Evaluating the Postpartum Maternal Health Clinic: How Patient Characteristics Predict Follow-Up

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Abstract

Objective: At Kingston General Hospital, women who have pregnancy-related cardiovascular risk indicators (e.g., preeclampsia, gestational hypertension, gestational diabetes) are offered standardized six-month postpartum follow-up for cardiovascular disease risk screening and counselling. We sought to assess how patient characteristics predict attendance at follow-up.

Methods: We undertook a chart review of 650 patients who delivered between April 2011 and December 2014 and had preeclampsia, gestational hypertension, or gestational diabetes. Logistic regression was used to analyze the relationship between clinical and demographic variables and attendance at the follow-up clinic.

Results: Increasing age (in years) was significantly correlated with attendance at follow-up (adjusted OR [aOR] 1.08, 95% CI 1.04 to 1.12). Women who had preeclampsia were significantly more likely to attend than women who had gestational hypertension or gestational diabetes (aOR 1.54, 95% CI 1.05 to 2.26). Women who were known to be non-smokers or whose smoking status was not recorded were significantly more likely to attend follow-up (aOR 2.47, 95% CI 1.32 to 4.62). There was a trend towards lower follow-up for women from census tracts or subdivisions with a greater proportion of individuals without educational certificate, diploma, or degree, but this was not statistically significant (aOR 0.10, 95% CI 0.01 to 1.22).

Conclusion: There is significant selection bias among women who attend follow-up for postpartum cardiovascular disease risk screening and counselling after pregnancies complicated by preeclampsia, gestational hypertension, or gestational diabetes.

Résumé

Objectif : À l'hôpital général de Kingston, on offre aux femmes qui ont des indicateurs de risques cardiovasculaires liés à la grossesse (p. ex., prééclampsie, hypertension gestationnelle, diabète gestationnel) un suivi post-partum standardisé de six mois pour le dépistage des risques de maladie cardiovasculaire, ainsi que du counseling en la matière. Nous avons cherché à évaluer si les différentes caractéristiques des patientes permettaient de prédire leur assiduité aux séances de suivi.

Méthode : Nous avons effectué un examen des dossiers de 650 patientes qui ont accouché entre avril 2011 et décembre 2014 et qui avaient souffert de prééclampsie, d'hypertension gestationnelle ou de diabète gestationnel. Nous avons procédé à une analyse de régression logistique pour définir la relation entre les variables cliniques et démographiques, d'une part, et l'assiduité aux séances de suivi, de l'autre.

Résultats : L'âge (en années) était étroitement lié à l'assiduité aux séances de suivi (rapport de cotes corrigé [RCC] 1,08, IC à 95 % de 1,04 à 1,12), celle-ci s'accroissant plus la femme était âgée. Les femmes qui avaient souffert de prééclampsie étaient nettement plus susceptibles d'assister aux séances que celles qui avaient fait de l'hypertension gestationnelle ou du diabète gestationnel (RCC 1,54, IC à 95 % de 1,05 à 2,26). Les non-fumeuses et celles dont le statut tabagique n'était pas indiqué étaient nettement plus susceptibles de participer au suivi (RCC 2,47, IC à 95 % de 1,32 à 4,62). Nous avons également relevé une tendance à moins assister aux séances de suivi chez les femmes provenant de secteurs ou de subdivisions de recensement où l'on retrouve une plus grande proportion de gens ne détenant pas de certificat d'études ou de diplôme collégial ou universitaire, mais cette tendance n'était pas statistiquement significative (RCC 0,10, IC à 95 % de 0,01 à 1,22).

Conclusion : On constate un important biais de sélection chez les femmes qui assistent à des séances de suivi post-partum pour le dépistage des risques de maladie cardiovasculaire et de counseling à la suite d'une grossesse compliquée par la prééclampsie, l'hypertension gestationnelle ou le diabète gestationnel.

Key Words: Cardiovascular diseases, preeclampsia, pregnancy-induced hypertension, gestational diabetes

Conflicting Interests: None declared.

Received on February 28, 2016

Accepted on May 5, 2016

http://dx.doi.org/10.1016/j.jogc.2016.05.005

J Obstet Gynaecol Can 2016;38(10):930–935

INTRODUCTION

Pregnancy and the postpartum period provide a unique opportunity for intervention in preventing cardiovascular disease in women. Pregnancy is one of the few time periods in which otherwise healthy, young women regularly access the medical system. Therefore, pregnancy complications are often the first clinical identifiers of increased CVD risk.[1] In 2011, the American Heart Association added having a personal history of preeclampsia, gestational diabetes, or pregnancy-induced hypertension as criteria for "at risk" status for coronary heart disease.[2] These guidelines

urge maternity care providers to refer these women for ongoing management of cardiovascular risk factors.[2] If high-risk women are counselled and screened at an early age, there are greater opportunities for primary prevention.

At Kingston General Hospital, a tertiary academic health sciences hospital affiliated with Queen's University in Kingston, Ontario, the Maternal Health Clinic began operating in November 2011. All women who have pre-eclampsia, gestational hypertension, gestational diabetes, significant placental abruption, intrauterine growth restriction, or idiopathic preterm birth (referred to as pregnancy-related cardiovascular risk indicators[3,4]) are referred to the MHC as part of the standard KGH postpartum preprinted order set. There is no standard counselling regarding CVD risk prior to discharge, although house staff are encouraged to address long-term implications of obstetrical complications.

At the MHC, women are screened for CVD risk based on their personal, family, and obstetrical histories. Their weight, height, waist circumference, and blood pressure are measured and BMI calculated. They undergo biochemical testing, including urine albumin to creatinine ratio, fasting serum cholesterol, and fasting blood glucose (or 75 g glucose tolerance test if the patient had gestational diabetes). Women receive initial CVD risk counselling based on this assessment. After the MHC appointment, letters quantifying CVD risk and providing recommendations for ongoing management are sent to each woman and to her family physician.[4] Women who live more than a one-hour drive from KGH may complete the follow-up with their family physician instead of returning to Kingston; they are provided with the standardized forms used at the MHC.[4]

It was noted anecdotally that only approximately half of the women referred to the MHC attended follow-up and that these women tended to be older and more educated. As we investigate the effects of postpartum CVD risk counselling, it will be important to understand if those women who attend follow-up are representative of women who have had pregnancy-related cardiovascular risk indicators. Research into the effects of postpartum CVD risk counselling must be interpreted within this context. Furthermore, understanding which patients are more likely to be lost to follow-up may help to identify barriers to accessing care. We sought to review the characteristics of a cohort of women who were invited to attend the MHC to establish whether there is selection bias among the women who attend and to identify potential barriers to follow-up.

ABBREVIATIONS

aOR	adjusted OR
CVD	cardiovascular disease
KGH	Kingston General Hospital
MHC	Maternal Health Clinic
SES	socio-economic status

METHODS

Between April 2011 and December 2014 (inclusive), 650 women who delivered at KGH were referred to the MHC because of a history of preeclampsia, gestational hypertension, or gestational diabetes. We limited the analysis to women referred for these indications because (1) the recommendations for follow-up are better established for these indications, and (2) the referrals for these indications were more consistent; for example, intrauterine growth restriction might not be recognized postpartum or might be diagnosed erroneously based on antenatal estimated fetal weight.

Women were classified as "Attended" if they attended follow-up at the MHC or completed the visit with their family physicians. They were classified as "Cancelled" if they either cancelled their appointment or did not attend their scheduled appointment.

In 2011 and in early 2012, all women referred were given appointments; however, many who lived a relatively further distance from KGH did not attend their booked appointments. Starting in mid-2012, women who lived more than one hour's travel from KGH were provided with a letter (the "Out-of-Town letter") inviting them to book an appointment with the MHC, rather than automatically booking them into clinic. They were invited to call to book an appointment within nine months of their delivery. There was no additional communication with these women unless they called the MHC. Therefore, after mid-2012, women who lived more than one hour's travel from KGH and who did not respond to the Out-of-Town letter were not included in this analysis.

The paper charts of women eligible to attend the MHC (including the Ontario Ministry of Health and Long-Term Care Antenatal Record 1 & 2)[5] and relevant information on the KGH electronic medical record were reviewed. Postal codes were searched online using the Statistics Canada 2006 Census Tract Profiles.[6] Demographics corresponding to eligible women's census tract (or census subdivision for women not residing within a Census Metropolitan Area) were recorded.

Logistic regression was used to analyze the relationship between clinical and demographic variables and