

Cardiovascular Risk Reduction and Weight Management at a Hospital-Based Postpartum Preeclampsia Clinic

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Abstract

Objective: Women who develop preeclampsia during pregnancy are at high risk of developing future chronic diseases, including premature cardiovascular disease. We have established an interdisciplinary clinic that aims to prevent cardiovascular disease through educational counselling focused on lifestyle modifications in the early postpartum period. The objective of this study was to evaluate changes in weight and cardiovascular risk factors in participating women after six months of attendance at the clinic.

Methods: We conducted a retrospective chart review of women who had a pregnancy complicated by preeclampsia, and who subsequently attended the Postpartum Preeclampsia Clinic. Study subjects had baseline assessments of lifestyle, physical, and laboratory parameters. Individualized goals for cardiovascular risk reduction and lifestyle were established, centering on physical activity and dietary modifications. The primary outcome was change in weight.

Results: Over the study period, 21 women were seen for a minimum of six months of follow-up. At an average (\pm SD) of 4.4 ± 1.4 months postpartum, subjects showed a non-significant improvement in weight (mean weight loss of 0.4 ± 4.5 kg) and BMI (mean decrease in BMI 0.1 ± 1.7 kg/m²). Physical activity improved significantly, from 14% of subjects participating in physical activity before pregnancy to 76% at a mean of 4.4 months postpartum.

Conclusion: This study has demonstrated the early benefits of a longitudinal interdisciplinary intervention with counselling about lifestyle modifications for prevention of cardiovascular disease in women with recent preeclampsia. A study with a larger sample size and longer duration of follow-up is planned to confirm these findings.

Key Words: Preeclampsia, postpartum care, nutrition, vascular disease, health promotion and prevention, weight management

Competing Interests: None declared.

Received on September 9, 2014

Accepted on November 10, 2014

Résumé

Objectif : Les femmes qui en viennent à connaître une prééclampsie pendant la grossesse sont exposées à un risque élevé d'en venir par la suite à présenter des maladies chroniques, dont la maladie cardiovasculaire prématurée. Nous avons mis sur pied une clinique interdisciplinaire qui vise à prévenir la maladie cardiovasculaire par l'offre de services de counseling pédagogique axés sur les modifications à apporter au mode de vie aux débuts de la période postpartum. Cette étude avait pour objectif d'évaluer les modifications du poids et des facteurs de risque cardiovasculaire chez les participantes, après six mois de consultations à la clinique.

Méthodes : Nous avons mené une analyse rétrospective des dossiers des femmes dont la grossesse avait été compliquée par la prééclampsie et qui avaient par la suite fréquenté la *Postpartum Preeclampsia Clinic*. Pour déterminer les paramètres de départ, les participantes à l'étude ont été soumises à des évaluations du mode de vie, à des examens physiques et à des analyses de laboratoire. Des objectifs personnalisés en matière de réduction du risque cardiovasculaire et de modification du mode de vie ont été établis, le tout étant axé sur l'activité physique et les modifications du régime alimentaire. La modification du poids constituait le critère d'évaluation principal.

Résultats : Au cours de la période d'étude, 21 femmes ont fait l'objet d'un suivi d'une durée minimale de six mois. À $4,4 \pm 1,4$ mois postpartum en moyenne ($\pm \sigma$), les participantes présentaient une amélioration non significative en matière de poids (perte pondérale moyenne de $0,4 \pm 4,5$ kg) et d'IMC (diminution moyenne de l'IMC de $0,1 \pm 1,7$ kg/m²). Le niveau d'activité physique a connu une amélioration significative, passant de 14 % des participantes pratiquant des activités physiques avant la grossesse à 76 % après 4,4 mois postpartum en moyenne.

Conclusion : Cette étude a démontré les avantages précoces d'une intervention interdisciplinaire longitudinale, s'accompagnant de services de counseling sur les modifications à apporter au mode de vie, pour assurer la prévention des maladies cardiovasculaires chez des femmes ayant récemment connu une prééclampsie.

Nous prévoyons mener une étude comptant un échantillon plus large et un suivi de plus longue durée, en vue de confirmer ces constatations.

J Obstet Gynaecol Can 2015;37(4):330–337

INTRODUCTION

The occurrence of preeclampsia during pregnancy identifies a group of women who are at increased risk of developing future chronic diseases (e.g., metabolic syndrome, obesity, type 2 diabetes, chronic hypertension, kidney disease, and premature cardiovascular disease).^{1–8} Many of these chronic diseases may be largely prevented through implementation of simple postpartum lifestyle interventions.^{9,10} Accordingly, several Canadian and international organizations have recommended routine postpartum follow-up of women with PE to provide educational counselling regarding healthy lifestyle activities for chronic disease prevention.^{11–15} There are two components of these postpartum lifestyle recommendations. The first is loss of all gestational weight and achievement of a normal BMI of 18 to 24.9 kg/m².^{13,14,16} The second is a set of specific lifestyle recommendations which mirror Health Canada's minimum lifestyle recommendations for nutrition (7 to 8 servings of fruits and vegetables per day)¹⁷ and physical activity (150 minutes of moderate to vigorous physical activity per week).¹⁸

Despite these recommendations, observational data suggest that the majority of Canadian women are not meeting these basic health prevention guidelines.^{19,20} To date, few studies have assessed the long-term effectiveness of lifestyle interventions (either exercise or dietary modifications) for CVD prevention in postpartum women who had PE. Such women are among those at highest risk of developing premature CVD.^{14,21,22}

This study examined the effects of longitudinal attendance at an interdisciplinary clinic providing lifestyle educational counselling in the early postpartum period on cardiovascular risk factors and weight management in Canadian women with recent PE. Specific study objectives were to assess changes in cardiovascular risk factors and

weight in subjects after six months of follow-up, and to examine changes in lifestyle behaviours in subjects from baseline to six months of follow-up.

METHODS

The Postpartum Preeclampsia Clinic at the Royal Alexandra Hospital in Edmonton, Alberta, is an interdisciplinary clinic that was established in September 2010. PPPEC team members include an obstetric medicine physician (general internist), a nurse practitioner, a registered dietitian, and a pharmacist (online eAppendix 1). Medical trainees (clinical fellows and residents) and students of other health disciplines attend the clinic in rotation. Women with a recent diagnosis of PE are assessed and followed longitudinally in this clinic. The main goals of the PPPEC are:

1. to educate women about the future health implications of PE, focusing on the risk of PE in subsequent pregnancies and the risk of premature CVD;
2. to assess modifiable cardiovascular risk factors; and
3. to improve cardiovascular risk factors and achieve weight management primarily through counselling about lifestyle modifications (diet and exercise), with supplemental use of pharmacologic therapies when indicated.

In general, women with PE are referred by their obstetrical care provider to the PPPEC at the time of discharge from hospital after delivery. At the first clinic visit, women view a 20-minute computerized presentation about preeclampsia and future heart health which introduces the importance of lifestyle modifications to reduce cardiovascular risk. They then complete a health profile (a two-page questionnaire) that provides the clinic team with information about the woman's PE history, medical history (including standard cardiovascular risk factors), family history, medications, and social history (tobacco, alcohol, caffeine, recreational drugs, exercise, and stress). Exercise is recorded on the self-reported questionnaire as whether the woman participated in any form of regular exercise before pregnancy. The nurse practitioner or obstetric medicine specialist reviews this information and obtains any additional information directly from the patient or from the hospital chart. A standardized physical examination is performed, including measurement of height, weight, waist circumference, and blood pressure.

Vascular risk is assessed at the baseline visit by examining glycemic status (hemoglobin A1C and fasting blood glucose level or a 75 gram oral glucose tolerance test) and serum lipid levels. These investigations are repeated after six months if indicated. Resolution of preeclampsia is confirmed at the baseline visit by performing a CBC

ABBREVIATIONS

CVD	cardiovascular disease
PE-NET	Pre-Eclampsia New Emerging Team
PE	preeclampsia
PPPEC	The Postpartum Preeclampsia Clinic
RAH	Royal Alexandra Hospital
SD	standard deviation

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