

Management and Outcome of Reduced Fetal Movements—Is Ultrasound Necessary?

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Abstract

Objective: To review the management and outcome of pregnancies of women presenting to obstetrical triage with decreased fetal movements (DFM).

Study Design: A retrospective review of women presenting with DFMs to two large Canadian obstetrical centres with a combined 9490 deliveries per year. The charts were reviewed for compliance with the Canadian guidelines for demographics (age, parity, GA, comorbidities, etc.), pregnancy management (admission vs. discharge, need to deliver), and pregnancy outcomes (mortality, morbidity, GA at delivery, Apgar scores, etc.). Patients who did not comply with the Canadian guidelines (requiring the patient to count six movements within two hours) were not excluded.

Results: The charts of 579 patients who self-reported DFMs between January 2012 and December 2012 were reviewed. The distribution of ages was between 18 and 47 year old. The majority of these patients had no comorbidities (454/579). A significant minority of patients had FM in the triage area (231/579). The Canadian guidelines were interpreted differently in the two centres. In one (level 3), the protocol was to have a biophysical profile (BPP) on all patients prior to discharge, whereas in the other (level 2), only patients with a non-reactive non-stress test (NST) and/or oligohydramnios or intrauterine growth restriction (IUGR) underwent a BPP. All patients had an evaluation by an RN and MD and had a NST on arrival. A combination of NST and BPP was performed on 235/579. The frequency of DFM was 6.1% (level 3 centre: 5.6%, level 2 centre: 7.8%). There were 8 stillbirths on arrival. The 187 patients who had a reactive NST and a normal BPP and were sent home did not have a single stillbirth within 2 weeks. In the level 3 centre, 19 patients were sent home without a BPP and one had a stillbirth within 2 days (5%); in the level 2 hospital, there was only one stillbirth among the NST-only group (0.35%). There were 65 admissions; 46 of them (71%) were delivered, and 50% of them had a Caesarean delivery (baseline around 30%).

Conclusions: This is the first study looking at the performance of the Canadian guidelines of 2007. We found that the DFM rate was compatible with the literature (6.1% vs. 5%). The frequency of

stillbirth on arrival was 1.4% (8/579). Patients discharged after normal NST and BPP did extremely well (no stillbirths), whereas those admitted following DFM had a relatively high Caesarean delivery rate (50%). This study was not designed to address changes in stillbirth rate, but it outlines the patients who experience DFM and their eventual outcomes.

Résumé

Objectif : Examiner la prise en charge et les issues de grossesse des femmes qui présentaient un nombre moindre de mouvements fœtaux au triage.

Devis de l'étude : Nous avons mené une étude rétrospective portant sur les patientes qui se sont présentées dans deux grands centres d'obstétrique canadiens – qui ensemble réalisent 9 490 accouchements par an – avec un nombre moindre de mouvements fœtaux. Nous avons consulté les dossiers pour examiner la conformité des cas avec les directives canadiennes, les données démographiques (âge, parité, AG, comorbidités, etc.), la prise en charge de la grossesse (admission ou congé, accouchement nécessaire après l'admission) et les issues de grossesse (mortalité, morbidité, AG à l'accouchement, indices d'Apgar, etc.). Les cas qui ne répondaient pas aux critères des directives (six mouvements ou plus en deux heures) ont été conservés dans l'étude.

Résultats : Nous avons examiné le dossier de 579 femmes ayant rapporté un nombre moindre de mouvements fœtaux entre janvier et décembre 2012. Leur âge variait de 18 à 47 ans. La majorité des patientes ne présentaient aucune comorbidité (454/579), et une minorité importante a connu des mouvements fœtaux dans la zone de triage (231/579). Soulignons que les deux centres interprétaient différemment les directives. Dans le premier établissement (niveau 3), le protocole consistait à déterminer systématiquement le profil biophysique (PBP) avant le congé; dans le deuxième (niveau 2), le PBP n'était déterminé que chez les patientes ayant un résultat négatif à l'examen de réactivité fœtale (ERF) ou présentant un oligoamnios ou un retard de croissance intra-utérin (RCIU). Toutes les patientes ont subi une évaluation par une infirmière autorisée et un médecin, ainsi qu'un ERF au moment de l'accueil. Pour 235 patientes (sur 579), l'ERF a été accompagné d'un PBP. Globalement, la fréquence de nombre moindre de mouvements fœtaux était de 6,1 % (centre de niveau 3 : 5,6 %; centre de niveau 2 : 7,8 %). Huit cas d'enfants mort-nés ont été constatés à l'arrivée à l'urgence. Aucune des 187 patientes qui ont eu un résultat positif à l'ERF, avaient un PBP normal et n'ont pas été hospitalisées n'a connu de mortinaissance dans les deux semaines suivantes. Dans le centre de niveau 3, 19 femmes ont été renvoyées chez elles sans que leur PBP ait été déterminé, et l'une d'elles a perdu son bébé dans les deux jours suivants (5 %). Dans le centre de niveau 2, il n'y a eu qu'une mortinaissance dans le groupe ayant subi un ERF seulement (0,35 %). Sur les 65 patientes admises, 46 (71 %) ont accouché,

Key Words: DFM, RFM, Decreased Fetal movement, Reduced Fetal movement and antenatal surveillance

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Competing interests: None declared.

Received on January 9, 2017

Accepted on August 10, 2017

dont la moitié (50 %) par césarienne (taux habituel d'environ 30 %).

Conclusions : Cette étude était la première à évaluer la directive canadienne de 2007. Nous avons obtenu une fréquence de nombre moindre de mouvements fœtaux comparable à celle trouvée dans la littérature (6,1 % comparativement à 5 %). Dans 1,4 % des cas (8/579), une mortinaissance a été constatée à l'arrivée. Les issues de grossesse des patientes qui ont reçu leur congé après un résultat normal à l'ERF et au PBP étaient excellentes (aucun enfant mort-né), tandis que chez les femmes admises, le taux d'accouchement par césarienne était relativement élevé (50 %). Cette étude ne portait pas sur l'évolution du taux de mortinaissance : elle visait plutôt à décrire les issues de grossesse des femmes présentant un nombre moindre de mouvements fœtaux.

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J Obstet Gynaecol Can 2017;■■■(■■■):■■■-■■■

<https://doi.org/10.1016/j.jogc.2017.08.007>

INTRODUCTION

The crude fetal mortality rate in Canada ranges between 4.1 and 5.8 of 1000 live births. These rates are considered one of the lowest worldwide and are a reflection of the high standards of obstetric care and the overall population health.¹ Though this rate is considered low, it is believed that it can be lowered further and some intrauterine fetal deaths remain preventable.

“Quickening,” or the first perception of fetal movement, varies considerably among pregnant women. It is generally experienced between 16 and 20 weeks, a period long before fetal viability. It is a well-known fact that in response to decreased placental perfusion, the fetus will decrease or stop movements to conserve energy.² This is the basis for four of the five elements of the biophysical profile.³ This is also the physiologic basis for the fetal kick

ABBREVIATIONS

BPP	biophysical profile
DFM	decreased fetal movements
FM	fetal movement
FMC	fetal movement count
GFM	good fetal movement
IOL	induction of labour
IUGR	intrauterine growth restriction
IUFD	intrauterine fetal death
MSH	Mount Sinai Hospital
NST	non-stress test

count test. Consciously or not, women come to rely on these movements as an indicator of fetal well-being. Fetal movement awareness, or a more formal fetal movement count, has many advantages: it requires no additional technology or specialized personnel, it is free and available to all women regardless of locale or proximity to specialized obstetrical care, and it can alert the obstetrical care provider to impending fetal demise as a result of impaired placental perfusion.

In 2007, the SOGC published a detailed guideline about the management of decreased fetal movements.¹ They recommend that daily monitoring of fetal movements starting at 26 to 32 weeks should be done in all pregnancies with risk factors for adverse perinatal outcome (I-A). Healthy pregnant women without risk factors for adverse perinatal outcomes should be made aware of the significance of fetal movements in the third trimester and asked to perform an FMC if they perceive decreased movements, whereas women with risk factors for adverse outcome should daily FM count (I-B).¹ Norway is the only other country that we are aware of that implemented awareness to DFM around the same time the SOGC guidelines were published, which has national guidelines that recommend monitoring fetal movements with a single paper. This campaign resulted in a significant decrease in stillbirths looking at fetal outcomes after the implementation of these guidelines. This awareness resulted in elimination of one-third of all stillbirths.²⁵

This study was not designed to address changes in stillbirth rate, but it outlines which patients experience DFM and their eventual outcomes. This is the first study looking at the performance of the Canadian guidelines of 2007.

MATERIALS AND METHODS

Study Design

This was a retrospective review of women presenting with DFM to two large Canadian obstetrical centres with a combined 9490 deliveries per year. The charts were reviewed for compliance with the Canadian Guidelines that require a non-stress test and a BPP for suspected oligohydramnios and/or IUGR, for demographics (age, parity, GA, comorbidities, etc.), pregnancy management (admission vs. discharge, need to deliver), and pregnancy outcomes (mortality, morbidity, GA at delivery, Apgar scores, cord pH, etc.). Patients who did not comply with the Canadian guidelines (requiring patient to count 6 movements within 2 hours) were not excluded.

Data Collection

The labour ward triage registry was reviewed to identify the patients who meet the criteria for inclusion. The data were

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