AIMS For a better birth...

Counting the kicks

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Gemma McKenzie asks, what's the evidence behind it?

There has been growing interest in the charity 'Count the Kicks' and its campaign to empower women with the knowledge to recognise when a decrease in their baby's movements may indicate potential problems. The charity has enjoyed celebrity support with the likes of Alesha Dixon and Holly Willoughby promoting its work. But what is meant by 'counting the kicks'? And what is the research behind it?

It has long been accepted that fetal movement is a reassuring sign, whereas a reduction in movement is a potential cause for alarm.1 Pregnancies affected by reduced fetal movement (RFM) are at increased risk of an adverse outcome such as fetal growth restriction, premature birth and stillbirth2 But how much movement is normal? How few kicks are needed to indicate a reduction significant enough to warrant medical intervention? In the past, these questions were frequently asked, and by the mid-1980s various kick charts had been developed. Although there were many different types, they broadly fell into two main schools of thought: the daily fetal movement count and the 'count to ten' or Cardiff method1

The daily fetal movement count

This required the mother to count the kicks for a set period of time. Initially, this was 12 hours, but it was soon moderated to between 30 minutes and 2 hours. One problem with this was to find a time frame long enough to count enough kicks so that a reduction could be noted, whilst also ensuring that the duration of time was short enough for women to be able to comply with it.

The Cardiff method

This method required the mother to time how long it took to feel 10 kicks. This was to be done at the same time of day, with a view that it is normal to feel 10 kicks within two hours.

The problems with formal counting

Although all pregnant women, regardless of health issues or previous problems, were encouraged to formally count their baby's kicks, it was never an ideal situation. Some of the problems included:

- The difficulty in finding an evidence based consensus from researchers as to what number of kicks was 'normal.'
- The time and effort required by mothers to adhere to the counting routine.

- The issue that if there is a minimum number of kicks a woman must experience before she is taken seriously by a health care professional, there is a risk that a woman with a very active baby will wait too long before contacting her midwife.
- The risk of too many false positives. In other words, too many women would note a reduction in their baby's movements and attend hospital even though their baby is healthy. It has been argued that this would waste considerable resources and expense.3
- Asking women to formally count their baby's kicks can result in maternal anxiety.

What changed?

Even with these issues, during the 1980s pregnant women were regularly recommended to formally count their baby's kicks. Then in 1989 a study appeared in The Lancet which put an end to routine formal kick counting.3

The Grant study

This large randomised controlled trial put 68,000 women from the UK, USA, Belgium, Ireland and Sweden, who were between 28 and 32 weeks pregnant, into two groups. The first group was told to formally count the kicks of their baby using the 'Cardiff method.' The second group of women was asked to informally monitor their baby's movements and to report any changes to their midwife. The researchers then analysed the outcome of all of the pregnancies, and in particular those that resulted in stillbirth.

The researchers envisioned that the counting policy would only have an impact on certain types of fetal death. The types they were looking at were the following:

1. Unexplained death.
2. Death influenced by isoimmunisation, maternal disease and infection, and pre-eclampsia.
3. Death caused by malformation, antepartum haemorrhage and mechanical problems [mechanical problems were not defined in the published study].

The researchers considered that deaths in category A would be most affected by the counting policy, whereas those in B would only be marginally affected. They also envisioned that deaths caused by C would not be influenced at all by the suggested counting policies.

Results of the Grant study

The researchers concluded that formal fetal movement counting had no advantageous effect on the stillbirth rates. They stated that there was no significant evidence that a policy of routinely recommending formal fetal movement counting leads to a lower risk of antepartum late fetal death. The results suggested that formal counting does not result in a better outcome for the baby, any more than relying on women to informally take note of any changes in their baby's movements.

The study highlighted that introducing a policy that all pregnant women were to formally count their baby's kicks would use considerable extra resources. They estimated that over a year this would lead to '140,000 midwifery hours, 90 million hours of pregnant women's time, 13,000 extra cardiotocographs, and 5,000 more admissions.'[3] The researchers also noted that it would take at least 1,250 women with a singleton pregnancy to formally count their baby's movements in order to prevent one unexplained antepartum death.[3]

Additional issues raised by the Grant study

Two further points can be taken from this study. An article by Frøen in 2004[1] highlighted that the death rate during the Grant study was 2.8%, which was much lower than Grant et al's 4% estimate. [The 2013 rate for England and Wales is currently 4.7 stillbirths per 1000 births[4]] As the study was so large and it involved different medical staff in various countries, Frøen suggests that the increased vigilance and awareness of reduced fetal movement had a positive effect on the stillbirth rate, highlighting the value of supporting pregnant women to be aware of their baby's movements and to feel confident to contact their midwives should they notice any decrease or change.

A second major point that was raised by both Grant and Frøen was that the response by health care professionals to a woman's concerns of RFM was crucial to whetherthe pregnancy resulted in a stillbirth. Grant stated that: 'In none of the 17 cases [of unexplained stillbirth] where the fetus was alive on reaching formal medical care was emergency delivery attempted after reduced movements had been recognized. This reflected false reassurance from diagnostic testing, especially cardiotocography, and clinical error.'[3] Although this statement does reflect the maternity care in 1989 - which it would be hoped has vastly improved since then - it does highlight that an appropriate response from health care professionals is a major factor in the outcome of a woman's concerns of RFM.

What is the appropriate medical response to a woman's concerns of RFM?

Although a woman experiencing RFM should always be able to see a midwife promptly, it can be reassuring to know that the amount a baby moves in the womb and a mother's ability to perceive those movements can be influenced by many factors, such as:

- The position the mother is in (such as lying down or standing)[5]
- Activity and exercise[6]
- Anxiety[7]
- Stress[8]
- Blood sugar[9]
- Smoking[10]
- The position of the placenta[11]
- The mother being overweight[12]

The Royal College of Obstetricians and Gynaecologists provides very detailed information on the

management of RFM. Its Green-top Guideline No.5713 outlines all of the relevant research in the area and creates recommendations based on this evidence. This is useful to women who are experiencing RFM, as they can use the guidelines to understand the minimum response they should expect from health care professionals. Some of the notable points include:

Women who are concerned about RFM should not wait until the next day for an assessment of their baby's well-being.
An ultrasound scan should be carried out if:

- a woman is over 28 weeks pregnant and the RFM persists despite a normal CTG (monitoring of the baby's heart);
- a woman is over 28 weeks pregnant and there are additional risk factors for fetal growth restriction or stillbirth;
- a woman experiences recurrent RFM.[13]

For women who are between 24 and 28 weeks pregnant, their baby's heart beat should be checked with a Doppler and an ultrasound carried out if the clinician suspects fetal growth restriction.

There are no studies looking at the management of women who present with RFM before 24 weeks of pregnancy. In this case, the guidelines suggest a full antenatal assessment, including the use of a Doppler to listen in to the baby's heartbeat.

Conclusion

The research shows that a pregnant woman is best placed to know when her baby's movements have reduced. As one study recently concluded, 'There is no evidence that formal FMC [fetal movement counting] with their fixed alarm limits are superior to maternal common sense...'[2] Formal kick counting has, therefore, been discredited, but a woman's general awareness of the times and frequency of her baby's movements is still a powerful tool in being able to set in motion an appropriate response from health care professionals.

References

1. Frøen JF (2004) A kick from within - fetal movement counting and the cancelled progress in antenatal care. J Perinat Med. 2004;32(1).
2. Tveit JVH, Saastad E, Stray-Pedersen B et al (2009) Reduction of late stillbirth with the introduction of fetal movement information and guidelines - a clinical quality improvement. BMC Pregnancy and Childbirth 2009, 9:32. doi:10.1186/1471-2393-9-32.
3. Grant A, Elbourne D, Valentin L, Alexander S (1989) Routine formal fetal movement counting and risk of antepartum late death in normally formed singletons. The Lancet. 1989 Aug 12;2(8659):345-9.
4. Office for National Statistics (2013) Characteristics of Birth 1. www.ons.gov.uk/ons/rel/vsob1/characteristics-of-birth-1--england-andwales/ index.html

Accessed 29.05.2015

5. Cito G, Luisi S, Mezzesimi A et al (2005) Maternal position during nonstress test and fetal heart rate patterns. Acta Obstet Gynecol Scand. 2005 Apr ;84(4):335-8.
6. Manders MA, Sonder GJ, Mulder EJ, Visser GH et al (1997) The effects of maternal exercise on fetal heart rate patterns. Early Hum Dev. 1997 May 28;48(3):237-47.
7. Sjöström K, Valentin L, Thelin T, Marsál K (2002) Maternal anxiety in late pregnancy: effect on fetal movements and fetal rate. Early Hum Dev. 2002 Apr ;67(1-2):87-100.
8. DiPietro JA, Costigan KA, Gurewitsch ED (2003) Fetal response to induced maternal stress. Early Hum Dev. 2003 Nov;74(2):125-38.
9. Eller DP, Stramm SL, Newman RB (1992) The effect of maternal intravenous glucose-administration on fetal activity. American Journal of Obstetrics and Gynecology Volume 167(4:1) October 1992:1071-1074.
10. Coppens M, Vindla S, James DK, Sahota DS (2001) Computerized analysis of acute and chronic changes in fetal heart rate variation and fetal activity in association with maternal smoking. American Journal of Obstetrics and Gynecology 2001 Aug;185(2):421-6.
11. Tuffnell DJ, Cartmill RS, Lilford RJ (1991) Fetal movements; factors affecting their perception. European Journal of Obstetrics, Gynecology and Reproductive Biology, 1991 May 10;39(3):165-7.
12. Sebire NJ, Jolly M, Harris JP (2001) Maternal obesity and pregnancy outcome: a study of 287 213 pregnancies in London. International Journal of Obesity and Related Metabolic Disorders 2001, 25:1175-82.
13. RCOG (2011) Green-top Guideline No. 57 - Reduced Fetal Movements. www.rcog.org.uk/globalassets/documents/guidelines/gtg_57.pdf. Accessed 29.05.2015.