A review of human immunodeficiency virus (HIV) and postpartum depression

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ABSTRACT

Depression is common among HIV-infected women, predicts treatment non-adherence, and may impact mother to daughter (vertical) transmission of HIV. A majority of women who develop HIV are of child-bearing age, and are at risk for postpartum depression (PPD). A literature review was performed to analyze the literature regarding PPD in HIV-positive women. This review specifically looked at literature regarding the incidence, risk factors, outcomes, and treatment of PPD in HIV-positive women compared to the general population. While existing literature is limited, it seems to imply that there is no difference between HIV-positive women and unaffected women when it comes to PPD incidence or risk factors. A majority of studies did conclude that routine screenings are needed for depressive symptoms in HIV-positive women.

KEYWORDS

human immunodeficiency virus (HIV), postpartum depression

INTRODUCTION

Women are quickly becoming the most rapid population to develop human immunodeficiency virus (HIV).[1] A majority of these women are of child-bearing age with increased risks for postpartum depression (PPD).[1] In the general population, the prevalence rate of postpartum depression (within a year after birth) is approximately 6.5% to 12.9% depending on the assessment tool used (self-report versus clinical interview).[2] It is believed that PPD is a remarkably underreported disease. Considering the underreporting of PPD in the general population, the occurrence of PPD in HIV-positive women remains even less reported.[2] Although significant differences in the prevalence of PPD in HIV-positive versus HIV-negative women has not been well established, it is known that depression is common among HIV-infected women, predicts treatment non-adherence, and may impact mother to daughter (vertical) transmission of HIV.[3] Thus, the impact of early intervention for PPD in HIV-positive women could be significant.

This review will analyze and highlight the available literature regarding PPD in HIV-positive women; specifically looking at the incidence, risk factors, outcomes, and treatment compared to the general population. A literature search was performed using OVID, IDIS, Medline, PubMed, IPA, CINAHL, PsycINFO, Science Direct, and Google Scholar. Search terms included "postpartum depression", "postnatal depression", "HIV", and "AIDS". No limitations were set for dates, species, or language.

Assessments of the prevalence of PPD in HIV-positive women both locally and globally have yielded varying conclusions; prevalence estimates range from 44-74%, with a sample size ranging from 83-996.[1,4,5,10-13,23-28] A majority of these studies were conducted in the United States[1,5,10-13] with other studies conducted in South Africa,[2,4] Thailand,[24,28] Zimbabwe,[25] Zambia,[26] and Tanzania.[27] Although some studies concluded there were no significant differences in postpartum depressive symptoms among HIV-positive versus HIV-negative women,[1,2,11] there have not been studies which looked at global prevalence. One of the more comprehensive US studies by Rubin et al. was from the Women's Interagency HIV study (WIHS) of 3765 women in the largest US metropolitan areas including New York City, Chicago, Los Angeles and San Francisco.[2] PPD was defined in this study as having depression signs/symptoms for ≤12 months after giving birth and depression was assessed using the Center for Epidemiological Studies – Depression Scale (CES-D).[3] This assessment is used frequently in HIV-positive women and has a sensitivity of 80-90% with a

specificity of 70-80% for the diagnosis of depression.[3] It is specifically validated in African-American women. According to this study there was no difference in prevalence of PPD in HIV infected women versus HIV uninfected women, with frequencies of 31% versus 35%, respectively.[3] In rural South Africa, the incidence of PPD appears to be increased at 47%, with 67% reporting the episodes lasting greater than 2 months but less than 6 months.[4]

There are many proposed reasons for HIV-positive women to have an increased risk for PPD. A meta-analysis published in the American Journal of Psychiatry in 2001 examined the relationship between HIV infection and risk for depressive disorders.[9] The article provided strong evidence that HIV infected individuals are more likely to develop major depressive disorder.[9] However, other correlates such as environmental factors, were more closely linked to depressive episodes as opposed to their chronic HIV disease.[9] In 2001, Miles et al. assessed the physical and mental health of African American mothers over a 2 year period after birth of infants seropositive for HIV.[3] According to the CES-D, high symptoms of depression (scores > 16) were observed in 30-45% of these subjects, and were reportedly highest during the 3 and 6 months post-partum period.[3] While the study suggested an increased risk of depression in this patient population, some of the assessment of subjects were done when infants were 12, 18, and 24 months which is outside the post-natal window for PPD.

To assess depressive symptoms among HIV infected pregnant women and to recognize modifiable risk factors in this patient population, Blaney et al. conducted an analysis based on the baseline assessment of the HIV and Pregnancy Study of the Perinatal Guidelines Evaluation Project (PGEP) including 325 HIV infected women who were 18 years or older and at least 24 weeks gestation.[11,12] Blaney et al. suggested that psychosocial factors translate into the risk for depression in this patient population. Psychosocial factors were found to be significant predictors of prenatal depressive symptoms even more than hypothesized demographic and health-associated factors.[12] Other modifiable risk factors such as perceived stress, social isolation, and disengagement coping were associated with greater magnitudes of depression.[12] With the correlation between prenatal and postpartum depression as well as unfavorable outcomes, these authors encouraged the need for proactive measures to detect risk factors in HIV infected women.[12]

It is still somewhat unclear what the strongest predictor of postpartum depression in HIV-positive women truly is. According to Rubin et al, the strongest predictor of postpartum depression appears to be preconception depression.[2] However, Ross et al. determined self-esteem to be the most powerful predictor of depressive symptoms and noted that more highly educated women were less depressed.[24] In this study, the direction of the relationships between depressive symptoms and predictors could not be adequately identified.[24] Kapetanovic et al. found a correlation with CD_4 counts and the risk of HIV-positive women to develop PPD. The study was multi-centered and included 273 women from 1997 until 2006. Results from this study noted that when women with CD_4 counts >500 cells/mm3 were compared to women with CD_4 counts of ≤ 200 cells/mm3, they were 3.1 times more likely to experience PPD. Also noted in the study was that women that had adherence issues with antiretroviral therapy during their pregnancy were more likely to experience PPD when compared to women without adherence issues. Kapetanovic concluded that pregnant HIV-positive women be screened routinely for PPD.[9] Perhaps future research conducted in this patient population should be longitudinal in order to determine causal relationships.

Due to the sparse nature of available information about the psychosocial and behavioral consequences of HIV-infection in relation to pregnancy, the PGEP was conducted to assess the implementation of Public Health Service guidelines regarding the prevention of perinatal HIV transmission and to evaluate the psychosocial consequences of HIV infection among pregnant women.[3,11] This prospective study looked at 336 HIV infected and 298 HIV uninfected pregnant women who were enrolled at four different national centers.[11] Baseline evaluation of subjects was done no earlier than 24 weeks gestation and two additional follow-up assessments were conducted at 6 to 12 weeks postpartum and at 5 to 7 months postpartum during the first and second postnatal follow-up respectively.[11] Behavioral factors such as smoking, eating, sleeping habits, prior pregnancies, and history of alcohol and drug use were assessed at baseline and at follow up.[11] Psychosocial factors such as social support, depressive symptoms, coping measures, social isolation, major disruptive stressors, and stress measures were assessed using the Perceived Availability of Support Scale, the CES-D, the COPE scale, the Social Interactions Scale, the Life Events Scale, and the Perceived Stress Scale. There were no differences seen between groups with respect to perceptions of social support, feelings of social isolation, or the experience of stress. Overall, this study revealed that there were no significant differences on most psychosocial outcomes between HIV infected

and uninfected groups of pregnant women. They also observed highly comparable levels of stress and depressive symptoms in both HIV infected and uninfected pregnant women throughout assessment periods. However, when interpreting the results of the PGEP, caution should be taken since multiple comparisons were used in analysis of data and findings may be attributed to chance as opposed to definite observations.[11]

One of the first studies to investigate quality-of-life measures in pregnant HIV-positive women found that pregnant women with HIV reported a higher level of distress and decreased health transition, defined as perceived health over time, during the antepartum period in comparison to HIV-negative women.[1] This could be due to all the HIV-positive women being diagnosed with HIV during the antepartum period. In contrast, assessments during the period postpartum suggested that HIV-negative women experienced worse perceived overall health as well as health transition in comparison to HIV-positive women.[1] Four of the HIV-positive women had a history of drug abuse compared to none in the HIV-negative group; this could have influenced some of the quality of life factors. Miles et al. observed a significant correlation between depressive symptoms and activity limitations.[3] The health symptoms most often reported were infections, problems thinking and remembering, and fatigue. Depressive symptoms were especially high in the first six months after birth of the infant.[3] Findings suggest that interventions are needed that focus on both dimensions of health to improve the quality of life in this patient population.[3]

Postpartum depression is a treatable disorder with long-term outcomes improved by prompt intervention. There are several treatment options that one may choose from when treating PPD. These options include: cognitive behavioral therapy, medications (e.g., select serotonin reuptake inhibitors (SSRIs), tricyclic antidepressants (TCAs), venlafaxine), support groups, healthy dieting, and healthy sleep patterns. The optimal treatment plan for women with PPD involves a coordinated team with a holistic, family-centered approach.[13]

Recommendations for pharmacologic treatment of PPD are generally based on knowledge about treatment of depression for non-postpartum samples along with limited data that supports the effectiveness of antidepressants in the postpartum population. Evidence has been found for using SSRIs such as sertraline, for reducing postpartum symptoms.[13] Select serotonin reuptake inhibitors are the drug class of choice in treating PPD.[14] They are easy to administer, have a low toxicity level and have a favorable response in women that have been treated for depression previously.[13]

The SSRIs have also been shown to treat depression with fewer adverse effects than TCAs in women of childbearing age as well as other reproductive-related disorders.[15] Venlafaxine has also been studied and found to be effective when therapy is initiated within the first three months postpartum. Venlafaxine also showed to decrease anxiety in the study population.[16] When a positive response is seen with a 6-8 week trial of a medication, it is indicated that the agent be continued for a minimum of 6 months after remission to prevent relapse. If improvement is not seen within 6 weeks of starting an antidepressant, or improvement is seen, but then has a relapse, a new agent should be selected. The goal of pharmacotherapy to treat PPD is complete remission. If remission is not achieved, women can be placed at higher risk for chronic depression.[13] It is also important when selecting a pharmacologic agent that it be compatible with highly active antiretroviral therapy (HAART) in terms of interactions and adverse effects. Most SSRIs and venlafaxine can interact with HAART therapy. If medications are used to treat depression in an HIV infected patient with PPD, caution should be used and doses adjusted appropriately, if needed.

Breast-feeding greatly increases the chance that a child will contract HIV, as much as a 16% increase. This doubles for HIV-positive women that practice prolonged breast-feeding.[17] Breast-feeding for HIV-positive women is still under debate. Newer, more potent anti-retroviral therapies have been aimed at pregnant women to reduce mother to child transmissions through breast milk. It is also suggested that mothers practice early breastfeeding cessation (<6 months of life) to reduce transmission.[18] The use of replacement formula is recommended if it is feasible and affordable.[17] If a woman with PPD is also planning to breast-feed, it is important to evaluate the safety of agents that might be used. Nortriptyline, sertraline, and paroxetine were found to be undetectable in infants.[19] The two SSRIs that produced the highest serum levels in infants were citalopram and fluoxetine. Because sertraline (an SSRI) produced minimal effects in infants, it is recommended as a first-line, low-risk medication for treating PPD during breast-feeding.[19-21]

An ongoing study at the University of South Alabama Children's and Women's specialty care clinic in Mobile, Alabama is evaluating the prevalence and correlation of PPD in HIV-positive women. USA Family Specialty Clinics personnel identify eligible patients who are HIV-positive and within the postpartum period (within 6 weeks post-

labor) while visiting for post-natal appointment. Patients less than 18 years of age and patients with other chronic medical conditions that can result in depression were excluded from this study. Informed consent is required of subjects before participation in the study. The primary endpoint is to evaluate the incidence of PPD in HIV infected women using the Quick Inventory of Depressive Symptomatology Clinician-Rated (QIDS-C 16) to assess the severity of depressive symptoms. The secondary endpoint is to assess the effects of PPD on adherence to HAART. Patients found to have moderate to severe depression upon evaluation are either referred to their physician for further evaluation or initiated on an appropriate antidepressant medication. This study has been approved by the institutional review board. An interim analysis of this study showed that out of 23 participants, 8 patients were observed to have mild depressive symptoms, 5 patients with moderate to severe depressive symptoms, and 10 patients observed to have no signs of PPD per QIDS scores, respectively. To identify potential predictors of elevated postpartum depressive symptoms, linear regression models were used. There was no apparent correlation between age and the severity of post partum depression in HIV-positive women but the study lacked power to assess the effects of age on postnatal depression. Additionally, there seems to be no relationship with the patient's CD4 count and the propensity for development of partum depression. Number of children at initial assessment had no correlation with incidence of PPD. The final results of this study are still pending at this time. Further prospective evaluation of this study is warranted to assess the prevalence of postpartum depressive symptoms in HIV-infected women and to identify predictors of depressive symptoms in this patient population.

CONCLUSION

Unfortunately, there is a paucity of published data regarding PPD in HIV-positive women. Sample size varies among the studies, and very few studies were focused specifically on PPD. The limited literature that does exist, seems to imply that there is no difference between HIV-positive women and unaffected women when it comes to PPD incidence or risk factors. Outcomes of untreated PPD in HIV-positive women are significant and could affect both the mother and infant's quality of life. A majority of studies did conclude that routine screenings are needed for depressive symptoms in HIV-positive women.

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