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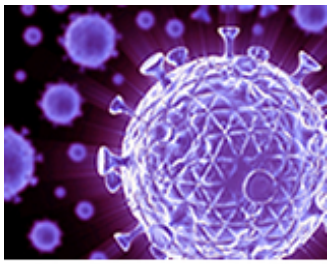

VOLUME 2, ISSUE 1

WOMEN AND HIV

Editor's Note: *As we begin Volume 2, we want to welcome back our returning subscribers and say hello to our newly registered clinicians. In Volume 2, we will continue to provide you with current, clinically relevant data important to helping you improve outcomes in your patients via 6 newsletters and 6 case-based podcasts. Topics scheduled for this volume include: New Recommendations for HAART in HIV, Treating Young Adults with HIV Infection, HIV/HCV Coinfections Update, Cardiovascular Disease in Patients with HIV, and HIV and Alcohol.*

In this Issue...

Approximately one-quarter of HIV-infected individuals in the U.S. and 50% of those globally are women. Most are in their childbearing years and fertility is a major consideration. In this issue we review recent reports addressing:

- the critical need to prevent unintended pregnancy with effective contraception and the frequent desire for pregnancy among HIV-infected women;
- the success of antiretroviral regimens in preventing perinatal HIV transmission;
- the challenges of maintaining good adherence during pregnancy and the postpartum period; and
- the current information on primary prevention of cervical cancer with HPV vaccination and secondary prevention with cervical screening.

LEARNING OBJECTIVES

After participating in this activity, the participant will demonstrate the ability to:

- Describe issues associated with HIV infection, unintended pregnancy, and desire for pregnancy.
- Explain the challenges to good adherence to ART during pregnancy and the postpartum period.
- Discuss the role and potential strategies for primary and secondary prevention of cervical cancer in HIV-infected women.

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COMMENTARY

Today, more than 24% of people living with HIV in the US are women, and most are infected through heterosexual sex (84% of new HIV infections in 2010).[1,2] Globally, women comprise 50% of people living with HIV.[3] Women face similar considerations as men in terms of diagnosis and treatment of HIV, but several issues are unique to women that may not only affect HIV clinical care but also have significant public health implications.

Throughout the world the majority of women with HIV are in their reproductive years and fertility is a primary consideration. Fertility issues include considerations of pregnancy desires and intentions, prevention of unintended pregnancy, and care and treatment during pregnancy and the postpartum period to prevent perinatal transmission of HIV and optimize maternal health. While most attention to date has been given to pregnancy itself, it is in the period before pregnancy occurs that HIV care providers have the opportunity to help prevent unintended pregnancy and, when pregnancy is desired, to help ensure conception is safe and pregnancy outcomes for both mother and fetus are optimal. However, studies suggest that although HIV-infected women desire to have these discussions, they generally do not occur, and if they do occur, are usually initiated by the patient herself.[4,5]

Unintended pregnancies account for approximately 50% of all pregnancies among the general US population[6] but the study by Sutton et al reports that over four-fifths of women with HIV have had at least one unintended pregnancy since learning of their HIV status. Since this finding included only women in care, it is likely that HIV-infected women not in care have even greater likelihood of having an unintended pregnancy. Unintended pregnancies can disrupt lives that are already adversely affected by HIV, substance abuse, depression, and poverty, and have also been associated with increased rates of abortion as well as adverse pregnancy and neonatal outcomes.[7] In the setting of HIV, unintended pregnancy may also increase the risk of perinatal transmission, and unprotected sexual activity leading to unintended pregnancy may increase transmission risk to uninfected sexual partners.

The most effective methods of contraception are underused among US women living with HIV. In the US, reversible methods of contraception include the three-year progestin implant, and a 3-year and 5-year levonorgestrel IUD (LNG-IUD) with failure rate 0.05-0.1%.[8] These methods are referred to as long-acting reversible contraceptives or LARCs; they are safe in the setting of HIV, are cost-effective, and do not require regular patient action (which is a major reason for increased efficacy). LARC use has the potential to improve contraceptive adherence and decrease unintended pregnancies.

Primary care providers should be aware of the advantages and disadvantages of commonly prescribed hormonal contraception, as well as potential drug-drug interactions between certain hormonal contraceptives and antiretroviral medications (ARVs). Contraceptive hormones are metabolized by the same hepatic cytochrome (CYP) P450 pathway as many ARVs.[9] Orally administered contraceptive hormones, in particular, are subject to extensive first-pass gut and hepatic metabolism, which may lead to significant drug-drug interactions with ARVs and subsequent restrictions or dose-adjustments for either ARV or contraceptive hormone.[10] In contrast, one major benefit of LARC is fewer drug-drug interactions. A potential interaction between the progestin implant and efavirenz

has been reported to decrease contraceptive effectiveness with implant use.[11] Nevertheless, there is a national effort to increase LARC use in reproductive age women, including women with HIV.

Desire for pregnancy among HIV-infected women is similar to that among women in the general population,[12] perhaps not surprising given the advances in HIV care and treatment and the possibility of eliminating perinatal transmission. The study by Finger et al, specifically addressing pregnancy desire by young HIV-infected women between the ages of 13 and 24, found that not only did almost one-third desire pregnancy in the next 6 months, but over three-quarters had been pregnant previously or were currently pregnant. Shockingly, two-thirds reported history of childhood physical or sexual abuse.[13]

Other studies have linked sexual victimization to risk behavior and pregnancy in both the general population and in the setting of HIV.[14] Along with risky sexual behaviors, having fewer children, lack of disclosure and history of abuse should be part of the routine assessment for HIV-infected women; these should be red flags for further discussion about pregnancy desire. This study[14] was unable to assess partner desire for pregnancy, a factor which has been linked to greater pregnancy desire among women with HIV.[15] However, the variables associated with desire for pregnancy (DFP) in this and other studies confirm that DFP is a complex and likely dynamic process that requires engagement with patients as individuals to better understand the social and contextual factors involved and to address DFP with every patient of childbearing age.

Once pregnancy occurs, the cornerstone of management in the setting of HIV is the use of combination ARV regimens to prevent mother-to-child transmission and to effectively treat maternal infection. Recommendations for the use of ARVs in pregnancy continue to evolve. As new drugs become available, more information about efficacy, durability, toxicity, and ease of use of specific ARVs and regimens in adults and adolescents becomes known, and pregnancy-specific information, such as pharmacokinetic data and safety for the developing fetus (see recently updated US recommendations at aidsinfo.nih.gov/guidelines/html/3/perinatal-guidelines/0) becomes more widely recognized.

A major concern regarding HIV management during and after pregnancy is adherence, particularly as the use of complex regimens and often lifelong therapy are now recommended in both low and higher income settings.[16] Good adherence is critical for virologic suppression, to prevent drug resistance and disease progression, and—in pregnancy—is important to prevent perinatal transmission and potential transmission to uninfected partners.[17] However, pregnancy and the postpartum period represent special challenges to adherence: women may be first learning of their HIV infection, but are advised to start therapy more acutely than in other settings; they may have concerns about effects of ARV medications on the fetus; common pregnancy symptoms (e.g., nausea and vomiting in early pregnancy) may be exacerbated by use of ARVs; the postpartum period may be complicated by depression or at a minimum involve additional stresses and demands of caring for a new baby. Key factors promoting high adherence reported in several studies included disclosure of HIV status and social support, which are also factors important in the general population.[18,19]

Invasive cervical cancer is an AIDS-defining disease, and its occurrence represents missed opportunities for disease prevention. It is well established that persistent oncogenic HPV subtypes may lead to cervical precancer or cancer. Fortunately, primary prevention is possible through uptake of HPV vaccination, and secondary prevention through use of Pap testing coupled with HPV DNA testing and treatment of cervical dysplasia. The optimal screening strategy for HIV-infected women continues to evolve and will likely involve HPV testing as well as Pap testing. However, the most important message is that invasive cervical cancer is not increased when regular screening occurs,[20] underscoring the importance of integrating cervical cancer prevention methods into medical services for HIV-infected women.

It is ideal to co-locate HIV and reproductive services to facilitate care and to train HIV providers to offer basic reproductive services, including education and counseling, access to oral and injectable contraceptives, and HPV vaccination when indicated. Cervical cancer screening, even in the presence of HIV, may ultimately evolve to simpler strategies, such as provider or patient-collected samples for HPV testing as primary screens, with referral for more in-depth evaluation when these are positive. Access to more effective long-acting

reversible contraceptives and to in-depth preconception counseling should be assured by referral, if necessary. At a minimum HIV providers should have individual discussions with all women of childbearing age about fertility desires and intentions, with the goal of facilitating well timed, desired and planned pregnancies to improve both maternal and neonatal outcomes.

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IMMUNOGENICITY & SAFETY OF A QUADRIVALENT HPV VACCINE IN HIV-1-INFECTED WOMEN

Kojic EM, Kang M, Cespedes M, et al. Immunogenicity and safety of a quadrivalent human papillomavirus vaccine in HIV-1-infected women *Clin Infect Dis.* 2014 Apr 9.

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HIV-infected women have higher persistence of oncogenic HPV, which can lead to cervical precancer and cancer, compared to HIV-uninfected women.[1,2] Primary prevention of HPV infection is a critical need.

The AIDS Clinical Trials Group conducted an international phase II, open-label, single arm study to assess the immunogenicity and safety of the quadrivalent HPV recombinant vaccine directed against types 6, 11, 16, and 18 in HIV-infected women. Women were stratified by CD4+ count: A: > 350 cells/mm3; B: > 200 to < 350 cells/mm3; and C: < 200 cells/mm3. Women were 13 to 45 years old with documented HIV-1 infection and did not report high-grade cervical or vaginal dysplasia, use of antineoplastic agents, prior HPV or investigational vaccine, or genital warts.

At entry, week-8, and week-24, participants were vaccinated. The primary endpoint was type-specific HPV antibody development one month after completed vaccination series in participants negative for the type-specific antibodies at baseline. Seroconversion was defined by antibody levels above cutoffs defined by the assay developer. HPV serological testing was performed using competitive Luminex Immuno-Assay (HPV-4 cLIA).

There were 315 women in total: 127 in stratum A, 95 in stratum B, and 93 in stratum C. Median age was 36 and 56% of women were non-Hispanic Black. Baseline seropositivity for any of the vaccine HPV types ranged from 13-45%, with 4% of women seropositive for all 4 HPV types and no difference based on CD4+ count. There were no safety issues.

The authors reported high seroconversion proportions. In strata A and B, seroconversion was greater than 95% for types 6, 11, and 16, and 84-91% for type 18. In stratum C, seroconversion was 84-92% for types 6, 11, and 16, and 75% for type 18. Among all women, the odds of seroconversion in HPV types 6, 11, and 16 were higher than type 18. However, the authors attributed this finding to the cLIA assay as opposed to inherent differences in immunogenicity between HPV types. Also, there was not a statistically significant difference in seroconversion between strata, but there was a linear trend towards lower seroconversion in stratum C compared to strata A (92% vs. 98%, p=0.080) and B (92% vs. 98%, p=0.096). In a generalized estimating equation model, seroconversion was higher with CD4+ count >200 cells/mm3 (OR=3.31, p=0.01) and lower with HIV RNA > 10,000 copies/mL (OR=0.26, p=0.005). Age effect was not statistically significant. Additionally, in stratum C, there was a statistically significant lower seroconversion for HPV types 11, 16, and 18 among women with HIV viral load > 400 copies/mL compared to women with HIV viral load < 400 copies/mL.

Interestingly, the antibody titers in this cohort were almost half the titers reported among a similar age cohort of HIV-uninfected women.[3] However, since the HPV antibody titers needed for clinical protection are unknown, the authors concluded that the titers achieved are likely adequate for clinical protection. Overall, the authors suggest that majority of HIV-infected women, regardless of immune status, would benefit from the vaccine. These findings may lead to significant clinical implications for primary prevention of cervical cancer.

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TRENDS IN CONTRACEPTIVE USE AMONG WOMEN WITH HIV

Sun M, Peipert JF, Zhao Q, et al. Trends in contraceptive use among women with human immunodeficiency virus. *Obstet Gynecol*.. 2012; 120 (4): 783-790.

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Contraception use prevents 4% of maternal deaths worldwide and has been shown to prevent unintended pregnancy, unsafe abortions, and infant morbidity and mortality.[1] Nearly half of pregnancies are unintended among all women and are equally high or higher among HIV-infected women.[2-5] Reducing the unintended pregnancy rate by 10% is a Healthy People 2020 goal.[6] Sun et al sought to determine trends in long-acting reversible contraception (LARC) use (i.e. intrauterine device [IUD] or implant) among US HIV-infected women compared to HIV-uninfected women from 1998-2010.

The investigators analyzed data from the Women's Interagency HIV Study, a multicenter, observational cohort study of HIV-infected women and HIV-uninfected women determined to be high-risk for HIV. Women were 18 to 45 years old and reported vaginal sex with a male partner. Women who were menopausal, pregnant or attempting to conceive, permanently sterilized, or seroconverters were excluded. A standardized interview was conducted biannually.

There were 1,586 women (1,075 HIV-infected and 511 HIV-uninfected) included. Mean age was 32.6 ± 6.7 years and 54.5% were non-Hispanic Black, 29.2% Hispanic, 12.2% non-Hispanic white, and 4.1% other. Compared to HIV-infected women, HIV-uninfected women were younger, and less likely to be insured, unemployed, and to have ever been married.

The authors reported that trends in contraceptive use among HIV-infected women did not change significantly over time, after adjusting for age. Male condoms were the dominant form of contraception used by HIV-infected women (73.3% in 1998 to 73.7% in 2010). The second most common method was highly effective contraception, defined as pills, patch, ring, injectable, implant, and IUD, (15.2% in 1998 to 17.4% in 2010). Few HIV-infected women did not use contraception (7.5% in 1998 to 8.5% in 2010).

LARC use was low in both groups. In 1998, 1.1% and 4.8% of HIV-infected women and HIV-uninfected women, respectively, used LARC. By 2010, 2.8% and 13.5% of HIV-infected women and HIV-uninfected women, respectively, used LARC. Generalized estimating equation analyses showed HIV-infected women were 79% less likely to use LARC than HIV-uninfected women. Interestingly, they also found an association between LARC use and inconsistent condom use, but only among HIV-uninfected women.

There are several limitations to this research. First, the absolute number of LARC users, especially the implant, was low among both groups. The sample size limited the power to detect other correlates of LARC. Further, participants self-reported contraception, pregnancy desires, and heterosexual activity.

In summary, the authors demonstrated that LARC use among HIV-infected women has not increased at the same magnitude as in HIV-uninfected women. They posit that fewer HIV-infected women may have had access to LARC, or that provider misconceptions regarding safety, particularly of the IUD, in HIV-infected women may likely have played a role. The authors encourage strategies aimed at increasing LARC use among HIV-infected women while continuing to maintain high levels of male condom use to avoid transmission of HIV and other STDs, and duly note that the World Health Organization declared that all forms

of contraception, including IUDs, should be considered for use among HIV-infected women.[7]

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RISK OF CERVICAL PRECANCER AND CANCER AMONG HIV-INFECTED WOMEN WITH NORMAL CERVICAL CYTOLOGY

Keller MJ, Burk RD, Xie X, et al. Risk of cervical precancer and cancer among HIV-infected women with normal cervical cytology and no evidence of oncogenic HPV infection. *JAMA*. 2012;308(4):362-9.

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Cervical cancer screening dramatically reduces the incidence of cervical cancer.[1] National guidelines recommend closer surveillance among HIV-infected women due to the higher incidence and persistence of oncogenic HPV.[2] Keller et al sought to determine the risk of cervical precancer or cancer in HIV-infected compared to HIV-uninfected women who had normal Pap tests and negative oncogenic HPV DNA tests.

The authors analyzed data from women enrolled in the Women's Interagency HIV Study, an observational cohort study of HIV-infected and HIV-uninfected women during 2001-2002. At semiannual visits, participants received a Pap test and HPV DNA testing.

The investigators examined the 5-year risk of cervical precancer and cancer defined by cytology (i.e. high-grade squamous intraepithelial lesion [HSIL+]) and histology (cervical intraepithelial neoplasia 2 or greater [CIN 2+]). There were 420 HIV-infected women and 279 HIV-uninfected women in the analysis. HIV-infected women were older and more likely to be Hispanic than the HIV-uninfected women. Nearly half of the HIV-infected women were receiving highly active antiretroviral therapy (HAART), and 56% had a CD4 count ≥ 500cells/mm^3. Median follow-up was 4.9 years and loss to follow-up was 3-4%.

Among the HIV-infected women, the prevalence of any HPV DNA and of oncogenic HPV DNA increased with decreasing CD4 count ($P \leq .004$ for trend for both). The prevalence was 25% for any HPV and 8% for oncogenic HPV with CD4 count of ≥ 500 cells/mm^3; 34% and 17%, respectively, with CD4 count 350-499 cells/mm^3; and 47% and 18%, respectively, with CD4 count < 350 cells/mm^3.

No oncogenic HPV was detected in 88% of the HIV-infected women and 91% of the HIV-uninfected women with normal Pap tests. There were 2 cases of HSIL and 15 cases of

CIN 2+ among all women. The cumulative incidence of HSIL and CIN2+ was 0.3% and 5%, respectively, in HIV-infected women, and 0.4% and 5%, respectively, in HIV-uninfected women. There was not a difference in CIN 2+ by CD4 count, however the cumulative incidence of any SIL was 25% among women with a CD4 count < 350 cells/mcL, compared with 11% in each of the other 2 HIV-infected groups and 6% in HIV-uninfected group. The 9-year cumulative incidence of CIN 2+ was 8% in HIV-infected women and 5% in HIV-uninfected women but must be interpreted with caution due to the continued incremental loss to follow-up. There were no cases of invasive cervical cancer detected over 9 years.

The study has limitations. First, the results are generalizable only to HIV-infected women who are engaged in long-term clinical care. Second, some women did not undergo recommended colposcopic examination. Last, the study used life-table analysis, which assumes the rate of disease in censored participants is similar to that in those not censored.

In summary, this well-designed study is the second prospective study to show no difference in the incidence of cervical precancer and cancer between HIV-infected women and HIV-uninfected women who have normal Pap tests and negative oncogenic HPV DNA at baseline. As cervical cancer screening guidelines in the US continue to evolve and incorporate HPV testing along with Pap testing, this study is likely to play an important role in redefining the optimal cervical cancer screening interval in HIV-infected women.

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UNPLANNED PREGNANCIES AMONG HIV-INFECTED WOMEN IN CARE (US)

Sutton MY, Patel R, Frazier EL. Unplanned pregnancies among HIV-infected women in care-United States. *J Acquir Immune Defic Syndr*. 2014;65 (3):350-358.

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Unplanned pregnancies account for approximately 50% of all pregnancies among the general US population.1 This report represents the first estimates of unplanned pregnancies among HIV-infected US women 15-45 years, who were aware of their HIV diagnosis at the time of pregnancy and in HIV care. It is a subanalysis of HIV-infected women enrolled in the Medical Monitoring Project (MMP), a cross-sectional sample of adults receiving HIV medical care in the US and Puerto Rico. Self-reported interview data regarding clinical and behavioral information from the 2007-2008 cycles of the MMP were analyzed and 382 women were included who reported at least one pregnancy after HIV diagnosis and indicated whether or not they were trying to get pregnant during any pregnancy after HIV diagnosis. Of these 382 women, 326 (85.3%) had one or more unplanned pregnancy; 80% or more of women in each age range at the time of their HIV diagnosis reported at least one unplanned pregnancy Furthermore, of 620 total pregnancies in this sample of women, 428 (69.0%) were among women who reported that all pregnancies were unplanned. Women who had an unplanned pregnancy did not differ from those women who had reported all planned pregnancies in terms of age at HIV diagnosis or number of pregnancies after HIV diagnosis. Abortion was not more likely among women with unplanned pregnancies. A multivariate analysis reported that unplanned pregnancies were significantly more likely among women who reported nadir CD4 counts < 200 cells/mm3 compared to those with nadir CD4 counts ≥ 200 cells/mm3 (AOR 2.3; 95% CI:1.1,4.8). Additional MVA findings were that, those whose indication for

HIV testing was related to pregnancy (as compared to other indications for testing - AOR 3.8, 95% CI 1.2,12.8); and those who received public assistance in the past year compared with those not receiving public assistance (AOR 2.1, 95% CI 1.1, 3.8) were also predictive of unplanned pregnancy.

Age, race/ethnicity and education level were not independently associated with unplanned pregnancy. Of note, 124 (33%) of the women in this sample reported unprotected sex with an HIV(-) or HIV unknown partner in the 12 months prior to the MMP interview.

This study documents the scale of the problem with unplanned pregnancy in the setting of HIV infection, and the significant public health implications. Unplanned pregnancy is evidence of unprotected sexual activity and represents a missed opportunity for the use of effective contraception to promote intended and desired pregnancy, as well as to further decrease risk of perinatal transmission. It emphasizes the need for better integration of HIV and reproductive health services, and for more research into creative approaches to ensure access to a full range of contraceptive options to reduce social and structural barriers to reproductive care.

Reference

1. Finer LB, Zona MR. Shifts in intended and unintended pregnancy in the United States, 2001-2008. *Am J Public Health*. 2014; 104 Suppl 1: S43-8.

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ADHERENCE TO ANTIRETROVIRAL THERAPY DURING AND AFTER PREGNANCY

Nachega JB, Uthman OA, Anderson J, et al. Adherence to antiretroviral therapy during and after pregnancy in low-income, middle-income, and high-income countries: A systematic review and meta-analysis. *AIDS*. 2012; 26 (16):2039-2052.

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In well-resourced settings, mother-to-child transmission (MTCT) rates as low as 1-2% have been achieved with effective combination antiretroviral regimens. In lower income countries there has also been rapidly increasing access to antiretroviral drugs for both treatment and perinatal prophylaxis during pregnancy and breastfeeding. However, a challenge across the spectrum of HIV treatment, including ARVs that may be given in a time-limited fashion for prevention of MTCT in pregnancy, is the issue of adherence to ARV regimens. This 2012 report is the first systematic review and meta-analysis to examine the issue of adherence during pregnancy and in the postpartum period.

Studies included were cross-sectional, cohort or randomized clinical trials that reported antiretroviral therapy (ART) adherence rates during antenatal and/or postpartum care as a primary or secondary outcome. Interventions included any type of ART from single-dose nevirapine (sd-NVP) to effective combination ART (cART). Measures of adherence included self-report, pill count, pharmacy refills, Medication Event Monitoring System

(MEMS) caps and blood levels. Using an extensive electronic search strategy of existing publications and conference abstracts, 51 studies reported between 1998 and 2011and involving 20,153 HIV-infected pregnant women were included. Of these reports, 38 (74%) were observational and 13 (26%) were randomized controlled trials evaluating MTCT prevention regimens; 14 (27%) were carried out in the US, with 24 (47%) including cART regimens (including one study that compared adherence between cART and zidovudine). Twenty-seven (53%) of studies involved only monotherapy during pregnancy (zidovudine or sd-NVP). The threshold used to define adherence varied across studies (>80, >90, >95 and 100%) and the majority of studies (26 [51%]) used self-report to measure adherence.

The pooled ART adherence proportions for all studies (using > 80% as an indicator of adequate adherence) found an estimated adherence of 75.7%% (95% CI 71.5-79.7%)

during the antepartum period but only 53.0% (95% CI 32.8-72.7%) during the postpartum period (P=0.005). Women on cART regimens (63.5%, 95% CI 55.8-70.8%) were less likely to be adherent than those on zidovudine alone (79.0%, 95% CI 70.2-86.6%) or sd-NVP (78.6%, 95% CI 73.5-83.4%) (P=0.006). Not surprisingly, studies that used pill counts or self-reports tended to report higher adherence rates than more objective measures of adherence. Using adjusted random-effect modeling meta-regression, only ART type and adherence measure remained statistically significantly associated with ART adherence.

The low adherence to ART in pregnancy—especially in the postpartum period— has significant implications for virologic suppression, development of drug resistance and clinical success for the mother, and potentially may impact risk for sexual and perinatal transmission. It is critical to monitor ART adherence during and after pregnancy and to investigate and address specific barriers to adherence.

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DESIRE FOR PREGNANCY AND RISK BEHAVIOR IN YOUNG HIV-POSITIVE WOMEN

Finger JL, Clum GA, Trent ME, Ellen JM; Adolescent Medicine Trials Network for HIV/AIDS Interventions. Desire for Pregnancy and Risk Behavior in Young HIV-Positive Women. *AIDS Patient Care STDs*. 2012;26(3):173-180.

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Desire for pregnancy, especially in the era of effective ART, appears to vary little by HIV status itself. Furthermore, young women with behaviorally-acquired HIV seem have a significantly higher pregnancy incidence relative to the general population (approximately 2.5-5-fold increase).[1] This study is a cross-sectional analysis of data from a larger longitudinal, multicenter Adolescent Medicine Trials Network (ATN) protocol examining engagement in care among HIV-infected women ages 13-24 who acquired HIV through risk behaviors (perinatal transmission was excluded). The focus of this study was to examine the associations between desire for pregnancy (DFP), sociodemographic variables, and risk behaviors. Audio computer-assisted self-interviewing (ACASI) was used to collect all interview data. A variety of validated scales were used to measure illness impact (HIV acceptance, stigma and quality of life), family functioning, social support, coping skills, depression, spirituality, and history of victimization at baseline. Sexual and substance use (alcohol and marijuana) risk behaviors over the past 90 days, previous reproductive outcomes, prior sexually transmitted diseases, and DFP were assessed at a 6-month follow-up. Women were also asked to rate whether or not they thought their partners had other sex partners. DFP was assessed by asking participants whether they wanted to become pregnant in the next 6 months with answers on a 5-point Likert scale; answers of "maybe", "probably yes" or "definitely yes" were classified as desiring pregnancy.

A total of 130 women, recruited in 2003-2004, were included in this analysis, with a mean age of 20.6 years. Of these 41 (31.5%) reported DFP in the next 6 months. Sixty-three percent of participants were in a long-term relationship of at least a year and 74% had previously been pregnant; 4% were currently pregnant and 58% had at least one child. Two-thirds reported a history of either physical or sexual abuse in childhood and one-third reported sexual or physical victimization after the age of 18. Approximately one-third of women had been homeless previously and 16% reported regular marijuana use. DFP was unrelated to age, ethnicity, education level, employment status, income, current living situation, or relationship status. Variables assessing coping skills, family functioning, depressive symptoms, illness-related factors, and perceived social support were also unrelated to DFP.

Women who wanted to become pregnant had disclosed their HIV status to fewer friends and family members and those with a history of childhood sexual abuse were more than twice as likely to desire pregnancy (OR 2.73, P< 0.05). The only reproductive factor related to DFP was number of living children; those who already had at least one child were less

to DFP was number of living children; those who already had at least one child were less likely to desire pregnancy (OR 0.44, $P < 0.05$). Young women with DFP were more likely to have had sex in the last 90 days (OR 4.15, $P < 0.01$) and less likely to have used a condom (OR 3.06, $p < 0.01$). Multivariate analysis confirmed that each of these factors was independently associated with DFP.

Reference

1. Agwu AL, Jang SS, Korthuis PT, Araneta MRG, Gebo KA. Pregnancy incidence and outcomes in vertically and behaviorally HIV-infected youth. *JAMA*. 2011;305:468-470.unpll

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STATEMENT OF NEED:

- As the demographics of HIV have shifted to include many older adults, clinicians require education regarding the treatment of common comorbidities.
- Clinicians may be unclear about issues specific to the diagnosis and treatment of women with HIV.
- Many clinicians require education regarding current treatment and new emerging hepatitis C medications in patients coinfected with HIV/HCV who require antiretroviral therapy.
- Clinicians may need an update on current recommendations for the treatment of HIV with HAART.

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