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Midwifery

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Detection and management of decreased fetal movements in Ireland: A national survey of midwives' and obstetricians' practices



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ARTICLE INFO

Article history:

Received 17 December 2012

Received in revised form

5 February 2013

Accepted 16 February 2013

Keywords:

Fetal movements

Decreased fetal movements

Fetal movement counting

Kick-charts

ABSTRACT

Objective: to determine midwives' and obstetricians' practices for detecting and managing decreased fetal movements (DFM) during pregnancy.

Design and participants: a descriptive survey of all consultant obstetricians practising obstetrics in the Republic of Ireland and a representative sample of midwives practising midwifery in all 19 maternity units in the Republic of Ireland at the time of survey distribution.

Methods: following ethical approval, a questionnaire was mailed to consultant obstetricians and to Directors of Midwifery in September 2011 with a request for completion. Two postal reminders with further copies of the questionnaire were issued to non-responders. Data were analysed with SPSS Version 18.

Findings: midwifery and obstetric response rates to the survey were 82% ($n=47$) and 71% ($n=89$) respectively. The majority of respondents reported an absence of local guidelines for detecting and managing DFM in pregnancy. Less than 10 movements in 12 hours was the most frequently provided definition of DFM. A minority of respondents routinely recommended formal fetal movement counting for low-risk women (24% and 19% for midwives and obstetricians respectively). This increased considerably, however, for women who presented with DFM (62% and 47% in low risk women and 78% and 51% in high-risk women for midwives and obstetricians respectively). The Cardiff count-to-ten method was the chart of choice for more than 70% of all respondents. Large variations in management strategies for women presenting with DFM was identified; however, almost all respondents would perform a cardiotocograph (CTG) in women presenting with DFM.

Conclusion: further research on DFM and, in particular, large prospective studies on optimum management strategies for women presenting with DFM during pregnancy are needed.

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Introduction

Historically, fetal movements have been used to diagnose pregnancy and indicate ongoing fetal life. They are considered an indirect measure of the integrity and function of the fetal nervous system (Olesen and Savre, 2004; Singh and Sidhu, 2008) and serve as an indicator for optimal fetal well-being. Conversely, decreased fetal movements (DFM) or an absence of fetal movements for an extended period of time are considered an indicator of a fetus at risk for fetal compromise and have been associated with an increased risk of intrauterine fetal death (Moore and Piacquadio, 1989; Singh and Sidhu, 2008; O'Sullivan et al., 2009; Tveit et al., 2009a,b). The pathophysiology underpinning DFM is

an adaptive response by the fetus, which occurs in situations of acute/chronic hypoxia to reduce oxygen consumption and conserve energy supplies.

DFM affects 4–15% of women during pregnancy (Frøen, 2004; Sergent et al., 2005). Formal fetal movement counting, that is the use of 'kick-charts', for detecting DFM and for assessing fetal well-being gained popularity and momentum during the 1960s. The process of counting generally involves the use of a pre-designed chart on which women quantify the number of movements felt over a set period of time or at set times during the day. Alarm limits as to what constitutes DFM are provided depending on the method of counting performed (e.g. <10 movements in 12 hours or <4 movements in 2 hours). Formal fetal movement counting, however, has been criticised for not taking into account individual fetal variability and sleep patterns (Gibby, 1988) and has been linked to increased maternal anxiety levels (Draper et al., 1986). Current guidelines from the National

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Institute of Health and Clinical Excellence (NICE, 2008) do not recommend the use of formal fetal movement counting during pregnancy; they do, however, suggest that women should contact their maternity care provider in the situation of perceived DFM.

Since the publication of the NICE guidance, there has been a re-emergence of interest in the topic of DFM in pregnancy with a recently published randomised trial (Saastad et al., 2011) and a number of recently published non-randomised studies that demonstrate some value for formal fetal movement counting (Singh and Sidhu, 2008; Tveit et al., 2009a,b). Recent surveys have also demonstrated wide variations in practices with regard to fetal movement counting and in the management of women presenting with DFM (Heazell et al., 2008; Flenady et al., 2009; Unterscheider et al., 2010). This may, in part, reflect the influence of conflicting evidence from randomised and non-randomised studies and/or a lack of evidence from sufficiently high-quality randomised trials.

There remains a lack of consensus regarding the role of fetal movement counting in detecting DFM during pregnancy (Mangesi and Hofmetr, 2007) and in managing women presenting with DFM (Hofmeyr and Novikova, 2012) with calls for further research. As part of a wider research initiative and to inform further research on the topic of DFM, we conducted a national survey to determine midwives' and obstetricians' practices for detecting and managing DFM during pregnancy in Ireland and to compare these practices with the empirical evidence base, international practices and best practice recommendations.

Methods

Study sample

The method used was a descriptive survey of all consultant obstetricians practising obstetrics in the Republic of Ireland ($n=126$) and a representative sample ($n=57$) of midwives practising midwifery in all 19 maternity units in the Republic of Ireland at the time of survey distribution. The obstetric population was accessed via the publically available Medical Directory 2010–2011. The midwife population was accessed via the Director of Midwifery or equivalent in each of the 19 maternity units with a request for the survey to be completed by a senior midwife employed in each of the following clinical areas: (i) antenatal clinic, (ii) fetal assessment/perinatal unit/emergency unit (hereafter known as FAU) and (iii) labour ward admissions or labour ward assessment unit.

The instrument

Instrument genesis involved a combination of identifying relevant attributes in the literature and adaptation, with permission, of items used in a survey of >700 midwives and obstetricians in England and Wales (Heazell et al., 2008). The research instrument underwent content validity assessments by a panel of two experts, including one midwifery expert (MF) and one obstetric expert (AH). The final instrument was titled the DFM Questionnaire (DMFQ) and consisted of 19 items across three sections. Section A sought information on respondents current job title, annual unit birth rate (categorised as ≤ 1000 , 1001–2500, 2501–4000 and > 4000) and years in post. Section B sought information on practices for detecting DFM in pregnancy with a focus on definition, optimum timing for reporting DFM, antenatal assessment and use of 'kick-charts'. Section C sought information on practices for managing women presenting with DFM in pregnancy with a focus on additional tests of fetal well-being and subsequent pathways of care. Where relevant, items in Section B and Section C sought information

separately on women considered to be at low-risk (defined as a normal, healthy pregnancy without risk factors for maternal or fetal compromise) and high-risk (defined as a pregnancy complicated by medical and/or obstetric conditions, which may increase the risk for maternal or fetal compromise).

Ethical approval

Ethical approval to conduct the study was granted by the Faculty of Health Sciences Ethics Committee at Trinity College Dublin. Return of completed questionnaires was taken as an explicit indication of consent to participate in the study. This was detailed in the cover letter provided to potential participants as follows: 'Returning the enclosed questionnaire is an explicit indication of willingness and consent to participate in the study....'.

Data collection

The DMFQ was mailed to consultant obstetricians ($n=126$) and to the Directors of Midwifery ($n=19 \times 3$ questionnaires= 57) in September 2011 with a request for completion and return within a four week time frame. Two postal reminders with further copies of the questionnaire were issued to non-responders in November and December 2011.

Data analysis

Survey responses were analysed using the Statistical Package for the Social Sciences (SPSS) Version 18. Descriptive analyses were performed and proportions are presented rounded to the nearest whole percentage point.

Findings

Response rates and demographics

Midwives' survey

Of the 57 questionnaires sent to the Directors of Midwifery, 47 were returned providing an 82% response rate. At least one questionnaire was returned from all 19 units and 11 of the 19 units returned all three questionnaires. Two returned questionnaires were not completed with advisory notes attached indicating that the maternity unit did not have a specialised FAU. This provided a 79% ($n=45$) response rate for data analysis. Of the completed surveys, 38% ($n=17$) and 38% ($n=17$) were completed by midwives working in antenatal clinics and labour wards respectively, 11% ($n=5$) were completed by midwives working in FAU and 13% ($n=6$) were from midwives who indicated that they worked across ante- and intra-partum care environments. Forty-seven per cent ($n=21$) of midwife respondents had >20 years' experience in their current post and 36% ($n=16$) had between six and 20 years' experience. Forty-nine per cent ($n=22$), 22% ($n=10$) and 29% ($n=13$) were engaged in clinical practice in units with annual birth rates of 1001–2500, 2501–4000 and >4000 respectively.

Obstetrician's survey

Of the 126 questionnaires distributed to consultant obstetricians, 89 were returned providing a 71% response rate. Of these, four surveys were not completed with explanations provided as follows: three consultants indicated that they were no longer practising obstetrics and one indicated that the obstetrician was no longer at that particular address. This provided a 67% ($n=85$) response rate for data analysis. Fifteen per cent ($n=13$) of obstetric respondents had >20 years' experience, 62% ($n=53$)

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