

The Sustained Value of an Early Pregnancy Assessment Clinic in the Management of Early Pregnancy Complications: A 10-Year Retrospective Study



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Abstract

Objective: This study sought to evaluate the sustained value of an early pregnancy assessment clinic (EPAC) in the management of early pregnancy complications and its effect on the incidence emergency room (ER) visits.

Methods: A 10-year retrospective study (January 2006 to December 2015) was conducted. The number of patients assessed, sources and reasons for referral, and treatments provided were reviewed. The numbers of ER assessments and reassessments for abortion, hemorrhage, and ectopic pregnancy from January 2004 to December 2005 (pre-EPAC) and January 2006 to December 2015 (post-EPAC) were also reviewed.

Results: There were 11 349 new referrals and 10 764 follow-up visits. The reasons for referral were threatened miscarriage ($n = 3568$, 31.4%), missed miscarriage ($n = 3056$, 26.9%), incomplete miscarriage ($n = 1064$, 9.4%), complete miscarriage ($n = 991$, 8.7%), ectopic pregnancy ($n = 857$, 7.6%), hyperemesis gravidarum ($n = 139$, 1.2%), and others ($n = 1674$, 14.8%). There has been a significant decreasing trend ($\tau = -0.60$, $P = 0.0127$) and a significant decrease in the post-EPAC rate of ER reassessments ($P = 0.0396$) for hemorrhage, with a concomitant decrease in EPAC visits for hemorrhage. In addition, there has been a significant increasing trend ($\tau = 0.64$, $P = 0.0081$) and a significant increase in the post-EPAC rate of ER assessments ($P = 0.00001$) for ectopic pregnancies.

Conclusion: Over the 10-year period, the EPAC has remained a vital service for managing early pregnancy complications for women. However, the clinic has not yet had a sustained impact on

ER visits for miscarriage, ectopic pregnancy, and hemorrhage. It is possible that a reduction in ER assessments and reassessments for early pregnancy complications can be achieved through a clinic with daily access.

Résumé

Objectif : Cette étude visait à évaluer la valeur à long terme d'une clinique d'évaluation précoce de la grossesse (EPAC) dans la prise en charge des complications en début de grossesse ainsi que l'incidence sur les visites aux urgences.

Méthodologie : Nous avons mené une étude rétrospective sur 10 ans (de janvier 2006 à décembre 2015). Nous nous sommes penchés sur le nombre de patientes examinées à l'EPAC, les sources et les motifs de recommandation et les traitements prodigués. Nous avons également examiné le nombre d'évaluations et de réévaluations aux urgences pour un avortement, des saignements et une grossesse extra-utérine de janvier 2004 à décembre 2005 (avant l'EPAC) ainsi que de janvier 2006 à décembre 2015 (après la mise en place de l'EPAC).

Résultats : Pendant la période à l'étude, il y a eu à l'EPAC 11 349 nouvelles recommandations et 10 764 visites de suivi. Voici les motifs des recommandations : risque de fausse couche ($n = 3 568$; 31,4 %), fausse couche asymptomatique ($n = 3 056$; 26,9 %), fausse couche incomplète ($n = 1 064$; 9,4 %), fausse couche complète ($n = 991$; 8,7 %), grossesse extra-utérine ($n = 857$; 7,6 %), hyperemesis gravidarum ($n = 139$; 1,2 %) et autres ($n = 1 674$; 14,8 %). On notait une importante tendance à la baisse ($\tau = -0,60$; $P = 0,0127$) et une baisse significative dans le taux de réévaluations faites aux urgences ($P = 0,0396$) pour des saignements après la mise en place de l'EPAC, de même qu'une baisse des visites à l'EPAC pour le même motif. En outre, on observait une importante tendance à la hausse ($\tau = 0,64$; $P = 0,0081$) et une hausse significative des taux d'évaluation aux urgences après la mise en place de l'EPAC ($P = 0,00001$) pour une grossesse extra-utérine.

Conclusion : Pendant les 10 années de l'étude, l'EPAC est demeurée un service essentiel pour la prise en charge des complications en début de grossesse. Cette approche n'a toutefois pas entraîné d'effet durable sur les visites aux urgences

Key Words: Early pregnancy complications, miscarriage, hemorrhage, ectopic

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pour une fausse couche, une grossesse extra-utérine ou des saignements. Il se pourrait qu'un accès quotidien à une EPAC permette une réduction des évaluations et des réévaluations aux urgences pour des complications en début de grossesse.

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INTRODUCTION

Early pregnancy complications are common scenarios accounting for about 15% to 20% of all pregnancies.^{1,2} The causes of early pregnancy loss include fetal chromosomal abnormalities, maternal conditions, intrauterine infections, maternal-fetal incompatibilities, and unknown causes.¹ The early pregnancy assessment clinic (EPAC) model has been shown to provide improved efficiency and quality of care in the management of early pregnancy complications.³ EPACs are not common in Canada; however, they are becoming increasingly popular. In Vancouver, British Columbia, patients reported satisfaction with the emotional support and care provided at an EPAC,⁴ and in Halifax, Nova Scotia, an early pregnancy complications clinic provides care to women with early pregnancy losses.⁵

An EPAC at North York General Hospital in Toronto, Ontario was established in August of 2005. The clinic continues to serve women from anywhere in central Toronto and the greater Toronto area of Ontario. The model of the clinic was described in our previous study in 2009.⁶ Since then the hours of the clinic have remained the same, and over 20 000 visits were made between August 2005 and 2015. The aim of the present study was to assess whether the EPAC has had a sustained impact over the 10 years of the study period on the management of early pregnancy complications and on the number of assessments and reassessments in the emergency room (ER).

METHODS

The clinic data from the EPAC database and patients' records from Powerchart between January 2006 and December 2015 (years 1–10) were reviewed. The number of women assessed, the sources of referral, the reasons for referral, the final diagnoses, and the treatments provided at the clinic were analyzed. The total number of ER visits per year, the number of initial consultations, and repeat assessments within 30 days for abortion, hemorrhage, and ectopic pregnancy were obtained from the health records department. The ER data were obtained between January 2004 (year –1) to December

2005 (year 0) before and just after the opening of EPAC (pre-EPAC) and between January 2006 and December 2015 (years 1–10) after the opening of EPAC (post-EPAC). The classification of these selected pregnancy-related complications determined on the basis of ICD 10 classification: abortion/miscarriage (codes 002 and 003), early pregnancy hemorrhage (code 020), and ectopic pregnancy (code 000). The code 020 for early pregnancy hemorrhage includes threatened abortion and other hemorrhage in early pregnancy.

Statistical Analysis

ER assessment and reassessment rates of each early pregnancy complication (miscarriage, ectopic pregnancy, and hemorrhage) were calculated by setting the denominator as the child-bearing (aged 15 to 49) female population in each corresponding year. This population was used because of the lack of availability of data on pregnant women population sizes. The child-bearing female population statistics for the catchment area of the hospital (previously described) were obtained from the Census Program of Statistics Canada,⁷ which releases data every 5 years. The census data for the years 2001, 2006, 2011, and 2016 were used. The child-bearing female population sizes for the remaining years (2004–2005, 2007–2010, and 2012–2015) were predicted using linear regression of child-bearing population on year from the 2001 to 2016 census data.

Exploratory Analysis

An exploratory data analysis was conducted on both ER assessment and ER reassessment data sets by calculating the assessment and reassessment rates for each of the three early pregnancy complications.

Pre-EPAC and Post-EPAC Comparison

Next, the difference between the average pre-EPAC and the average post-EPAC ER assessment and reassessment rates for each early pregnancy complication was tested by a chi-square test.

Trend Analysis of ER Assessments and Reassessments

Finally, because of limited pre-EPAC data, a rank-based non-parametric Mann-Kendall test^{8–10} was used to detect monotonic trends in rates of ER assessments and reassessments for miscarriage, ectopic pregnancy, and hemorrhage since the implementation of the EPAC. The Mann-Kendall test was applied specifically to test the data against a null hypothesis of no monotonic trend against an alternative hypothesis of downward monotonic trend between 2005 and 2015 (years 1–10).

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