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PERINATAL OUTCOMES IN PREGNANT WOMEN AT TERM WITH REDUCED FETAL MOVEMENTS

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Abstract

Objective: *To determine the perinatal outcomes in women at term with reduced fetal movements*

Study design: *Descriptive study*

Place of the study: *Department of Obstetrics & Gynecology, Ward 8, Jinnah Postgraduate Medical Centre (JPMC), Karachi, over a period of six months from November 2024 to April 2025.*

Methodology: *97 Pregnant women with complaint of reduced fetal movement of age between 18–40 years, singleton pregnancy with gestational age of 37-42 weeks assessed on LMP or dating scan, and delivered baby at our hospital were included via non-probability consecutive sampling technique. Detailed obstetric examination leopold manure was done. Blood pressure and fetal heart rate was recorded. At the same time patient with decreased fetal movements were subjected to cardiotocography (CTG) and findings were recorded as reassuring or non-reassuring and USG findings was recorded as fetal movements in USG present or absent. Maternal perception of a subjective decrease in the frequency or strength of fetal movements less than 10 movements in 12 hours was labeled as positive. The women with decreased fetal movements were followed up till delivery to assess the perinatal outcomes. Data was analyzed by using SPSS version 23. Mean and standard deviation were calculated for quantitative data. Whereas, frequency and percentage were calculated for qualitative data. Effect modifiers were controlled through stratification. Post-stratification Chi-square test was applied. P-value $\leq$ 0.05 was taken as significant.*

Results: *The mean age of the women was 26.31 $\pm$ 4.45 years with gestation age was 38.03 $\pm$ 1.45 weeks, 42 (43.3%) of the women were primigravida, whereas, 55 (56.7%) were multigravida. All 97 (100%) were urban resided. Around 37 (38.1%) of the women were delivered through C-section. The perinatal outcomes in pregnant women at term with reduced fetal movements were assessed, most frequent outcome was low birth weight 31 (32%), NICU admission was 30 (30.9%), Meconium aspiration syndrome found in 18 (18.6%) cases, birth asphyxia in 3 (3.1%) women and abnormal CTG was 7 (7.2%).*

Conclusion: *Reduced fetal movement is a frequently occurring event during antenatal period, associated with different perinatal outcomes.*

INTRODUCTION

Fetal movement is a sign of life and is used as an indicator of good fetal health.[1] Fetal movements are perceived by mother as any flutter, kick, roll or swish[2]. Well known sign of fetal viability and vitality is the presence of fetal movements (FM)[3,4] and good fetal movements are indicator of integrity of the fetal musculoskeletal and central nervous system.

Fetal movement counting is a method by which a pregnant woman quantifies the movements she feels to assess fetal well-being. Reduced fetal movements (RFM) have been demonstrated in numerous studies to be associated with adverse pregnancy outcomes including fetal growth restriction (FGR) and stillbirth.[1] The number of movements has the tendency to increase up until the 32nd week of gestation and since then, they plateau until term but do not decrease.[2]

Decreased fetal movements perception, by the mother is an indicator of fetal compromise. In the Cardiff method (count to ten), mother should must count at least ten fetal movements every day for a specified period of time. If the movements are less than ten in twelve hours or if the mother needs more than the usual time for fetal movements, this may indicate poor fetal outcome.[3] Association between maternal perception of decreased fetal movement and poor perinatal outcome like fetal growth restriction, oligohydramnios, fetal distress, preterm births, fetal congenital anomalies, and stillbirth are revealed in different studies.[4,5]

RFM has been shown to occur in up to 15 % of pregnancies, and comprises of 6.1 % of the workload of acute maternity assessment services. It has been found that up to 55 % of women who have a stillbirth note a reduction in fetal movement prior to diagnosis.[6] Although decreased fetal movements (DFM) are associated with infants being born SGA, stillbirth, higher rates of induction of labor (IOL), emergency cesarean delivery, and adverse neonatal outcomes, the usefulness of DFM in predicting poor obstetric and perinatal outcomes is questionable, with most women who report DFM in the third trimester having outcomes without complications.[7,8] Pregnant women should assume more responsibility for their baby's health, but the tools that would empower them and allow them to act on signs of complications are not identified.[9,10]

The aim of current study was to determine the perinatal outcomes in women at term with reduced fetal movement in our set up. Data in Pakistan is scarce on this topic. As very fewer local studies have been done and international data is lacking on this subject. If we find poor perinatal outcome in our study then women who presents with repeated complaint of reduced fetal movements should be managed as being high risk for placental insufficiency may offer better prediction of poor pregnancy outcomes after reduced fetal movement. Results of this study would be helpful to reduce the risk of adverse pregnancy and poor perinatal outcomes.

METHODOLOGY:

This descriptive cross sectional study was conducted in the department of Obstetrics & Gynecology, Ward 8, Jinnah Postgraduate Medical Centre (JPMC), Karachi. (97) Pregnant women with complaint of reduced fetal movement of age between 18–40 years, singleton pregnancy with gestational age of 37-42 weeks assessed on LMP or dating scan, and delivered baby at our hospital were included via non-probability consecutive sampling technique. Sample size was calculated by taking the prevalence of abnormal CTG in women with reduced fetal movements i.e., 4.2%, margin of error = 4%, confidence interval = 95%, then, calculated sample size was 97. Women having multiple pregnancies or pregnancies with antenatally confirmed congenital abnormalities were excluded from the study. Pregnant women with mal-presentation, preterm deliveries, previous cesarean section and APH were excluded.

A written informed consent was taken before admission. Demographic information in terms of age (years), gestational age (weeks), height (m) by stadiometer, weight (kg), BMI (kg/m^2), parity, mode of delivery, residential status and socio-economic status was obtained and was noted on pre-designed Proforma. Detailed obstetric examination leopold manure was done. Blood pressure and fetal heart rate was recorded. At the same time patient with decreased fetal movements were subjected to cardiotocography (CTG) and findings were recorded as reassuring or non-reassuring and USG findings was recorded as fetal movements in USG present or absent. Maternal perception of a subjective decrease in the frequency or

strength of fetal movements less than 10 movements in 12 hours was labeled as positive. The women with decreased fetal movements were followed up till delivery to assess the perinatal outcomes such as birth asphyxia, meconium aspiration syndrome, low birth weight, NICU admission and abnormal CTG.

Data was analyzed by using SPSS version 23. Mean and standard deviation were calculated for quantitative data. Whereas, frequency and percentage were calculated for qualitative data. Effect modifiers were controlled through stratification. Post-stratification Chi-square test was applied. P-value ≤ 0.05 was taken as significant.

RESULTS:

A total of 97 women were included in the study. The mean age of the women was 26.31 ± 4.45 years with mean BMI was 25.46 ±2.42 kg/m^2, the gestation age was 38.03 ± 1.45 weeks and mean fetal heart rate was 141.71 ± 12.72 bpm. 42 (43.3%) of the women were primigravida, whereas, 55 (56.7%) were multigravida. All 97 (100%) were urban resided. Around 37 (38.1%) of the women were delivered through C-section, **as shown in Table No 1**.

The perinatal outcomes in pregnant women at term with reduced fetal movements were assessed, most frequent outcome was low birth weight 31 (32%), NICU admission was 30 (30.9%), Meconium aspiration syndrome found in 18 (18.6%) cases, birth asphyxia in 3 (3.1%) women and abnormal CTG 7 (7.2%), **as shown in Table No 2.** Further, the perinatal outcomes were stratified with respect to age, BMI, gestational age, parity and mode of delivery, statistically significant association was observed with perinatal outcomes except gestational age, **as shown in Table No 3.**

Table 1: Baseline Data of the Patients

Baseline Data	Mean + SD/ n(%)
Age (years)	26.31 ± 4.45
BMI (kg/m^2)	25.46 ±2.42
Gestational age (weeks)	38.03 ± 1.45
Fetal heart rate (bpm)	141.71 ± 12.72
Parity	
• Primigravida	42 (43.3%)
• Multigravida	55 (56.7%)
Residential Status:	
• Urban	97 (100%)
• Rural	0 (0%)
Mode of Delivery	
• Vaginal	60 (61.9%)
• C-section	37 (38.1%)

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Table 2: Perinatal outcomes in pregnant women at term with reduced fetal movements

Perinatal Outcomes	n(%)
Birth asphyxia	3 (3.1%)
Low birth weight	31 (32%)
Meconium aspiration syndrome	18 (18.6%)
NICU admission	30 (30.9%)
Abnormal CTG	7 (7.2%)

Table 3: Comparison of perinatal outcomes in pregnant women at term with reduced fetal movements with respect to other variables

Baseline Data	Outcomes					P-value
	Birth asphyxia	LBW	MAS	NICU admission	Abnormal CTG	
Age						
<30	03	25	15	27	01	0.00
>30	00	06	03	03	06	
BMI (kg/m^2)						
< 29	03	28	16	30	03	0.00
>29	00	03	02	00	04	
Gestational age (weeks)						0.20
37-39	01	15	03	12	04	
40-42	02	16	15	18	03	
Parity						
Primigravida	01	12	02	24	03	0.00
Multigravida	02	19	16	06	04	
Mode of Delivery						
Vaginal	00	03	13	07	05	0.00
C-section	03	28	05	23	02	

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DISCUSSION:

RFM is often subjectively perceived by pregnant women. Pregnant women and caregivers are concerned about such concerns, notwithstanding the apparent hazards. The current study's goal was to assess how pregnant women's diminished sense of baby movements affected the perinatal outcome.

According to study analysis, the majority of published studies employed two distinct methodologies to ascertain the relationship between fetal movements and neonatal outcomes. Pregnant women with diminished fetal movements and those with normal fetal movement perception were compared for perinatal outcomes in the first approach. The second method contrasted the perinatal outcomes of women who received education and information about the significance and counting of fetal movements in utero with those who did not get any such instruction or information. The first strategy was used in the current investigation.

In our study, majority of mothers (56.7%) were multigravida. Mc clarithy et al[11] has illustrated that presentations with RFM tend to be associated with being a primigravida. This might be possible that primigravida women are usually less experienced towards the perception of reduced foetal

movements therefore they don't usually notice it at once.

The current found the (3.1%) cases birth asphyxia, (32%) of low birth weight, (18.6%) of MAS, (30.9%) neonates got NICU admission and (7.2%) of abnormal CTG was found.

In 2012, 303 pregnant women who presented with RFM beyond 28 gestational weeks were included in a prospective cohort study by Dutton et al. After RFM, they discovered that 22.1% of these pregnancies had a poor perinatal outcome. Small-for-gestational age term and preterm newborns were the most frequent complications (19.1%). Additionally, it was discovered that 0.7% of neonates in 303 pregnancies with a complaint of decreased fetal activity required NICU admission, and 4.1% of neonates weighed less than the 10th centile. This group did not have any stillbirths, however four participants had an emergency Caesarean section due to abnormal CTG, and acidemia in the umbilical artery sample at delivery confirmed intrauterine hypoxia.[12]

In a research by Nor Azlin et al., 230 women's pregnancy outcomes following an RFM complaint were investigated. There were no stillbirths in this trial, but 6.9% of babies were born weighing less than 2.5 kg, and 3.5% of newborns were admitted to the NICU.[13]

A control group of 265 women who did not complain of RFM was compared to 275 women who presented to the emergency room complaining of decreased fetal movements as part of a case control study. Compared to the control group of pregnancies, which had an incidence of 7.2%, the group of women with RFM had an incidence of 10.6% NICU admissions and a 1.5% stillbirth rate.[14]

A study conducted in Nepal by Dhungana PR et al, determined the perinatal outcomes of women with decreased fetal movement, in which birth asphyxia was observed (5%), meconium aspiration syndrome (5%) and low birth weight (6%).[15]

Another study was carried out in 2016 in by Bhatia M et al, to revealed the perinatal outcomes in women with reduced fetal movements, it was found NICU admission (7.3%), low birth weight (4.6%) and abnormal CTG (4.2%).[16]

Women with RFM might be given priority for a thorough clinical evaluation of the health and development of the fetus.[11,12] Therefore, much more research in our demographic region and the integration of additional characteristics are needed to develop solutions to cope with these high-risk women.

CONCLUSION:

RFM is a common prenatal occurrence that has been linked to a variety of perinatal outcomes. Continued study on RFM and perinatal outcomes is crucial, as is educating expectant mothers about the different types of FM and educating medical personnel on how to treat women who exhibit RFM. It is obvious that hospitals should look into the prevalence and management of RFM within their services, as it is a significant component of risk assessment in prenatal care. Pregnant women should be advised by maternity care providers of the significance of recognizing the baby's typical pattern of fetal movement density and number, and should be alerted when this pattern deviates. Pregnant women should be advised by healthcare providers that fetal movement frequency is only one aspect of evaluating the health of the fetus. Women should also evaluate and report any changes in their movement patterns, strength, and density. It was to be found in this study that there is an association between reduced fetal movement and decrease in liquor volume.

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