

Original Article

DFMC Chart: An inexpensive way of assessing fetal well being at home

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Abstract

Objectives: To study the effect on perinatal mortality of introduction of daily fetal movement count (DFMC) chart in the last month of pregnancy in all low risk and high-risk pregnancies. **Methods:** A prospective study was carried out on 300 booked cases after introducing DFMC chart in the 9th month of pregnancy. Prior ultrasound (USG) was done to rule out any risk factor e.g. intrauterine growth restriction (IUGR), oligohydramnios etc. DFMC chart was used to record number of fetal movements perceived by patient for one hour after food (breakfast, lunch, dinner). The patient was made to lie down in left lateral side and put the hand over her abdomen and count fetal movements for one hour. Fetal movements were considered satisfactory if the fetal count was three or more on each occasion. **Results:** No fetus was lost after introduction of DFMC chart in the 150 cases that were given DFMC chart (study group) and delivered in our hospital. This was compared with 150 booked cases (control group) that were not given DFMC chart but had normal ultrasound done after the completion of 8 months of pregnancy and were followed up. Four intrauterine deaths occurred in the 9th month in the control group (perinatal mortality 4/150; 2.66%). In the study group, nine women were admitted with loss of fetal movement. Out of these seven were discharged after monitoring for 3 days to confirm satisfactory fetal movements and two who continued to have reduced fetal movement were delivered vaginally. **Conclusion:** DFMC chart in the 9th month of pregnancy helps in reducing perinatal mortality in the absence of any other adverse factors necessitating early delivery.

Key words : daily fetal movements count chart (DFMC), perinatal mortality, intrauterine death.

Introduction

The aim of antepartum fetal monitoring is to reduce perinatal morbidity and mortality. To accomplish this, obstetricians need to know which fetuses are at risk,

what tests are available to assess them and how often to use the tests. Though we may never be able to reduce perinatal mortality to zero as some causes of fetal death like acute cord accidents cannot be predicted in advance some methods may help in better assessment of fetal well being.

Paper received on 03/01/2007 ; accepted on 21/01/2009

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Since Sadovsky and Yaffe¹ described seven case reports of pregnancy with decreased fetal activity that preceded fetal death, various methods have been used to quantify the fetal movements to predict fetal well being. These methods include use of a cardiotocograph, visualization with realtime ultrasound, and maternal subjective

perceptions. Most investigators have reported excellent correlation between maternally perceived fetal motion and movement documented by instrumentation.

Although several fetal movement counting protocols have been used, neither the optimal number of movements nor the ideal duration of counting them are defined. In one method, perception of 10 fetal movements in up to 12 hours is considered normal. In another, women are instructed to count fetal movements for 1 hour a day and the count is accepted as reassuring if it equals or exceeds a previously established baseline count.

Harrington and colleagues² reported that 7% of 6793 women who delivered at a London hospital presented with a complaint of decreased fetal movement. Others have concluded that informal maternal perceptions were as good as formally counted and recorded fetal movements but the evidence of a clinical benefit is limited³.

Methods

One hundred and fifty pregnant women after prior USG scan were given DFMC charts (study group) after the completion of eight months of pregnancy. They were given routine antenatal care and were delivered at term. Their outcome was compared with the control group of 150 pregnancies, who were screened by USG after the completion of eight months of pregnancy, but were not given DFMC charts. Those who reported reduced fetal movements were admitted and observed. Reduced fetal movement was defined as less than 3 fetal movements in one hour after taking food.

Results

Out of the 150 women in the study group, nine were admitted for loss of fetal movements. They were screened by USG and non stress test (NST). Seven were discharged after they started having satisfactory fetal movements. Two who persisted with reduced fetal movements despite of normal USG and NST were delivered vaginally. In the control group, six were admitted with loss of fetal movement in the 9th month though they had a normal USG at completion of eight months of pregnancy. Four of the six were found to have intrauterine death (4/150, 2.66%). Other two were screened by USG & NST and were discharged after they started having satisfactory fetal movement (Table 1).

Table 1.

	DFMC chart group N=150	Control group N=150	P value
Intrauterine deaths	0.0	4 (2.66%)	$\leq 0.022^{**}$
Admissions with loss of fetal movements	9 (6.0%)	6 (4.00%)	≤ 0.268
Mothers with live fetuses with loss of movements	9 (6.0%)	2 (1.33%)	$\leq 0.016^{**}$

** significant

The difference in the intrauterine deaths in the two groups was statistically analyzed with chi square test and was found to be significant ($P < 0.05$). The difference between the number of admissions for loss of fetal movements was statistically significant. However, the difference was statistically significant ($P < 0.05$), if only the number of pregnancies with live babies, reporting with loss of fetal movements was considered.

Discussion

Maternal perception of fetal movement is an inexpensive and noninvasive method of assessing fetal well being at home. Monitoring fetal movements serves as an indirect measure of central nervous system integrity and function. The coordination of the whole body movement in the fetus requires complex neurological control and is similar to the coordination of movement in the preterm newborn infant. Short term observations of the fetus are best performed using real time ultrasound imaging or Doppler ultrasound⁴. For home monitoring daily fetal kick count is required and compliance by mothers is usually good⁵.

There are many way to conduct this test. The patient is asked to relax on her left side after eating and to concentrate on fetal movements. The patient should record the time that she starts the test and note each time the baby kicks or moves. A healthy fetus should move approximately three to five times within 1 hour in this setting. An alternative method is the Cardiff Count-to-Ten chart, whereby the patient records fetal movements during the course of usual daily activity. A period of 12 hours without at least 10 perceived movements is considered a warning signal⁶. If the test result is not reassuring, the patient should be evaluated and should undergo further testing, such as evaluation with a nonstress test and/or real time ultrasonography⁴.

The advocating of DFMC chart to the patient requires counseling for awareness and benefits of counting. Kick count or mild flicker can be explained along with variation due to muscle spasm in winter and the liquor quantity. Any variation is brought to early notice. The mother feels relaxed about fetal well being if daily fetal movement count is adequate.

It was more convenient to ask for fetal counting for one hour span at a time three times a day instead of 12 hours a day.

Studies have shown that fetal movement counts are an effective screening method. Monitoring fetal movement serves as an indirect measure of central nervous system integrity and function, with reported reductions in fetal mortality⁶. Some authorities suggest that all pregnant patients, regardless of risk factors, be counseled about formal assessment of fetal movement⁷.

In this study, it has been found that fetal mortality is reduced from 26.6 per 1000 live births in the control group to nil in the test group. Though this is a small study involving 300 patients only, the results have been found to be statistically significant. Although the ideal method for performing the test, including how often it should be repeated, has not been defined, it is clear that complaints of decreased fetal movement are significant and warrant further evaluation⁸. Accepting the significance of reduced fetal movement count, society of obstetrician and gynecologists of Canada has recommended that daily fetal movement count be formally employed in specific pregnancy populations identified to be at risk for fetal asphyxia⁹. Those pregnant women who cannot be admitted for want of

time, space, or cost may be monitored at home by this method. DFMC chart can be incorporated into antenatal card as one page for domiciliary use.

Conclusion

Daily fetal movement count in the 9th month reduces fetal mortality.

Reference

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