A Ten-Year Review of Antenatal Complications and Pregnancy Outcomes Among HIV-Positive Pregnant Women

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Abstract

Objective: To review the incidence of antenatal complications among a cohort of HIV-positive pregnant women over a 10-year period.

Methods: A retrospective review was performed of all HIV-positive pregnant women receiving multidisciplinary prenatal care at an urban tertiary care centre from March 2000 to March 2010. Collected data included the presence of additional infectious or medical conditions, genetic screening information, and the presence or absence of antenatal complications.

Results: One hundred and forty-two singleton pregnancies during the study period were identified. Almost 95% of women were taking combination antiretroviral therapy during pregnancy, and greater than 90% had viral loads less than 1000 copies/ml at delivery. The presence of co-infections was low. Forty-one women (29%) had other medical comorbidities. Genetic screening occurred in 104 pregnancies (73%); 4% were abnormal screens. Rates of any hypertension, gestational diabetes, and fetal growth restriction were all low. Thirty-two percent of women were colonized with group B streptococcus.

Conclusion: This study adds strength to the argument that good outcomes can be achieved for HIV-positive pregnant women with good access to both prenatal and HIV care, and appropriate management. Women with HIV should be optimally cared for in advance of and during pregnancy in order to maximize the likelihood of good pregnancy outcomes.

Key Words: HIV, pregnancy, pregnancy complications, pregnancy outcomes

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Résumé

Objectif : Analyser l'incidence, sur une période de 10 ans, des complications prénatales chez une cohorte de femmes enceintes séropositives pour le VIH.

Méthodes : Nous avons mené une analyse rétrospective portant sur toutes les femmes enceintes séropositives pour le VIH qui ont reçu des soins prénataux multidisciplinaires au sein d'un centre urbain de soins tertiaires entre mars 2000 et mars 2010. Parmi les données recueillies, on trouvait la présence de troubles infectieux ou médicaux additionnels, les résultats du dépistage génétique et la présence ou l'absence de complications prénatales.

Résultats : Au cours de la période d'étude, nous avons identifié 142 grossesses monofœtales. Pratiquement 95 % des femmes avaient reçu un traitement par association d'antirétroviraux pendant la grossesse et plus de 90 % d'entre elles présentaient des charges virales inférieures à 1 000 copies/ml au moment de l'accouchement. La présence de co-infections était faible. Quarante et une femme (29 %) présentaient d'autres comorbidités médicales. Un dépistage génétique avait été mené dans le cadre de 104 grossesses (73 %); 4 % d'entre elles ont obtenu des résultats anormaux. Les taux d'hypertension (quelle qu'elle soit), de diabète gestationnel et de retard de croissance intra-utérin étaient tous faibles. Une colonisation par des streptocoques du groupe B a été constatée chez 32 % de ces femmes.

Conclusion : Cette étude soutient l'hypothèse selon laquelle il est possible pour les femmes enceintes séropositives pour le VIH d'obtenir de bonnes issues lorsqu'elles disposent d'un bon accès à des soins prénataux et contre le VIH, et à des services de prise en charge adéquats. Pour maximiser la probabilité d'obtenir de bonnes issues de grossesse, les femmes enceintes séropositives pour le VIH devraient faire l'objet de soins optimaux avant et pendant la grossesse.

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INTRODUCTION

There are more than 71 000 HIV-positive individuals currently living in Canada, and over the past decade the proportion of these who are female has remained stable at approximately one quarter of all cases.[1] At least 75% of Canadian HIV-positive women are of child-bearing age, and HIV infection is diagnosed in Canadian women at a younger age than in Canadian men.[2] Individuals who are currently HIV-positive are likely to live a healthy and productive life, leading to increasing numbers of pregnancies among HIV-positive women in developed countries such as Canada.[3,4]

There is an emerging body of literature reporting on maternal and perinatal outcomes among HIV-positive women. Much of this information is conflicting, with some studies reporting increased rates of adverse outcomes (such as preterm birth, growth restriction, preeclampsia and gestational diabetes) and others reporting no increase in this risk, compared to HIV-negative women.[5–19] Further, these studies have been conducted in a variety of geographic locations and with heterogeneous populations, varying degrees of medication adherence and immune function. These factors and others have been suggested as confounders which may affect the associations between HIV-positivity and adverse outcomes.

We recently reported on a cohort of HIV-positive pregnant women cared for in Toronto, Ontario over a 10-year period.[3] The majority of these women had prenatal care throughout their pregnancy and had well-controlled HIV infection, with 94% being treated with combination antiretroviral therapy (cART) and more than 90% having viral loads less than 1000 copies/mL at the time of delivery.

The primary objective of this study was to report the antenatal complications and pregnancy outcomes of this cohort of well-controlled HIV-positive women having multidisciplinary prenatal care in one major Canadian centre.

METHODS

This study was a retrospective chart review of all HIV-positive pregnant women cared for at St. Michael's Hospital in Toronto, Ontario from March 2000 to March 2010. Cases were identified using an internal hospital obstetric database and using chart codes with the aid of hospital decision support. In this way, we were able to perform two independent searches to confidently identify all eligible women during the study period. The final cohort included all singleton pregnancies; first trimester losses were excluded. All charts were reviewed by a single reviewer (D.C.) and data were collected using a standardized data sheet and transferred to a Microsoft Excel (Microsoft Corp., Redmond, WA) file. Both electronic and paper charts were used for data collection and all data were anonymized before analysis. Data collected have been previously described,[3] but, for the present analysis, relevant data included the presence of additional infections or medical conditions, genetic screening information, and the presence or absence of antenatal and intrapartum complications such as preterm birth (defined as birth < 37 weeks' gestation), gestational diabetes (diagnosed by having an abnormal result from a 2-hour glucose tolerance test), hypertension (diagnosed as blood pressure greater than 140/90 or requiring antihypertensive medication with pre-existing/chronic hypertension either predating pregnancy or occurring up to 20 weeks gestation, and gestational hypertension occurring at 20 weeks gestation or greater), preeclampsia (defined as pre-existing/chronic or gestational hypertension combined with new or worsening proteinuria or one/more adverse conditions or one/more severe complications), fetal growth abnormalities (defined as growth less than the 10th percentile growth for gestational age by ultrasound assessment), abnormal ultrasound findings, and group B streptococcus (GBS) status.

The distribution of study variables was examined using frequencies, with categorical variables expressed as counts and percentages, and continuous or discrete variables expressed as means and ranges. Bivariate analyses included cross-tabulations. Associations between categorical variables were assessed with the chi-square test. Assessment of trends was performed using the Cochrane-Armitage test for binomial proportions. A P-value < 0.05 was used as the cutoff for statistical significance. All statistical tests were conducted using SAS 9.3 (SAS Institute Inc., Cary, NC).

Approval for the study was obtained from the St Michael's Hospital Research Ethics Board.

RESULTS

Between March 2000 and March 2010, 142 singleton pregnancies in HIV-positive women were identified at our institution. Two sets of twins and one early pregnancy loss were excluded. Almost 94% (133/142) of women were on cART during pregnancy. Of 128 with recorded viral loads at delivery, 98 (77%) were undetectable and 118 (92%) were 1000 copies/mL or less. The presence of co-infections among our cohort is presented in Table 1.