Exploring the Live Birth Rates of Women Living with HIV in British Columbia and the CARMA (CIHR Emerging Team Grant on HIV Therapy and Aging) Cohort

Background

In Canada, many women living with HIV (WLWH) are of reproductive age (1). Recent studies have found that the majority of WLWH desire or intend to become pregnant in the future and indicate that motherhood is important to them (2). Given that many women living with HIV desire pregnancy it is important to understand the impact of HIV on the fertility and reproductive outcomes of these women. The majority of the literature concerning HIV's impact on fertility comes from developing countries and shows that HIV infection decreases fertility (3), but there has been little work exploring the impact of HIV on fertility (number of pregnancies) and live birth rates in developed countries (4). Many of the previous studies were conducted in the time period before combination antiretroviral therapy (cART) was available or in areas where cART was/is not readily available such that more WLWH were likely to have experienced AIDs defining illnesses. Additionally, more recent work has observed an increase in pregnancy rates and birth rates after cART became available for treatment (5). This suggests that women living in developed countries, where cART and effective HIV care is more readily available, may not experience a decreased level of fertility.

HIV+ individuals have been found to have shorter telomeres compared to their HIV-negative peers (6). Telomere shortening is an accepted theory of cellular aging that has also been proposed as a mechanism of reproductive aging in women (7). Shorter telomere length has been associated with fewer surviving children, adverse reproductive outcomes and earlier age at menopause in HIV negative women (7-10). Given the association between telomere length and reproductive outcomes, and the lack of data on the fertility of WLWH in developed regions, we aim to determine the birth rate of WLWH 15-49 years of age in British Columbia, and in the CIHR Emerging Team Grant on HIV Therapy and Aging (CARMA) cohort as compared with published birth rates of all British Columbian women. In addition, we will examine fertility and live birth rates in WLWH women and age and ethnicity matched HIV negative controls in the CARMA cohort, so as to explore the association between fertility/birth rate and leukocyte telomere length (LTL).

Objectives

1. To compare age specific birth rates of WLWH in British Columbia with those of the general BC population.
2. To determine age specific birth and fertility rates of WLWH and HIV negative women 15-49 years of age enrolled in the CARMA cohort.
3. To examine the relationship between birth/fertility rate and telomere length in the above groups.

Methods

Oak Tree Clinic in Vancouver, BC, provides maternity care >95% of WLWH in the province. As such, information obtained from Oak Tree Clinic's Clinical Perinatal Database is expected to be an accurate representation of all the pregnancies experienced by WLWH in BC. Using data from the Perinatal Database on the 182 births that occurred from January 1st 2008 to
December 31st 2015, we will first determine the age specific birth rates of WLWH in BC per year.

In order to calculate the age specific birth rates of WLWH in BC, data on the total number of WLWH living in BC stratified by age group and by year will be obtained from the BC

Centre for Excellence in HIV/AIDs. The age specific birth rates of WLWH in BC will then be compared to the age specific birth rates of the general BC population as obtained from publically available BC Statistics.

We will also determine the age specific birth rates of WLWH aged 15-49 enrolled in the CARMA cohort for 2008-2015. This will be compared to the age specific birth rates calculated for all HIV+ women in BC to determine if the CARMA cohort is representative of the population of WLWH in BC in terms of live birth rate. We will then calculate pregnancy rates and live birth rates for WLWH and HIV negative women enrolled in the CARMA cohort. By considering women enrolled in CARMA we will also be able to examine the relationship between birth rate and pregnancy rate and associated factors including age, obstetrical history, demographics, maximum HIV viral load, hepatitis C status, and LTL.

Medical Student Involvement and Outcomes

This project will occur over 6 full time weeks in April and May, with the subsequent 2-4 weeks completed over the year. During this time Clara will review the background literature to develop an understanding of the field. She will conduct a chart review, clean the data needed for the project, and participate in data analysis. Finally, Clara will be involved in the preparation of abstract(s) and a manuscript for publication. The outcomes of the project will include an oral presentation to the Oak Tree research team, abstract(s) for submission to scientific conference(s) and a manuscript for publication.

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