

Iron Deficiency and Risk of Maternal Depression in Pregnancy: An Observational Study



Manish Dama, BSc;¹ Ryan J. Van Lieshout, MD; PhD;² Gabriella Mattina, BSc;² Meir Steiner, MD, MSc, PhD^{2,3}

¹Department of Public Health Sciences, University of Toronto, Toronto, ON

²Department of Psychiatry and Behavioural Neurosciences, McMaster University, Hamilton, ON

³Department of Obstetrics and Gynecology, McMaster University, Hamilton, ON

Abstract

Objective: Maternal depression during pregnancy can affect both the mother and her family. Although research has suggested that iron deficiency is associated with depression in the general population, this link has not been examined during the antenatal period. Our objective was to determine whether iron deficiency is associated with maternal depression during middle to late pregnancy.

Methods: A retrospective study was conducted using the medical records of patients seen at the Women's Health Concerns Clinic at St. Joseph's Healthcare Hamilton in Hamilton, Ontario between 2009 and 2016. Women with serum ferritin data during middle to late pregnancy (>20 weeks' gestation) (N = 142) were categorized as either iron deficient (ferritin <12 µg/L) or iron sufficient. Edinburgh Postnatal Depression Scale (EPDS) scores and the odds of developing antenatal depression (EPDS ≥12) between the two groups were compared.

Results: Iron deficient pregnant women scored significantly higher on the EPDS (10.14 ± 5.69 vs. 7.87 ± 5.75; *P* = 0.03) and were more likely to develop antenatal depression (45% vs. 25%; *P* = 0.02) compared with women who were not. The odds of developing antenatal depression were two and one half times higher among iron deficient women (adjusted OR 2.51; 95% CI 1.14–5.52).

Conclusion: These findings suggest that iron deficiency is associated with higher levels of depression during pregnancy. Although these results require replication, iron deficiency may be an important risk factor for maternal depression during pregnancy.

Résumé

Objectif : La dépression maternelle pendant la grossesse peut être difficile non seulement pour la mère, mais aussi pour sa famille.

Key Words: Depression, pregnancy, antenatal, iron deficiency, screening

Corresponding Author: Dr. Manish Dama, Women's Health Concerns Clinic, St. Joseph's Healthcare Hamilton, West 5th Campus, 100 West 5th Street, Hamilton, ON.
manish.dama@mail.utoronto.ca

Competing interests: None declared.

Received on May 26, 2017

Accepted on September 19, 2017

Des études laissent entendre qu'une carence en fer serait associée à la dépression dans la population générale, mais ce lien n'a pas fait l'objet d'études en période anténatale. Cette étude avait pour but de déterminer si la carence en fer est associée à la dépression maternelle en milieu ou en fin de grossesse.

Méthodologie : Nous avons mené une étude rétrospective au moyen des dossiers médicaux de patientes venues consulter à la clinique Women's Health Concerns du Centre de soins de santé St-Joseph de Hamilton (Ontario) entre 2009 et 2016. Les femmes dont le taux de ferritine sérique en milieu ou en fin de grossesse (à plus de 20 semaines de gestation) était connu (n = 142) ont été séparées en deux groupes : celles qui présentaient une carence en fer (ferritine inférieure à 12 µg/L) et celles qui n'en présentaient pas. Les résultats obtenus à l'Échelle de dépression post-partum d'Édimbourg (EDPE) et la probabilité de développer une dépression anténatale (12 ou plus à l'EDPE) des deux groupes ont été comparés.

Résultats : Les femmes présentant une carence en fer ont obtenu des résultats significativement plus élevés à l'EDPE (10,14 ± 5,69 c. 7,87 ± 5,75; *P* = 0,03) et étaient plus susceptibles de développer une dépression anténatale (45 % c. 25 %; *P* = 0,02) que les autres. La probabilité qu'elles développent une dépression anténatale était de deux fois et demie celle des autres femmes (rapport de cotes ajusté : 2,51; IC à 95 % : 1,14–5,52).

Conclusion : Ces résultats laissent penser qu'une carence en fer est associée à un taux élevé de dépression pendant la grossesse. Ils devront être confirmés par d'autres études, mais il serait possible que la carence en fer soit un facteur de risque important de dépression maternelle pendant la grossesse.

Copyright © 2017 The Society of Obstetricians and Gynaecologists of Canada/La Société des obstétriciens et gynécologues du Canada. Published by Elsevier Inc. All rights reserved.

J Obstet Gynaecol Can 2018;■■(■■):■■–■■

<https://doi.org/10.1016/j.jogc.2017.09.027>

INTRODUCTION

Depression during pregnancy (i.e., antenatal depression) is a significant clinical problem affecting as many as 13% of women.¹ Most commonly occurring during the

second and third trimesters,¹ antenatal depression is associated with an increased risk of adverse obstetrical outcomes,^{2,3} subsequent depressive episodes,^{4,5} depression in partners,⁶ and cognitive, emotional, and behavioural problems in children.⁷⁻⁹ In addition to causing significant suffering for women and increasing the risk of adverse outcomes for children and families, an untreated case of antenatal depression is estimated to account for \$150 000 in societal costs.¹⁰ As a result, the importance of the timely detection and treatment of antenatal depression cannot be overstated.

Although clinical practice guidelines provide guidance on the screening and treatment of antenatal depression,¹¹⁻¹³ these generally fail to acknowledge the importance of recognizing and treating the non-psychiatric comorbidities associated with it. Past research suggests that physical health problems can affect the course, presentation, and effectiveness of treatment for depression in general population samples.¹⁴⁻¹⁸ In particular, iron deficiency has been shown to play an important role in the development and management of depression. Studies have suggested that not only may iron deficiency be linked to the etiology and presentation of depression in the general population,^{19,20} but also iron supplementation may improve symptoms of depression.²¹

Despite the existence of links between iron deficiency and depression in general population samples, to our knowledge no research has examined the association between antenatal iron deficiency and depression. Iron deficiency is a common complication of pregnancy, affecting 22% of women during middle to late gestation.²² Because iron deficiency is common during pregnancy, and given that it may play an important role in the pathogenesis, course, and management of depression, it is vital to understand the relationship between iron status and depression during pregnancy. Furthermore, because nearly one third of cases of postpartum depression begin before delivery,²³ antenatal iron deficiency may warrant clinical consideration in the detection and treatment of depression during pregnancy. The present study was conducted to determine whether iron deficiency is associated with maternal depression during middle to late pregnancy.

METHODS

Study Design and Sample

A retrospective chart review used the medical records of women seen between 2009 and 2016 at the Women's Health Concerns Clinic (WHCC) at St. Joseph's Healthcare Hamilton in Hamilton, Ontario. During this time, the WHCC was the principal setting in southwestern Ontario special-

izing in treating mood and anxiety disorders during the perinatal period. Women with perinatal mental health concerns and those at increased risk for these problems are referred to this clinic by family physicians, obstetricians, midwives, nurse practitioners, and public health nurses. Women can also self-refer to this service.

A convenience sample of women who were between the ages of 18 and 45, in middle to late pregnancy (>20 weeks' gestation), and who had completed the Edinburgh Postnatal Depression Scale (EPDS) on the same day that they had blood drawn for the analysis of serum ferritin (a biological marker of iron storage) were included in the study. Women in mid-late gestation were sampled because most of the patients seen at the WHCC first attend the clinic at some point during the latter half of their pregnancy. In addition, we selected for patients who completed the EPDS on the same day that they had their blood drawn to reduce the risk of new or recurrent depressive episodes confounding associations because this could happen if these two variables were measured at different time points (eg, measuring serum ferritin early in mid-gestation and assessing depressive symptoms during the end of late gestation). To further reduce the risk of confounding, any women presenting with any current major medical condition that could affect maternal serum ferritin levels or the severity of depression (eg, autoimmune diseases) were excluded from the present study. Overall, 142 women met these criteria (N = 142).

A data extraction form was developed, pilot tested, refined, and then used to gather relevant demographic and clinical information from the participants' medical charts. The variables recorded in this extraction form included maternal age, marital status, ethnicity, pre-pregnancy BMI, age of gestation, parity, serum ferritin, current use of iron supplements and psychotropic medications, past psychiatric diagnoses, and EPDS scores.

Serum Ferritin Assessment

Patients seen at the WHCC had 4.0 mL of blood collected from the antecubital vein in a lithium heparin tube. At least 0.5 mL of heparinized plasma was required for laboratory analysis. Following collection, samples were then stored at 2°C. If samples needed to be stored for longer than 7 days, they were then frozen at -20°C or colder. Samples were then centrifuged and analyzed for serum ferritin by using a chemiluminescent microparticle immunoassay (ARCHITECT Ferritin 7K59 G6-2659/R08B7K590, Abbott Laboratories, Lake Bluff, IL). All of the samples collected used the same procedure and were analyzed at the Core Laboratory site at Hamilton General Hospital in Hamilton,

Download English Version:

<https://daneshyari.com/en/article/8781562>

Download Persian Version:

<https://daneshyari.com/article/8781562>

[Daneshyari.com](https://daneshyari.com)