

Editorial

Reduced Fetal Movements: Interpretation and Action

A reduction of fetal movements causes concern and anxiety, both for the mother and obstetrician. Reduced fetal movement is difficult to interpret because it is a subjective complaint by the mother. It has not been well defined in literature, and in most practice settings, there are no clear guidelines as to how the patient and fetus should be assessed. The numerous reasons for reduced movements (physiological, pathological, and occasionally iatrogenic) make it important to interpret the complaint accurately and choose judiciously from the plethora of investigations available to assess fetal wellbeing. This will avoid unnecessary investigations of otherwise uncomplicated pregnancies and the resulting maternal anxiety, inconvenience, and increased obstetric intervention that carries a risk.

As stated earlier, the perception of fetal movements by the mother is highly subjective. Fetal movements follow a circadian pattern and are an expression of fetal wellbeing. Mothers usually report fetal movements from about 20 weeks of gestation, with a peak at 28–34 weeks. Multiparous women may notice movements earlier (16–20 weeks) than primiparous women (20–22 weeks)¹. It has been suggested that a gradual decline during the third trimester is due to improved fetal coordination and reduced amniotic fluid volume, coupled with increased fetal size. Some ultrasound studies on fetal behaviour show that fetal movements do not become less frequent in the third trimester but that the movements change as coordination improves and a cycle becomes established.

Decreased fetal movements affect 5–15% of pregnancies². A number of conditions are associated with reduced fetal movements. The one of primary concern is the fetus affected by hypoxia. Decreased fetal movements are regarded as a marker for suboptimal intrauterine conditions. The fetus responds to chronic hypoxia by conserving energy and the subsequent reduction of fetal movements is an adaptive mechanism

to reduce oxygen consumption. A number of 11–29% of women presenting with reduced fetal movements carry a small for gestational age (SGA) fetus below the 10th centile^{2,3}.

Fetal movements in a healthy fetus vary from 4 to 100 per hour. Maternal perception of fetal movements ranges from 4 to 94% of actual movements seen on concurrent ultrasound scanning⁴. There is little agreement among obstetricians on the definition of reduced fetal movements. There is no evidence that any formal definition of reduced fetal movements is of greater value than subjective maternal perception in the detection of fetal compromise. Therefore, maternal perception of reduction or change of fetal movements should be considered clinically important.

Clinical Assessment

Assessment of every woman who presents with reduced fetal movements after 24 weeks of gestation should include a clinical assessment of the complaint, etiological factors (especially medications), and maternal blood pressure and examination, especially the measurement of the symphysiofundal height (SFH). Auscultation of the fetal heart is mandatory and, if possible, should be performed in a way that the patient can appreciate the presence of the fetal heartbeat. Despite the fact that abdominal palpation only detects 30% of small fetuses, SFH measurement has a positive predictive value of 60% and a negative predictive value of 76.8%⁵. This implies that if the SFH is within normal limits, fetal growth restriction or placental insufficiency are unlikely to be present.

Non-stress test: Cardiotocography (CTG)

Cardiotocography is widely accepted as the primary method of antenatal fetal monitoring to assess the current status of the fetus. It is a simple test and can be

performed by trained auxiliary staff. The interpretation has been largely standardized⁶ and there are computer programs which can make the interpretation as well. However, its use is difficult and cannot be recommended before 30 weeks of gestation. Cardiotocography is useful in the detection of acute hypoxia but is a poor test for chronic hypoxia. Large-scale studies show that routine CTG does not reduce rates of stillbirth or perinatal morbidity. Nevertheless, a reactive CTG is significant for its negative predictive value in ruling out hypoxia. CTG may be augmented and made more efficient if measures are taken to reduce the number of false positive results. This has been achieved by changing the norms of what is interpreted as a reactive test, repeating the test after an interval, or using fetal vibroacoustic stimulation testing. The vibroacoustic stimulus reduces the incidence of non-reassuring CTG and subsequent obstetric intervention

Ultrasonography

Ultrasound for assessing reduced fetal movements has been studied in terms of biometry, amniotic fluid assessment, and umbilical Doppler studies. Routine ultrasound assessment and biometry are not of value in reducing morbidity and perinatal mortality. However, fetal biometry assessment should be performed if SFH suggests a small fetus and if there is suspected oligohydramnios. It should also be considered in second and subsequent presentations or if neither the pregnant woman nor the clinician is reassured by the initial assessment. Amniotic fluid volume is an important marker given the association of oligohydramnios with placental insufficiency, premature rupture of membranes and fetal renal abnormality. Lin et al. found that oligohydramnios was present in 29% of growth-restricted fetuses. The 5th centile for the Amniotic Fluid Index (AFI) at 37 weeks is 8.8 cm (Moore) or 6.9 cm (Magann)⁷. Umbilical artery Doppler velocimetry is of benefit in high risk pregnancies in reducing perinatal mortality but has not been shown to be of value as a screening test for detecting fetal compromise in the general obstetric population. Korszun et al. suggested that adding umbilical artery and uterine artery Doppler velocimetry to conventional CTG in the assessment of reduced fetal movements may be reassuring for the managing clinician⁸. Dubiel et al. compared CTG with umbilical artery Doppler in the assessment of 599 women with low risk pregnancies complaining of reduced fetal movements; both were normal in 93% of women. The overall perinatal mortality in their study

was 3.8%. They found that the CTG seemed to be a better predictor of mortality and infant handicap than Doppler velocimetry⁹

What about fetal kick charts?

The use of kick charts is easy, simple, and can be done at home. However, in a large study of 68,000 women, Grant et al, were unable to demonstrate a reduction in the incidence of antepartum fetal death using formal movement counting¹⁰. They reported that formal fetal movement counting by 1,250 women prevented, at best, one unexplained antepartum late fetal death and that a random adverse effect was just as likely. The use of kick charts increased attendances for assessment of fetal wellbeing (15.5% versus 9.8%) and was associated with a 2.6-fold increased obstetric intervention rate. Another report demonstrated higher intervention rates (32% versus 21%) and caesarean section rates (24% versus 14%). In October 2003, National Institute for Health and Clinical Excellence (NICE) and the National Collaborating Centre for Women's and Children's Health published their guideline on the routine antenatal care of healthy pregnant women. They concluded that routine formal fetal movements counting should not be offered¹¹. This statement was renewed in their 2008 guideline. In contrast, the American College of Obstetricians and Gynecologists supports formal movement counting¹². They neither provide a definition of reduced fetal movements nor advise a time-frame in which these movements should be achieved. This difference in opinion amongst various authorities reflects the dilemma and controversy of the definition and management of reduced fetal movements

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