height and abdominal circumference showed positive correlation value of (r) 0.85 with actual birth weight. The present study was supported by the study conducted by Richa Sharma, Delhi, India among 303 antenatal mothers. The predicted birth weight showed interclass correlation value of 0.75 with actual birth weight at 95% confidence interval [16].

CONCLUSION

The study revealed that Dare`s formula was a good indicator of fetal weight. It is simple, easy and convenient method to predict the fetal weight. It can be used in developing countries especially in low resource setting where ultrasound facilities are not available. This method will help the obstetrician and nurses to decide about the mode of delivery and refer the patient to tertiary level hospital so that certain maternal and fetal complications can be reduced.

RECOMMENDATION

Based on the study findings and personal experience of the researcher during the

study, the following recommendations are made:

Replication of the study may be done with large samples in different settings to validate and generalize the findings.

The study can be done by comparing various methods of fetal weight estimation with birth weight of newborn.

The study can be done by comparing Dare`s formula and ultrasound to estimate the fetal weight with actual birth weight.

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