Indications for, Timing of, and Modes of Delivery in a National Cohort of Women Admitted With Antepartum Hemorrhage at 22+0 to 28+6 Weeks' Gestation

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Abstract

Objective: Antepartum hemorrhage is associated with preterm birth and operative delivery. Since the Canadian Perinatal Network records obstetric interventions for women admitted to tertiary care hospitals with antepartum hemorrhage, our objective was to describe the delivery characteristics of this cohort.

Methods: Trained abstractors collected data by chart review from women admitted with antepartum hemorrhage between 22+0 and 28+6 weeks' gestation. We included all women with complete follow-up postpartum and used descriptive statistics to report the indications for, timing of, and modes of delivery.

Results: The study cohort included 806 women from 13 tertiary perinatal centres in six provinces. The most common causes of bleeding were placental abruption (n = 256) and placenta previa (n = 171). The median gestational age at delivery was 30 weeks, and 497 (61.7%) births occurred at less than 34 weeks. Over one half of the women began labour spontaneously, and 238 (29.5%) were delivered prior to the onset of labour. Overall, 370 (45.9%) women delivered vaginally, including 98 who had induction of labour. Of the 436 Caesarean sections (54.1%), 345 (79.1%) were emergencies. The most common indications for Caesarean section were placenta previa, abnormal fetal presentation, and placental abruption or vaginal bleeding.

Conclusion: This inpatient cohort of women with antepartum hemorrhage had high rates of spontaneous labour, preterm birth, and emergency Caesarean section. These results can be used as current Canadian benchmark rates of preterm delivery, induction of labour, and Caesarean section in women admitted to tertiary care centres with antepartum hemorrhage between 22+0 and 28+6 weeks' gestation, and can aid in the counselling of similar women.

Key Words: Antepartum hemorrhage, indication for delivery, premature birth, high-risk pregnancy, mode of delivery

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Résumé

Objectif : L'hémorragie antepartum est associée à l'accouchement préterme et opératoire. Puisque le Réseau périnatal canadien consigne les interventions obstétricales menées chez les femmes admises dans les hôpitaux de soins tertiaires en raison d'une hémorragie antepartum, notre objectif était de décrire les caractéristiques de l'accouchement au sein de cette cohorte.

Méthodes : Des résumeurs formés ont recueilli des données au moyen de l'analyse des dossiers des femmes hospitalisées en raison d'une hémorragie antepartum entre 22+0 et 28+6 semaines de gestation. Nous avons inclus toutes les femmes comptant un suivi postpartum exhaustif et nous avons fait appel à la statistique descriptive pour signaler les paramètres suivants en ce qui a trait à l'accouchement : indications, chronologie et modes utilisés.

Résultats : La cohorte d'étude comptait 806 femmes en provenance de 13 centres périnataux tertiaires dans six provinces. Les causes les plus courantes de l'hémorragie étaient le décollement placentaire (n = 256) et le placenta prævia (n = 171). L'âge gestationnel médian au moment de l'accouchement était de 30 semaines et 497 accouchements (61,7 %) ont eu lieu à moins de 34 semaines. Plus de la moitié des femmes ont connu un travail spontané et 238 femmes (29,5 %) ont accouché avant le début du travail. En tout, 370 femmes (45,9 %) ont connu un accouchement vaginal, dont 98 qui ont subi un déclenchement du travail. Parmi les 436 césariennes menées (54,1 %), 345

(79,1 %) étaient des urgences. Les indications les plus courantes de césarienne étaient le placenta prævia, la présentation fœtale anormale et le décollement placentaire ou le saignement vaginal.

Conclusion : Cette cohorte de femmes hospitalisées en raison d'une hémorragie antepartum présentait des taux élevés de travail spontané, d'accouchement préterme et de césarienne d'urgence. Ces résultats peuvent être utilisés à titre de taux de référence canadiens actuels en ce qui a trait à l'accouchement préterme, au déclenchement du travail et à la césarienne chez les femmes admises en centre de soins tertiaires, entre 22+0 et 28+6 semaines de gestation, en raison d'une hémorragie antepartum, ainsi que contribuer au counseling des femmes se trouvant dans des situations semblables.

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INTRODUCTION

Vaginal bleeding during pregnancy is common, with self-reported and documented rates of 16% to 26%.[1–7] Such bleeding typically occurs in early pregnancy, and the majority of reports have studied first trimester bleeding.[1–7] On the other hand, antepartum hemorrhage is defined as bleeding in late pregnancy, usually occurring after 20 weeks' gestation and unassociated with labour and delivery. The causes of APH are mostly bleeding from placental abruption and placenta previa, less commonly from causes such as vasa previa or uterine rupture, and in the remainder of cases unknown.[8]

Antepartum hemorrhage can result in antepartum hospital admission in over one quarter of women with bleeding in the second trimester.[1] Increased risks for infants born to women with vaginal bleeding in pregnancy include preterm delivery, growth restriction and low birth weight, congenital malformations, and stillbirth and perinatal mortality.[4,5,7,9–14] Although maternal mortality is rare, morbidity may include hemorrhage and a need for blood transfusion, surgery, hospitalization, or intensive care.[10,12,15,16] Despite this, maternal outcomes are infrequently reported.

The Canadian Perinatal Network maintains a database of information collected from a prospective cohort of women at high risk for preterm birth; these women are admitted to participating centres across the country with one or more "indicator" conditions that include antepartum hemorrhage. The CPN provides representative national rates and frequencies of obstetrical and neonatal interventions and outcomes for these women and their babies.[17]

ABBREVIATIONS

APH	antepartum hemorrhage
CPN	Canadian Perinatal Network
NOS	not otherwise specified

The overall objective of the CPN is to improve the quality of perinatal care by examining variations in obstetrical and neonatal practice and outcomes and by identifying the best management strategies.[17] The objective of our study was to use the CPN database to determine the indications for, timing of, and modes of delivery in this national cohort of women admitted to hospital with APH. These baseline statistics and frequencies will establish current Canadian rates of preterm delivery, induction of labour, and Caesarean section in this high-risk group that can be used for future comparisons and to aid in counselling similar women.

METHODS

The CPN comprises 23 Canadian tertiary perinatal units and has collected data since August 2005.[17] Research ethics committees at each participating centre reviewed and approved the CPN as a quality assurance project not requiring individual informed consent. Experience with this process has been detailed elsewhere.[18] This project was explicitly outlined in the CPN ethics applications for each site.

Women were eligible for entry into the database if they were admitted at between 22+0 and 28+6 weeks' gestation to a participating unit with one or more of the predefined indicator conditions at admission (which include APH). In the CPN, APH is defined as greater than 15 mL of vaginal bleeding prior to the onset of labour, considered to be equivalent to a blood spot of approximately 2.5 cm in diameter. The bleeding does not have to occur in a single episode.

The details of the data collection process for the CPN have been previously documented.[19] A trained data abstractor at each centre identified all potentially eligible women from delivery suite and antenatal ward logbooks, or from Canadian Institute for Health Information coded data searches. Maternal records were reviewed and included according to the CPN Working Protocol and Database Manual. Information collected focused on maternal outcomes, use of obstetric resources, patient mix, and obstetric care practices. To ensure reliability of data entry, data were re-abstracted from the source records for a random 5% of women. This process has shown a high level of agreement with the medical records at the largest CPN site. Information was collected by review of the maternal records from the time of hospital admission at eligibility until final discharge from hospital after delivery (including any related readmissions). Data were entered into standardized electronic collection forms and uploaded to the CPN through a secure hospital network.

For this analysis, we searched the database in April 2011. In total, 3619 women had been entered into the CPN from 13