CASE REPORT

Living with Discordance: Pregnancy in HIV-discordant Couple

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Abstract

Background: The term "serodiscordant couple" refers to "a couple where one partner is human immunodeficiency virus (HIV)-positive and the other HIV-negative." The approximate patients with HIV/AIDS were 37.9 million people all over the world in 2018 of which, 1.7 million were children (<15-years-old) and 36.2 million were adults. Approximately, 60% of new cases occur in HIV-serodiscordant couples mainly because 30% of married HIV positives have HIV-negative spouse. With the advent of newer and better antiretroviral treatment (ART) to prevent the sexual transmission of HIV, there is increase in the number of serodiscordant couple who are considering natural conception. Pregnancy is a marker of unprotected intercourse rather than the motivation for engaging in unprotected intercourse and indicates an unmet need of counseling for exposure prophylaxis and contraceptive practice in future. Once pregnancy has been diagnosed, there is further need to ensure prevention of parent-to-child transmission of HIV. Strict adherence to protocols and guidelines is mandatory to ensure successful outcome.

Keywords: Antiretroviral therapy, HIV infection, HIV transmission, NACO guidelines, Serodiscordant couples.

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Introduction

A couple is defined as "two persons in an ongoing sexual relationship and each of these persons is referred to as a partner in the relationship." A serodiscordant couple refers to "a couple where one partner is human immunodeficiency virus (HIV)-positive and the other is HIV-negative".[1] The HIV-discordant couple is also called a "mixed status couple." Approximately 60% of new cases occur in HIV serodiscordant couples mainly because 30% of married HIV positives have HIV-negative spouse.[2]

Presently, the approximate patients with HIV/AIDS were 37.9 million people all over world in 2018, of which, 1.7 million were children (<15-years-old) and 36.2 million were adults.[3]

As per the survey done by Kenya AIDS Society in 2007, it was found that nearly 40% of HIV-infected individuals have an uninfected regular partner.[4] The discordant couples also have a desire to have children. Such desire may put the uninfected partner in relationship at increased risk of HIV acquisition. A literature review of factors influencing fertility desires and intentions among people living with HIV/AIDS concluded that the desire for children is associated with young age, having few children, and having access to antiretroviral therapy (ART), which suggests that the variation in the observed rates of desired fertility may be attributable to differing demographics of the populations surveyed.[5]

HIV-uninfected individuals in the cohort group in study done by Kenya AIDS Society who had intercourse with an infected individual had a 1.8-fold increased risk of HIV acquisition compared with couples who failed to conceive. In such couples, HIV viremia is the strongest single risk factor for transmission. Alternatively, pregnancy itself may enhance susceptibility of the female genitourinary tract to HIV-1 infection.[4] Pregnancy is a marker of unprotected intercourse and therefore there is an unmet need of counseling for exposure prophylaxis and contraceptive practice in future. Once pregnancy has been diagnosed, further need is to ensure prevention of parent-to-child transmission of HIV.[3] We are presenting one such case of HIV-discordant couple with pregnancy and its management.

The risk of transmission between serodiscordant couples (SDCs) is extremely variable. It reflects an interplay between biological, genetic, and immunological factors along with various sociobehavioral factors.[6] This risk is higher where ART is not universally available. In mature epidemics, there is evidence to show that HIV-SDCs contribute significantly to new HIV transmission.[7] Early access to diagnosis, employing prevention strategies, and providing support services through integrated counseling and testing centers are all key measures required to halt this epidemic.

There has been a huge reduction in the morbidity and mortality of HIV-infected persons and in the risk of vertical transmission due to use of ART resulting in an increased number of discordant couples having children.[5] As per the literature, ART prophylaxis pre- and post-HIV exposure could boost preventive measures in natural conception. Enough studies have not been done supporting the preventive potential of ART in this context of natural reproduction.[5]

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Case Description

A HIV-discordant heterosexual couple was referred to an obstetric unit of tertiary care hospital of rural central India. At the time of admission, she was primigravida with 36.5 weeks of gestational age with HIV seropositive status, which she came to know in her 3rd month of pregnancy. Her duration of marriage was 1 year. This was her second marriage. Her first marriage lasted for 1.5 years and the husband died due to cirrhosis of the liver. The HIV status of first husband is unknown. This was the second marriage of the second husband with two living children from his first wife.

The sexual history was separately obtained from both the partners. Significant reporting discrepancies between partners were resolved at a second interview. The present husband was investigated for HIV twice within a span of 3 months' duration and was found to be negative. And there was no history of pre- or postexposure prophylactic medications.

The index case was registered at ART center, Nagpur, and was on HAART therapy (combination of tenofovir, lamivudine, and efavirenz) with persistent plasma viral suppression for at least the previous 6 months, ART compliance over 98%, and absence of genitourinary infections and fertility problems in both members of the couple. Her CD4 count was 101 (14%) and according to her viral loads by RT-PCR there were 463 copies/mL (HIV RNA detected within the linear range of the assay). Prior antenatal visits were reported to be attended at Public Hospital, Nagpur.

In view of affordable and quality antenatal and perinatal care at the present tertiary care site, the woman presented at 36.5 weeks of gestation with profound weakness, puffiness of face, and swelling over both the lower limbs. She also had persistent cough in the last 4 weeks. According to her past history, she had history of blood transfusion in 7th month of gestation for anemia.

On general examination, she had significant pallor, her blood pressure was raised to 140/90 mm Hg, and there was puffiness of face and edema in both lower limbs extending up to the thighs. Urine albumin came out to be negative. There were no signs and symptoms of eclampsia. There was no generalized lymphadenopathy and no skin lesions. Her thyroid levels were normal. Clinical examination and laboratory investigations were negative for pulmonary tuberculosis.

Her hemoglobin level was 7.5 g%, MCV 83 mm^3, total leukocyte count (TLC) 6,300 mm^3, and platelet count 2.03 lacs/$mm.^3$ The sickling test, early and late, and venereal disease research laboratory (VDRL) test were negative. According to her ultrasound reports, her liquor index was 17.5. Screening for gestational diabetes was negative. On her fundus examination, there was no evidence of hypertensive retinopathy.

Her sputum sample was again sent for acid fast bacilli (AFB) culture and the cartridge-based nucleic acid amplification test (CBNAAT) wherein growth of *Acinetobacter* species was present, which was treated with appropriate antibiotics.

Correction of anemia was done with 2 units of packed red cells. In view of persistent rise in blood pressure, decision was taken to terminate pregnancy at 38 weeks of gestation and the couple was counseled about pros and cons of vaginal delivery vs elective cesarean section as per the National AIDS Control Organization (NACO) guidelines. The couple opted for elective cesarean section and under all aseptic precautions, a male baby with birth weight of 2.4 kg was delivered and was shifted to neonatal intensive care for observation and further management. The newborn received syrup nevirapine immediately after birth and thereafter till 6 weeks as duration of ART for mother was more than 24 weeks.[8] Exclusive breastfeeding was ensured till 6 months. Cotrimoxazole prophylaxis was provided to the infant at 6 weeks of life and the HIV DNA PCR test was done at 6 weeks by dry blood spot (DBS) collection. The test turned out to be negative. Mother was provided lifelong ART and is under follow-up. Tubectomy was done during the cesarean section to prevent further pregnancies, and barrier contraception was advised for preventing exposure to noninfected partner.

Discussion

The HIV-negative partner is neither "immunized" nor protected against HIV infection. He/she is always at a risk of getting infected with HIV in future. Various sociobehavioral factors along with biological, genetic, and immunological factors play a role in the risk of transmission between discordant couples.[9] Transmission among SDCs ranges from 5.0 to 16.7 per 100 person years.[1] The annual risk of transmission from an HIV-infected partner to an HIV-uninfected partner in a discordant state is around 20–25%.[10] Avoiding transmission to the seronegative partner is of paramount importance in case of SDCs. Hence, increased measures to prevent HIV transmission, such as education, information, and communication programs, among discordant couples need to be taken.[11] In the present case, the male partner was found to be seronegative and counseling regarding use of barriers was given to the couple.

Various programs such as voluntary counseling and testing, condom promotion and risk reduction counseling, needle exchange programs, opiate substitution therapy, male circumcision, immediate ART irrespective of CD4 count, preexposure prophylaxis, and vaginal microbicides can reduce the risk to 3–7%. About 10% of HIV-seropositive individuals actually know the status of their partners and approximately 20% of HIV-discordant couples know that their partner is seropositive.[1]

Serodiscordant couples who are aware of each other's HIV status will be able to take care of positive partner and adhere to safe sexual practices, treatment, and prevention of parent-to-child transmission interventions and give each other emotional support. By consistently practising safer sex such as by using male and female condoms, it is possible for couples to stay serodiscordant indefinitely.[12]

The growing number of HIV-SDCs are seeking information and advice on reproduction. Many couples opt for normal reproduction and they do so without any professional consultation.[13] Barreiro et al. described the outcome of natural pregnancies in SDCs in whom the infected member was receiving suppressive ART. Couples with a female index case who are considering pregnancy, regardless of the method chosen to achieve it, should be informed that, although their fetuses could potentially be exposed to a greater risk of spontaneous abortion and/or drug-related toxicity, the benefits of ART in preventing vertical transmission clearly outweigh these risks.[5] According to NACO guidelines, any women who was found positive should be started on lifelong ART treatment irrespective of WHO staging and CD4+ count. Syrup nevirapine immediately is started after birth for 6 weeks so as to prevent transmission of HIV from mother to child for HIV-positive mother. The treatment may be extended up to 12 weeks if the duration of the ART of mother is no longer than 6 months. This regimen came into effect on January 1, 2014.[14]

The exposed baby also receives cotrimoxazole prophylaxis at 6 weeks. The baby is tested for HIV DNA PCR at 6 weeks by DBS

collection. If the sample is positive for same, then a repeat DBS sample is tested for HIV DNA PCR. If HIV is confirmed by two positive DNA PCR tests, then the baby is put on lifelong ART.[15]

As per the 2013 French guidelines on reproductive options, discordant couples can have natural conception, provided ART is a highly effective preventive strategy but still there remains an implied risk of transmission in poorly informed couples.[4] There is no role of pre- and postexposure prophylaxis in natural conception if there is sustained viral suppression with ART in such couples as per the guidelines.[5]

The harm reduction approach needs to be adopted in cases where HIV-discordant couples have an intentional pregnancy. It is a fact that HIV-discordant couples will conceive even in the absence of safe methods; in such cases, education about risk reduction plays a pivotal role.[4] The British HIV Association Guidelines for Management of Sexual and Reproductive Health describes that female-positive and male-positive couples should be provided with separate and adequate counseling, including instructions about feasible practices such as home insemination, timed unprotected intercourse, or confirmation of viral suppression.[16]

In 2002, the Prevention of Parent to Child Transmission (PPTCT) of HIV/AIDS program was launched in India.[14] As of now, till August 31, 2016, in our country there were 20,756 integrated counseling and testing Centers (ICTCs), both in government and private hospitals, which offer PPTCT services like counseling and testing to pregnant women. The NACO Technical Estimate Report (2015) estimated that there are about 2.9 cr. annual pregnancies in our country, out of which 35,255 occur in HIV-positive pregnant women. The PPTCT program aims to prevent the perinatal transmission of HIV from an infected pregnant mother to baby.[17]

The PPTCT services cover approximately 47% of the yearly estimated pregnancies in India. In the year 2015–2016, 1.27 cr. pregnant women accessed PPTCT services. Of these, 11,918 pregnant women were HIV positive. In order to provide universal access to these services, further scale up is planned up to the level of community health center and the primary health center through National Health Mission (NHM) integration, as well as private sector by forcing public–private partnerships.[14]

With strict adherence to guidelines, the present reported case had successful outcome of the seronegative baby and is receiving lifelong follow-up and ART treatment for the seropositive partner.

Conclusion

Serodiscordant relationships occur more commonly in India than is presumed. Effective measures to prevent transmission of HIV within a serodiscordant relationship are necessary steps in halting the HIV epidemic. Therefore, in conclusion, HIV SDCs who wish to have children should receive specialized medical counseling on the appropriate reproductive options in each case. According to our experience, natural pregnancy might be considered, under controlled conditions and in the absence of fertility problems, as a safe and effective method of conception for those HIV SDCs who choose this reproductive option. However, strict adherence to PPTCT guidelines as advocated by NACO is mandatory and safe contraceptive practices need to be ensured.

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