DOI: https://doi.org/10.54393/pjhs.v3i05.201

PAKISTAN JOURNAL OF HEALTH SCIENCES

https://thejas.com.pk/index.php/pjhs

Volume 3, Issue 5 (October 2022)

Original Article

Maternal and Neonatal Outcome of Women Having Decreased Fetal Movements in The Third Trimester of Pregnancy: A Cross-`Sectional Study

Naseeb Nama[1*], Shazia Ramzan[2], Sana Umer Arain[3], Nadira Kasi[4], Madhu Bala[5] and Tahmina Mahar[6]

[1]Department of Obstetrics and Gynecology, Sandeman Provincial Hospital Quetta, Pakistan
[2]Department of Obstetrics and Gynecology, Bolan Medical Complex Quetta, Pakistan
[3]Department of Obstetrics and Gynecology, Aga khan Secondary Hospital Hyderabad, Pakistan
[4]Department of Obstetrics and Gynecology, Civil Hospital Quetta, Pakistan
[5]Department of Obstetrics and Gynecology, Muhammad Medical and Dental College Mirpurkhas, Pakistan
[6]Department of Obstetrics and Gynecology, Ghulam Muhammad Mahar Medical College Teaching Hospital Sukkur, Pakistan

ARTICLE INFO

Key Words:

neonatal outcome, reduced fetal movements, trimester, stillbirth, obstetric outcome.

How to Cite:

Nama, N. ., Ramzan, S. ., Umer Arain, S. ., Kasi, N. ., Bala, M. ., & Mahar, T. . (2022). Maternal and Neonatal Outcome of Women Having Decreased Fetal Movements in The Third Trimester of Pregnancy: A Cross-Sectional Study: Maternal and Neonatal Outcome of Women Having Decreased Fetal Movements. Pakistan Journal of Health Sciences, 3(05). https://doi.org/10.54393/pjhs.v3i05.201

***Corresponding Author:**

Naseeb Nama
Department of Obstetrics and Gynecology, Sandeman Provincial Hospital Quetta, Pakistan
drnaseebnama@yahoo.com

Received Date: 5th October, 2022
Acceptance Date: 13th October, 2022
Published Date: 31st October, 2022

ABSTRACT

Every year, 2.6 million newborns are stillborn throughout the world. **Objective:** To determine the obstetric and neonatal outcomes among women presenting with reduced fetal movements in the third trimester of pregnancy. **Methods:** The pregnant women were in the low as well as a high-risk category. The pregnant women were advised to count 3 times a day post-meal or use the Count to 10 techniques to track their fetal movements in the third-trimester phase. The antenatal presentation was documented, blood pressure was taken, and a comprehensive BPP was performed All perinatal outcomes were documented, involving both pregnancies that continued as well as deliveries that occurred at a later gestational age. **Results:** A total of 110 pregnant women with reduced fetal movement (RFM) were taken as a part of this research. The average age was 35 years. A total of 56 were from the high-risk category while 54 were from the low-risk category. Out of 49% (n= 54) women, 15 women were more sensitive to the subjective experience of RFM due to factors such as an anterior placenta, overweight, as well as increased maternal stress. Out of 56 high-risk category women, 15 women revealed an abnormality in the volume of liquor. While on the other hand, out of 54 low-risk category women, 8 showed less prevalence of abnormal liquor volume. **Conclusions:** High-risk pregnancies accounted for a considerable percentage of individuals having RFM. Comparing the high-risk category with the low-risk category reveals that the rising incidence of stillbirth as well as low BPP were present at the time pregnant women were admitted.

INTRODUCTION

Every year, 2.6 million newborns are stillborn throughout the world [1]. Approximately one in every two stillbirths happens during childbirth in poor and middle-income countries. Many stillbirths that occur in high-income countries happen during the antenatal period, which may give time to reduce the chance by modifying the lifestyle and behaviour, improving comorbidity treatment, screening small-for-gestational-age (SGA) fetuses, and educating about the significance of fetal movement screening [2]. A self-screening technique for determining the well-being of the fetus is the mother's observation of fetal movements. Reduced fetal movement (RFM) has been linked to a number of unfavourable perinatal outcomes, according to research. Pregnant women accompanied by fetal growth restriction, premature childbirth, fetal distress, or stillbirth affect around one-quarter of women who arrive with RFM [3]. There is a link between RFM events and stillbirth, according to an increasing number of research. Around 55% of women who experience stillbirth report RFM prior to diagnosis. Inadequate clinician

DOI: https://doi.org/10.54393/pjhs.v3i05.201

intervention to the report of RFM is a key significant contributing factor that causes stillbirth [4], while placental dysfunction is also found to be a possible risk [5]. Fetal movement counts may enable clinicians to intervene at the right moment to optimize perinatal outcomes. After 28 gestational weeks, it is important that clinician should educate expectant mothers about the necessity of monitoring fetal movements as it enables early detection, prompt evaluation, and management for fetuses at risk of negative outcomes [6]. The efficacy of maternal-fetal movement counts to avoid having an unfavourable pregnancy outcome, nevertheless, is still being discussed in the literature. Since this strategy may lead to more medical treatments without discernible benefits, new research has cast doubt on its effectiveness [7]. Therefore, the purpose of this study was to compare the effects of any potential unneeded procedures with the pregnancy outcomes. The major goal of this observational research was to examine the pregnancy features and outcomes in women with reduced fetal movements (RFM) who presented to the hospital.

METHODS

All pregnant women having 28 weeks or more than 28 weeks of gestation with the complaint of reduced fetal movement (RFM) were included in this research. The pregnant women were in the low as well as a high-risk category. The pregnant women were advised to count 3 times a day post-meal or use the Count to 10 techniques to track their fetal movements in the third-trimester phase. Women having multiple pregnancies or pregnancies with antenatally confirmed congenital abnormalities were not allowed to participate in the research. All participants gave their written consent after being fully informed. Before the study got started, the Institutional Ethical Committee gave its approval. Medical issues and prescription drugs were recorded throughout the data-gathering process. Demographic information, pregnancy features (such as parity and gestational age), as well as perinatal risk factors, were collected. The antenatal presentation was documented, blood pressure was taken, and a comprehensive BPP was performed. Throughout BPP, the maternal impression of fetal movements was evaluated. Placental location as well as an abruption, was also evaluated during the ultrasound. Delivery was done in women having RFM or poor BPP assessment. Those women who continued their pregnancy despite of facing RFM complained of further perception of reduced movements. In the end, all perinatal outcomes were documented, involving both pregnancies that continued as well as deliveries that occurred at a later gestational age. The Poor perinatal outcome was described as one or more of the ones that follow: the poor APGAR score, resuscitation requirement, neonatal acidosis, perinatal asphyxia needing treatments, meconium-stained liquor, and NICU hospitalization.

RESULTS

A total of 110 pregnant women with RFM were taken as a part of this research. The average age was 35 years. Out of 110 pregnant women, 80 women were primigravida while on the other hand, while 30 women were multigravida. Only those women whose gestational age was either 28 weeks or more than 28 weeks were included in this research. Out of 110 pregnant women, 50 women were at 37 to 40 weeks, 20 were at 34 to 37 weeks, 15 were at 28 weeks and 25 were at more than 40 weeks of gestational age when presented with RFM. Out of 110 women, a significant number of pregnant women were from the high-risk category (n= 56) which is shown in the table 1.

Risks	Frequency(%)
Pre-eclampsia	15(13.6%)
Fetal Growth Restriction	10(9.1%)
Gestational Diabetes	7(6.4%)
Placenta previa	5(4.5%)
Abruption	2(1.8%)
Oligohydramnios	9(8.2%)
Polyhydramnios	8(7.3%)
Total	56(50.9%)

Table 1: High-Risk Category

Both the mother and the fetus have high risk factors. The pathological NST or a bad fetal activity pattern on the USG were both indicators of poor BPP. Despite the fact that just 39% (n= 22 / 56) of women from the high-risk category had low BPP, 58% were delivered regardless of gestational age. Indications included RFM, having a term or close to term, as well as the high-risk pregnancies, which made the obstetrician concerned. A greater percentage (49%) of low-risk pregnancies showed RFM later. Out of 49% (n= 54) women, 15 women were more sensitive to the subjective experience of RFM due to factors such as an anterior placenta, overweight, as well as increased maternal stress. About 11 women presented with more than one episode of reduced fetal movement, 6 women showed bad BPP as abnormal NST, oligoamnios, and poor fetal activity pattern on USG as shown in table 2.

DOI: https://doi.org/10.54393/pjhs.v3i05.201

Risks	Frequency(%)
Anterior Placenta	8(7.3%)
Obesity	4(3.6%)
Stress/ Anxiety	3(2.7%)
>1 RFM	11(10.0%)
Poor BPP	3(2.7%)
Oligoamnios	1(0.9%)
Poor fetal behavioral pattern	2(1.8%)
Total	32(29.1%)

Table 2: Low Risk Pregnancy

All patients who developed RFM after receiving steroid prophylaxis had excellent BPP with the exception of slow gross motor movements and lower variation in NST, which progressively improved. Nevertheless, just a few were delivered at the time of presentation, both in the high as well as low-risk categories. Their neonatal outcomes were all favorable. Out of 56 high-risk category women, 15 women revealed an abnormality in the volume of liquor. While on the other hand, out of 54 low-risk category women, 8 showed less prevalence of abnormal liquor volume given in table 3.

Liquor Volume And Rfm	Pregnancy		Total
	High risk category	Low risk category	
More than 20	9	3	12
Less than 8	6	5	11
Normal	41	46	87
Total	56	54	110

Table 3: Liquor Volume and Rfm

DISCUSSION

Pregnant women frequently have subjective perceptions of RFM. Regardless of the obvious risks, such complaints worry both pregnant women and those who provide care. These women should be given special consideration due to the clear link between maternal perception and stillbirth [8]. But in the majority of the circumstances, the mother soon realizes that this is just a temporary perception and that her fetus is actually acting normally. Sheikh et al., investigated 729 normotensive pregnancies that resulted in healthy term babies [9]. In this study, 110 pregnant women with complaints of RFM were analyzed for the outcomes. All women were either from high-risk or low-risk categories. The purpose of this research was to identify the subgroup of pregnant women who are expected to experience a poor perinatal outcome and require delivery. As a result, our study demonstrates that even one episode of reduced fetal movement in a high-risk category should be addressed carefully. The majority of such neonatal deaths may have been avoided with prompt delivery. According to research, around 40% of women wait until they had noticed no movements for 24 hours before seeking medical help. As a result, it is crucial to advise RFM patients that they require immediate medical assistance rather than waiting until they experience no movements [10]. The feeling of diminished fetal movements by the mother has been linked to poor pregnancy consequences, such as stillbirth. Other factors of reported fetal activity are not well understood. While the perception of decreased fetal activity is linked to a higher chance of late stillbirth, rising fetal movement during the third trimester is an indication of fetal well-being [11]. Another research evaluated 292 low-risk category pregnant women with C/O RFM; 5 (1.7%) died on initial assessment, and 4.4% of patients underwent rapid delivery due to abnormal maternal as well as fetal analysis [12]. In another research which was performed to analyze low-risk pregnancy outcomes with complaints of RFM, it was found that RFM was strongly related to the IUFD, nulliparity, and smoking as well as mild adverse neonatal outcomes [13]. Therefore, even in low-risk women, recurrent bouts of RFM should be addressed carefully. In this population, delivering on time reduces a high percentage of stillbirths, primarily due to unknown factors. (Such as Fetal Growth Restriction). According to research, the multiparous women who sought treatment for reduced fetal movements along with an IVF pregnancy had the second-highest chance of experiencing poor fetal outcomes, as determined. A prior Canadian study indicated that IVF pregnancies are far more likely to result in intrauterine growth restriction [14]. A strong correlation between RFM and placental insufficiency was found in another study. Those women that experienced RFM before stillbirth were considerably less prone to suffer significant proteinuria as well as previous pregnancy miscarriages at less than 24 weeks than women without RFM. Furthermore, RFM was found to be a sign of placental insufficiency, resulting in diminished nutritional or oxygen supply and the fetus saving energy. FGR, on the other hand, was not shown to be substantially linked with RFM [15]. RFM may be associated with liquor abnormalities, including oligohydramnios as well as polyhydramnios. Several investigations have found that fetuses having oligohydramnios had higher perinatal morbidity. It is advised to perform Doppler velocimetry, liquor testing, and fetal growth centile assessments in addition for women experiencing RFM. This aids in the identification of undiagnosed placental insufficiency accompanied or unaccompanied by cerebral redistribution. The results of a study showed that the incidence of a composite bad newborn outcome ranged from 6.2% to 18.4% among women seeking therapy for diminished fetal activity. The group of women with a small-for-gestational-age fetus had the highest risk for a poor neonatal outcome (18.4%). Another high-risk category (12.8%) included women who had in vitro fertilization pregnancies and had fetuses that were normal birthweight or large for gestational age [16].

DOI: https://doi.org/10.54393/pjhs.v3i05.201

The results of a study point to a connection between the frequency of stillbirth and the occurrence of changes in fetal movements' amount and quality in the weeks before conception. After educating and enlightening the expectant mothers about the significance of the interventions on fetal movement counting, which address both the number and density of fetal movements, the poor perinatal outcomes may be reduced to some extent [17]. In an Indian study, the majority of women experiencing decreased fetal movements were Primigravida (80%), between the ages of 20 and 30, and 72.5% were carrying term babies [18]. In another study in 26% of cases, decreased fetal movements were linked to unfavourable pregnancy outcomes, such as preterm birth and fetal growth limitation [19]. After RFM, 22.1% of pregnancies resulted in poor perinatal outcomes. Infants that were small for gestational age were the most prevalent problem [20].

CONCLUSIONS

High-risk pregnancies accounted for a considerable percentage of individuals having RFM. Comparing the high-risk category with the low risk category reveals that the rising incidence of stillbirth as well as low BPP were present at the time they were admitted. A considerable percentage of such fetuses showed poor BPP, as well as most of them, had been compromised during delivery, thus > 2 bouts of RFM, even in the low-risk category of pregnant women, seems important. It is best to prevent unnecessary deliveries, particularly in low-risk pregnancies, as the prophylactic use of steroids for fetal lung maturation produces temporary alterations in BPP.

Conflicts of Interest

The authors declare no conflict of interest.

Source of Funding

The author(s) received no financial support for the research, authorship and/or publication of this article

REFERENCES

[1] Huang C, Han W, Fan Y. Correlation study between increased fetal movement during the third trimester and neonatal outcome. BMC Pregnancy Childbirth. 2019 Dec; 19(1):467. doi: 10.1186/s12884-019-2637-4.

[2] Turner JM, Flenady V, Ellwood D, Coory M, Kumar S. Evaluation of Pregnancy Outcomes Among Women with Decreased Fetal Movements. JAMA Network Open. 2021 Apr; 4(4): e215071. doi: 10.1001/jamanetworkopen.2021.5071.

[3] Poojari VG, Kumar SS, Vasudeva A. Obstetric and neonatal outcome among women presenting with reduced fetal movements in third trimester. International journal of reproduction, contraception, obstetrics and gynecology. 2017;7(1):88-93.

[4] Saastad E, Vangen S, Frøen JF. Suboptimal care in stillbirths - a retrospective audit study. Acta Obstetricia et Gynecologica Scandinavica. 2007;86(4):444-50. doi: 10.1080/00016340701207724.

[5] Warrander LK and Heazell AE. Identifying placental dysfunction in women with reduced fetal movements can be used to predict patients at increased risk of pregnancy complications. Medical hypotheses. 2011 Jan; 76(1):17-20. doi: 10.1016/j.mehy.2010.08.020.

[6] Winje BA, Saastad E, Gunnes N, Tveit JV, Stray-Pedersen B, Flenady V, et al. Analysis of 'count-to-ten' fetal movement charts: a prospective cohort study. British journal of obstetrics and gynecology. 2011 Sep; 118(10):1229-38. doi: 10.1111/j.1471-0528.2011.02993.x.

[7] Maslovich MM and Burke LM. Intrauterine fetal demise. In Stat Pearls [Internet] 2021 Nov.

[8] Stacey T, Thompson JM, Mitchell EA, Ekeroma A, Zuccollo J, McCowan LM. Maternal perception of fetal activity and late stillbirth risk: findings from the Auckland Stillbirth Study. Birth. 2011 Dec; 38(4):311-6. doi: 10.1111/j.1523-536X.2011.00490.x.

[9] Sheikh M, Hantoushzadeh S, Shariat M. Maternal perception of decreased fetal movements from maternal and fetal perspectives, a cohort study. BMC Pregnancy Childbirth. 2014 Aug; 14:286. doi: 10.1186/1471-2393-14-286.

[10] Olagbuji BN, Igbarumah S, Akintayo AA, Olofinbiyi BA, Aduloju PO, Alao OO. Maternal understanding of fetal movement in third trimester: a means for fetal monitoring and reducing stillbirth. Nigerian journal of clinical practice. 2014 Aug; 17(4):489-94. doi: 10.4103/1119-3077.134049.

[11] Thompson JMD, Wilson J, Bradford BF, Li M, Cronin RS, Gordon A, et al. A better understanding of the association between maternal perception of fetal movements and late stillbirth-findings from an individual participant data meta-analysis. BMC Medicine. 2021 Nov; 19(1):267. doi: 10.1186/s12916-021-02140-z.

[12] Levy M, Kovo M, Barda G, Gluck O, Koren L, Bar J, *et al.* Reduced fetal movements at term, low-risk pregnancies: is it associated with adverse pregnancy outcomes? Ten years of experience from a single tertiary center. Archives of Gynecology and Obstetrics. 2020 Apr; 301(4):987-993. doi: 10.1007/s00404-020-05516-3.

[13] Bhatia M, Mitsi V, Court L, Thampi P, El-Nasharty M, Hesham S, et al. The outcomes of pregnancies with reduced fetal movements: A retrospective cohort

DOI: https://doi.org/10.54393/pjhs.v3i05.201

study. Acta Obstetricia et Gynecologica Scandinavica. 2019 Nov; 98(11):1450-1454. doi: 10.1111/aogs.13671.

[14] McPherson NO, Zander-Fox D, Vincent AD, Lane M. Combined advanced parental age has an additive negative effect on live birth rates-data from 4057 first IVF/ICSI cycles. Journal of Assisted Reproduction and Genetics. 2018 Feb; 35(2):279-287. doi: 10.1007/s10815-017-1054-8.

[15] Ter Kuile M, Erwich JJHM, Heazell AEP. Stillbirths preceded by reduced fetal movements are more frequently associated with placental insufficiency: a retrospective cohort study. Journal of perinatal medicine. 2021 Jul; 50(6):668-677. doi: 10.1515/jpm-2021-0103.

[16] Sterpu I, Pilo C, Koistinen IS, Lindqvist PG, Gemzell-Danielsson K, Itzel EW. Risk factors for poor neonatal outcome in pregnancies with decreased fetal movements. Acta Obstetricia et Gynecologica Scandinavica. 2020 Aug; 99(8):1014-1021. doi: 10.1111/aogs.13827.

[17] Bekiou A and Gourounti K. Reduced Fetal Movements and Perinatal Mortality. Materia Socio-Medica. 2020 Sep; 32(3):227-234. doi: 10.5455/msm.2020.32.227-234.

[18] Nandi N and Agarwal R. Prospective study of maternal perception of decreased fetal movement in third trimester and evaluation of its correlation with perinatal compromise. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2019 Feb; 8(2):687-92.

[19] Holm Tveit JV, Saastad E, Stray-Pedersen B, Børdahl PE, Frøen JF. Maternal characteristics and pregnancy outcomes in women presenting with decreased fetal movements in late pregnancy. Acta Obstetricia et Gynecologica Scandinavica. 2009; 88(12):1345-51. doi: 10.3109/00016340903348375.

[20] Dutton PJ, Warrander LK, Roberts SA, Bernatavicius G, Byrd LM, Gaze D, et al. Predictors of poor perinatal outcome following maternal perception of reduced fetal movements—a prospective cohort study. PLoS One. 2012; 7(7): e39784. doi: 10.1371/journal. pone. 0039784.