ISSN: 0975-3583, 0976-2833 VOL 15, ISSUE 01, 2024

Original article

AN OBSERVATIONAL STUDY ON DECREASED FETAL MOVEMENTS AND RELATIONSHIP WITH UMBILICAL ARTERY DOPPLER

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ABSTRACT

INTRODUCTION: Pregnancy is considered as a very precious event in every woman's' life. Maternal counting of fetal movements is an easy, inexpensive and valuable screening tool for fetal well-being. Assessing of fetal wellbeing by monitoring fetal movement count by antenatal mothers fulfils all the above criteria

OBJECTIVES: To assess the relationship between decreased fetal movements and umbilical artery doppler changes

METHODOLOGY: This was an observational study conducted at Department of OBGY, KIMS, HUBBALLI involving 136 cases were selected from patients presenting to KIMS hospital, OPD section and Labour room considering the inclusion and exclusion criteria

RESULTS: Majority women were between 21-25 years age group i.e. 59(43.4%). Most of the women were primigravida 71(52.2%). History of decreased fetal movements was reported by 21(15.4%) of ANC women and abnormal umbilical artery doppler changes in 22(16.2%) in our study.

CONCLUSION: Pregnant mothers reporting with decreased fetal movement perception should be evaluated with proper history taking and investigations like doppler studies. Incidence of abnormal umbilical artery doppler in our study was 22(16.2%). Incidence of low birth weight in our study was 41.2%.

Key words*: Decreased fetal movements, umbilical artery doppler, primigravida, low birth weight*

INTRODUCTION

Pregnancy is considered as a very precious event in every woman's life. It is filled with happiness, joy and surprises. All parents expect an healthy pregnancy and a healthy baby. In past few years there has been significant improvement in obstetrics management and in achieving the antenatal surveillance of high-risk pregnancy. Since above 75 percent of fetal death occur

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in the antepartum it is oblivious that limiting fetal surveillance to intrapartum period will not achieve optimal perinatal outcome, to be clinically useful ante partum test should be readily available, easy to perform and should yield reliable results. A healthy new born is the goal of every expectant mother and her physician. [1]

Perception of decreased fetal movement (DFM) is a common problem among pregnant women; in Norway, as many as 51% of women report that they were concerned about DFM once or more in pregnancy. Only 4 - 15% of pregnant women contact care providers with such concerns.[2]
Assessment of fetal wellbeing by counting fetal movements in many studies was associated with a decrease in perinatal mortality and morbidity because a mother's reaction to DFM assists in the identification of high-risk fetuses when it might be possible to save the baby's life. [3]
Research has shown that fetal movements are affected by many factors including amniotic fluid volume[4] , placental location[5] , fetal presentation[6] , and fetal gender[7] Abnormal blood flow patterns in umbilical artery Doppler ultrasound may indicate poor fetal prognosis. [8]

Objectives
To assess the relationship between decreased fetal movements and umbilical artery doppler

Materials and Methods
Study setting: Department of OBGY, KIMS, HUBBALLI
Study population: Cases will be selected from patients presenting to KIMS hospital, OPD section and Labour room considering the inclusion and exclusion criteria
Study design: Descriptive Observational study
Sample size: Sample size for our study was 136
Sampling technique: Simple Random sampling method
Inclusion criteria:

- Primigravida and multigravida >28 weeks
- Willing to participate in the study after written consent

Exclusion criteria:

- Detected fetal anomaly
- Detected Intrauterine fetal demise
- Multiple pregnancy
- Medical disorders-Thyroid disorders, Diabetes mellitus
- Patients who did not deliver in hospital

Variables used in study: Age, gravida, maternal and fetal outcome, doppler changes etc.

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Methods of data collection:

A detailed history was recorded including time since onset of decreased fetal movements, pattern of less movement (frequency/intensity, or both). General physical and obstetrical examinations were performed. Women reporting decreased fetal movements were asked to keep an account of fetal movement for next 2 hours while resting in left lateral decubitus. CTG was performed within 2 hours at least for 20 minutes and result was interpreted according to NICE guidelines.

Women showing pathological or suspicious CTG was delivered immediately. Others were investigated for complete hemogram, OGTT, LFT, TSH and routine urine evaluation. A detail USG with Doppler study follows to record AFI, placental location and grading, exact fetal maturity and EFW, BPP (Manning score), umbilical artery doppler. Mode of delivery and neonatal outcome regarding birth weight, APGAR scoring, NICU admission necessities were taken into account

Statistical analysis:

Data was collected by using a structure proforma. Data entered in MS excel sheet and analysed by using SPSS 24.0 version IBM USA. Qualitative data was expressed in terms of proportions. Quantitative data was expressed in terms of Mean and Standard deviation. Association between two qualitative variables was seen by using Chi square/ Fischer's exact test. Descriptive statistics of each variable was presented in terms of Mean, standard deviation, standard error of mean. A p value of <0.05 was considered as statistically significant whereas a p value <0.001 was considered as highly significant.

Table 1: Distribution according to age group Results

		Frequency	Percent
Age group in years	≤ 20	15	11.0
	21-25	59	43.4
	26-30	44	32.4
	31-35	17	12.5
	36-40	1	0.7
	Total	136	100.0

We included total 136 primigravida and multigravida >28 weeks in our study. Out of 136 women, majority were from 21-25 years age group i.e. 59(43.4%), followed by 44(32.4%) from 26-30 years, 17(12.5%) from 31-35 years, 15(11%) from less than 20 years and least i.e. 1(0.7%) from 36-40 years age group.

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Table 2: Distribution according to gravida status

		Frequency	Percent
Gravida status	Multi	65	47.8
	Primi	71	52.2
	Total	136	100.0

52.2% were primi and 47.8% were multipara in our study.

Figure 1: Pie diagram showing Distribution according to gravida status

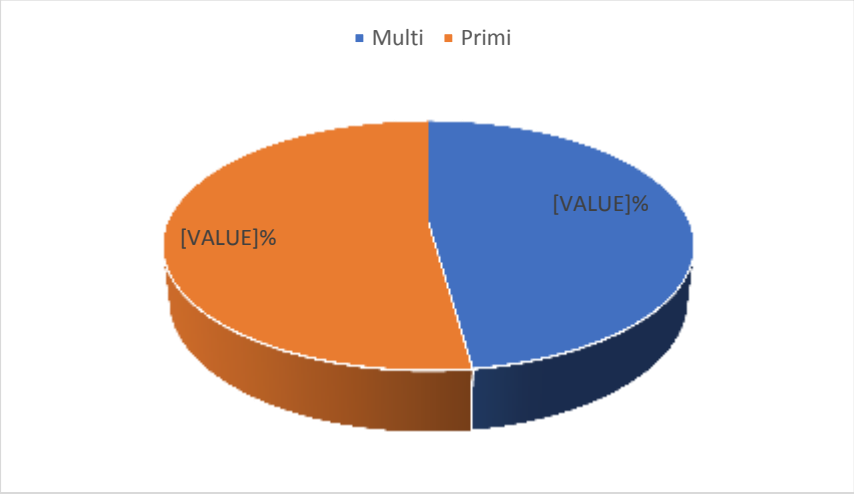

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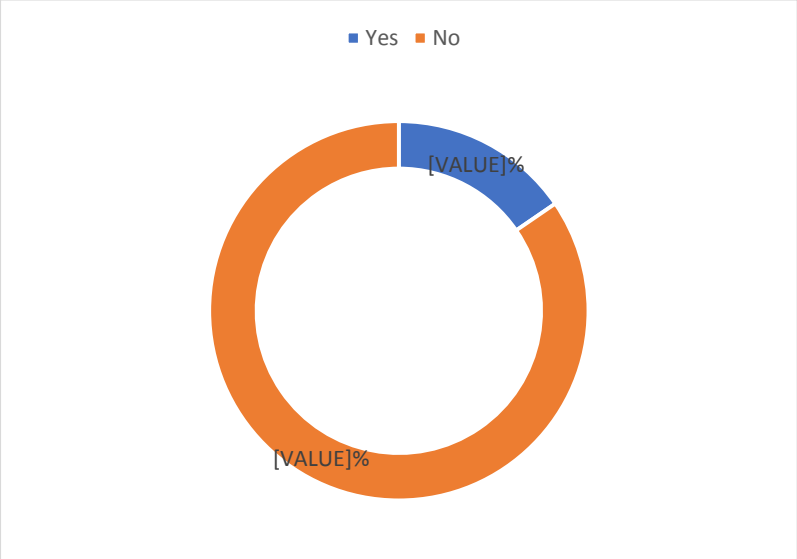
Figure2: Pie diagram showing Distribution according to history of decreased fetal movements



History of decreased fetal movements was reported by 21(15.4%) of ANC women in our study

Table 3: Distribution according to biophysical profile

		Frequency	Percent
biophysical profile	Normal	15	11.0
	Abnormal	121	89.0
	Total	136	100.0

Our study revealed abnormal biophysical profile in 121 cases.

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TABLE 4: Distribution according to umbilical artery doppler study

		Frequency	Percent
UMBILICAL ARTERY DOPPLER	Abnormal	22	16.2
	Normal	107	78.7
	Not done	7	5.1
	Total	136	100.0

Umbilical artery doppler study revealed abnormality in 22(16.2%) women.

Figure 2: Bar diagram showing Distribution according to umbilical artery doppler study

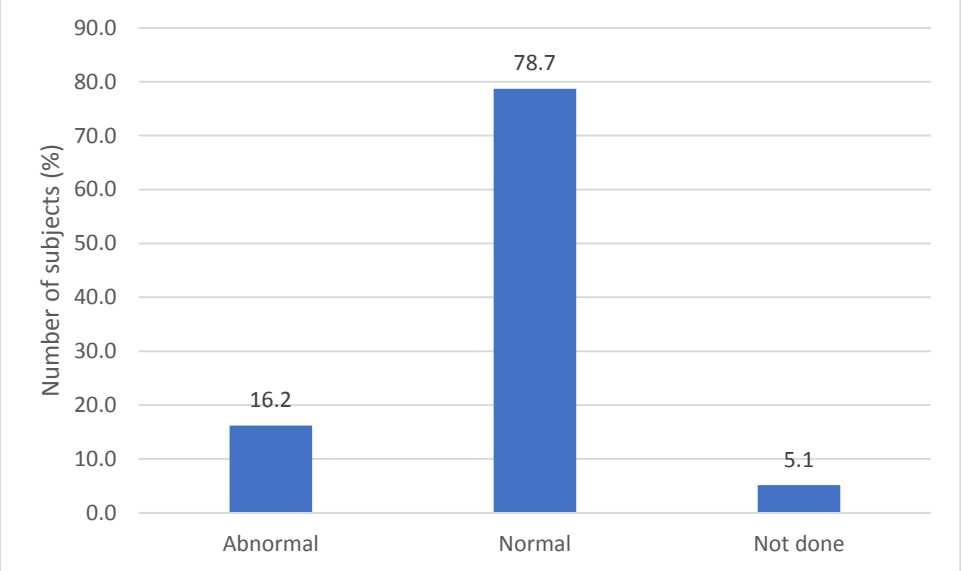

Table 5 : Incidence of low birth weight

		Frequency	Percent
Birth weight	Low birth weight	56	41.2
	Normal	80	58.8
	Total	136	100.0

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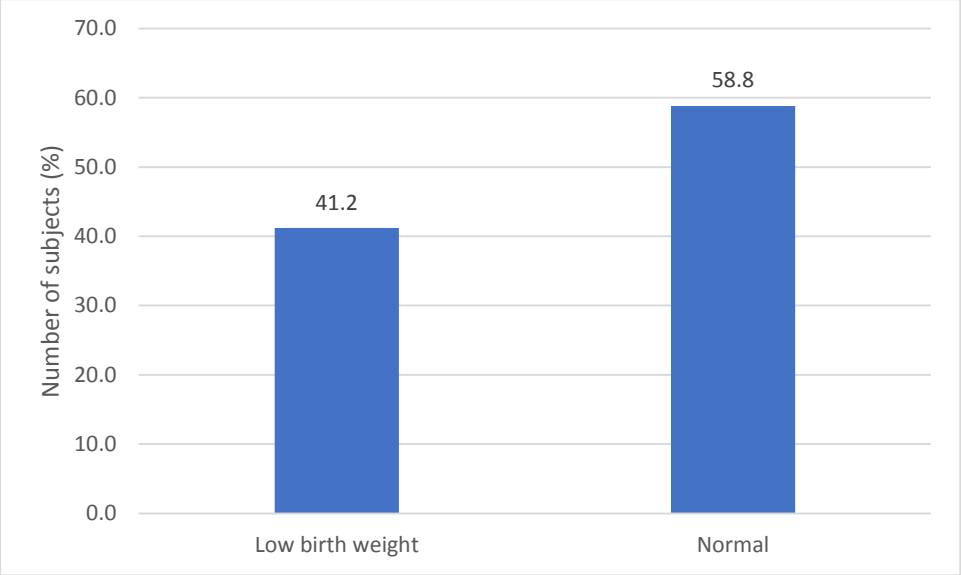
Incidence of low birth weight in our study was 41.2%.

Figure 3:Bar diagram showing Incidence of low birth weight



Discussion

Demographic information

In our study most of the pregnant women were between age of 21-25 years.

Saastad E et al[9] in his study reported maternal age group of less than 35 years in 82% cases and above 35 years in 18% cases. 49.5% were primipara.

Sheikh M. et al[10] included total of nine hundred twenty-nine pregnant women in the study, of which two hundred were excluded and the mean ± standard deviation (SD) for the maternal age was 28.5 ± 5.1 years; for gestational age 31.5 ± 5.3 weeks.

Nandi N.et al[11] in his study reported 12% from <20 years, 73% from 21-30 years and 15% from above 30 years age group.

Decreased fetal movement (DFM)/ reduced fetal movement (RFM)

History of absent fetal movements was reported by 21(15.4%) of ANC women in our study. Mean Duration of RFM was 48.00±18.48 hours.

Nandi N.et al[11] in his study reported that 46% women reported for decreased frequency as well as intensity of fetal movements.

Dutton PJ et al[12] reported that 36.1% patients gave history of RFM. Mean Duration of RFM was 48.0 hours which was similar to our study.

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Low birth weight: Incidence of low birth weight in our study was 41.2%.

Dutton PJ et al[12] reported that two hundred and thirty-six participants (77.9%) had a normal outcome compared to 67 who had a poor outcome (22.1%). Of those with poor outcome, 7 were preterm (with birthweight .10th centile, 4.1%)

Abnormal umbilical artery doppler

Umbilical artery doppler study revealed abnormality in 22(16.2%) women.

G. S .Gosh.et al[13] in his study abnormal umbilical artery Doppler in 102 (28.4%) which was higher than our study.

Conclusion

Incidence of decreased fetal movements was (15.4%) and abnormal biophysical profile was (89%). Abnormal umbilical artery doppler was among (16.2%),incidence of low birth weight 41.2% .Antepartum fetal surveillance with Doppler ultrasound of umbilical artery has shown significant diagnostic efficacy in identifying fetal compromise.

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