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Relationship between intimate partner violence and antiretroviral adherence and viral suppression in pregnancy

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ABSTRACT

Objective: To determine whether intimate partner violence (IPV) during pregnancy is associated with increased risk of clinical factors that influence maternal to child transmission (MTCT) of HIV.

Study design: Retrospective cohort study of pregnant women living with HIV (WLHIV) who received prenatal care in a multidisciplinary perinatal HIV clinic (2007–2014). All women were assessed for IPV status during pregnancy by a social worker and/or health psychologist. Records were abstracted for obstetric information and factors associated with MTCT of HIV, including antenatal visit attendance, adherence to antiretroviral regimen, time until viral suppression after initiation of antiretroviral medications, HIV RNA at 36 weeks and at delivery, and preterm birth. Women who reported IPV were compared to those who did not using bivariable and multivariable logistic and linear regression analyses.

Results: Of 215 women receiving care during the study period, 91.6% (N = 197) had documentation of IPV history. Of these women, 13.7% (N = 27) reported experiencing IPV during pregnancy. Women who reported IPV were less likely to be completely adherent to antiretroviral doses (38.5% vs. 62.0%, p = 0.039) and required significantly more time to achieve stable virologic suppression (16.0 vs. 8.5 weeks, p = 0.010). Time to achieve suppression remained significant in multivariable models (β 4.68, 95% CI 0.03–9.32).

Conclusion: IPV during a pregnancy complicated by HIV appears to be associated with decreased antiretroviral adherence. Pregnant WLHIV who reported IPV exhibited delays in achieving virologic suppression. These women represent a vulnerable population who may require additional support and interventions to reduce the risk of MTCT of HIV.

Introduction

Intimate partner violence (IPV) is defined as physical or sexual violence, threats of physical or sexual violence, stalking, or psychological aggression by a current or former intimate partner [1]. IPV is endemic in the United States, with almost 40% of US women reporting having experienced violence by an intimate partner in their lifetime [2]. IPV is common in reproductive age women, with pregnant women particularly vulnerable to IPV and its health effects. A substantial percentage of pregnant women report experiencing IPV during pregnancy and the postpartum period, with prevalence estimates ranging from 4 to 16% [3–5]. Although the majority of women who experienced IPV during pregnancy also experienced violence prior to conception and risk factors for IPV during pregnancy are similar to risk factors for IPV in general, pregnancy is hypothesized to increase women's risk for violence due to greater requirement for relationship commitment and resources [6–9]. Women who experience violence during pregnancy are more likely to undergo late entry into prenatal care and are at increased risk of poor pregnancy outcomes including infections, anemia, poor maternal weight gain, intrauterine fetal demise, low birth weight, preterm birth, placental abruption, and hemorrhage [5,10–12]. Individuals who experience IPV are also more likely to experience post-traumatic stress disorder, depression, anxiety disorders, and substance abuse [12].

Persons living with human immunodeficiency virus (HIV) are also at elevated risk of IPV. The rate of IPV among women living with HIV is estimated to be as high as 55% – more than double the national rate [13]. Not only do women living with HIV experience IPV at higher rates

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than women without HIV [14,15], but those who do experience IPV are more likely to engage in high-risk HIV behaviors, are more likely to fail antiretroviral (ARV) therapy, and have a higher risk of mortality [16–19]. Pregnant women living with HIV also are at risk of IPV and its sequelae; in one study of pregnant women living with HIV in South Africa, 21% experienced IPV and those who did were more likely to also experience substance use and depression [20]. Research investigating the relationship between IPV and HIV-related health has acknowledged the complex societal and structural factors that are associated with IPV and that negatively affect women's adherence to HIV-related care. These include issues of disclosure of HIV serostatus, underlying mental health disorders and adverse mental health consequences of IPV, as well as stigma and discrimination [21–23]. For example, a woman might make the decision to skip doses of medications when her partner is in close proximity as a protective or even survival strategy if she is at heightened risk of violence should her serostatus be revealed [24].

Despite the increased frequency of IPV among both persons living with HIV and pregnant women, and the well-established adverse relationships of IPV with both non-pregnancy HIV-related outcomes and non-HIV pregnancy-related outcomes, the complex interplay of IPV in these overlapping circumstances – pregnant women living with HIV – is poorly understood [25]. Yet, the potential effect of IPV on maternal and child health in this setting is profound. The effect of IPV on adherence to HIV risk reduction strategies and treatment is particularly critical in this population; poor medication adherence contributes to an increased HIV viral load, which, during pregnancy, is the strongest predictor of maternal-to-child transmission (MTCT) [26]. Thus, the objective of this study was to assess whether IPV during pregnancy is associated with factors influencing MTCT in a cohort of pregnant women with HIV in the United States.

Methods

This is a retrospective cohort study of all pregnant women living with HIV who received perinatal care in a multidisciplinary perinatal HIV clinic at Northwestern Memorial Hospital from 2007 to 2014. Eligible women included any woman age 18 or older who received HIV-specific perinatal care in this facility. Women with multiple pregnancies in this time period were only included for the first pregnancy to meet assumptions of independence required for analyses. Women with unknown IPV status were excluded from analysis.

The Women's HIV Program at Northwestern Memorial Hospital provides coordinated care for women living with HIV who desire preconception, antenatal, and postpartum care. Perinatal care includes coordinated treatment by specialists from maternal-fetal medicine, infectious disease, pharmacy, social work, psychology, and nursing. All women who receive care in this program undergo evaluation by a Clinical Psychologist or Licensed Clinical Social Worker during initiation of prenatal care and throughout pregnancy and postpartum period. These assessments include specific queries regarding ongoing or prior experiences of violence by a partner(s) or other individuals. In this clinical practice, IPV was defined in accordance with the American College of Obstetricians and Gynecologists definition, which states IPV is "a pattern of assaultive behavior and coercive behavior that may include physical injury, psychologic abuse, sexual assault, progressive isolation, stalking, deprivation, intimidation, and reproductive coercion" [12]. If a patient discloses IPV at any point during pregnancy, the clinic team works with the patient to develop a safety plan. As part of counseling around IPV, a patient receives education about the cycle of violence, the dynamics of power and control, and how to obtain an order of protection. In addition, issues including disclosure of HIV serostatus to partners or family members, support systems, postnatal infant care, and infant safety are discussed. Specifically with regard to disclosure, women are counseled that disclosure of HIV serostatus can be a trigger for violence, and as such, women who are already victims of IPV are at even greater risk of morbidity or mortality due to enhanced violence around the time of disclosure. Patients are supported in their decisions regarding disclosure and assisted with the disclosure process when desired. Due to the multifaceted issues surrounding violence during pregnancy, particularly in the setting of HIV, the care of women reporting active IPV is a highly individualized, multidisciplinary endeavor.

Clinical and social work records were reviewed in detail to determine whether a patient had endorsed IPV at any time during her pregnancy. A patient was noted as having been a victim of IPV during pregnancy if she reported active physical, sexual, verbal, or emotional abuse meeting the definition described above from one or more sexual partners from the time of pregnancy recognition through the postpartum period. For this analysis, prior exposure to IPV but without active IPV during pregnancy was not designated as IPV.

Medical records were abstracted for demographic information including maternal age, self-reported race/ethnicity, immigrant status, current employment status, highest education level reached, insurance status, marital status and parity. Clinical characteristics of the pregnancy collected included pregnancy intendedness, trimester of prenatal care initiation, number of prenatal visits, presence of an antepartum hospital admission, and gestational age at delivery. Information relevant to HIV diagnosis including timing of diagnosis (prior to vs. during pregnancy), mode of HIV acquisition (perinatal vs. behavioral), years since HIV diagnosis, initial CD4 count, and partner HIV status (when known) were collected for each patient. Data regarding risk factors for MTCT, including adherence to antiretroviral regimen, time from initiation of antiretroviral regimen until viral suppression (both first viral suppression and stable viral suppression, defined as two sequential undetectable viral loads), viral load at 36 weeks and delivery, and preterm birth were the primary outcomes for this analysis. Adherence to the antiretroviral regimen was classified as the self-reported number of missed doses, analyzed as none, 1–5 doses, and > 5 doses; in multivariable analyses, adherence was analyzed as any missed doses as even single missed doses can be clinically relevant. Both first and stable undetectable viral loads were assessed as they reflect the stages in the evolving process of achieving HIV control; achievement of first viral suppression reflects effective medication initiation, while stable viral suppression reflects successful incorporation of medication adherence into the patient's daily life. Transmission of HIV to neonates (i.e., rate of HIV infected newborns) was not evaluated due to the very low transmission rate in this population.

Chi-squared and Mann-Whitney *U* tests, as appropriate, were performed to compare demographic and clinical variables between women who experienced IPV and those who did not. Risk factors for MTCT were similarly compared. To estimate the association of IPV with these MTCT risk factors, multivariable logistic and linear regression analyses were performed to control for potential confounders with $p < 0.05$ in bivariable analysis. Marital status was not included in the regression model given collinearity with IPV. Unadjusted and adjusted odds ratios and beta coefficients, with 95% confidence intervals (CI), were estimated. All tests were two-sided and $p < 0.05$ defined statistical significance. The Institutional Review Board of Northwestern University approved this study with a waiver of informed consent. Analyses were performed using Stata software (version 14; Stata Corporation, College Station, Texas).

Results

During the study period, 215 women received prenatal care in the Women's HIV Program at Northwestern Memorial Hospital. Of these women, 197 (91.6%) had documentation regarding history of IPV, comprising the population available for analysis. In this cohort, 13.7% (N = 27) reported IPV during pregnancy.

Characteristics of the cohort are shown in Table 1. Women who reported IPV were more likely to be multiparous, have public insurance or be uninsured, and have a newer diagnosis of HIV when compared to