ORIGINAL ARTICLE

Determination of frequency of Human Immunodeficiency Virus infection in Pregnant Females

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ABSTRACT

Background: HIV infection is a global epidemic worldwide. Its rate is increasing in females. Despite prenatal ART treatment morbidity and mortality rate is still high. In Pakistan HIV (AIDS) is now gaining recognition and has become a public health issue of great importance.
Aim: To determine the frequency of human immunodeficiency virus (HIV) infection in pregnant females.
Methods: This cross sectional study was conducted in the Department of Gynecology &Obstetrics, Lahore General Hospital, Lahore for a period of 6 months from 2/7/2016 to 2/01/2017. Informed consent was taken. Demographic information was obtained aswell. Then blood sample (venous) was obtained by using 5cc disposable syringe. All samples were sent to the Pathology department. For the assessment of presence or absence of HIV by rapid HIV Kit method. Reports were assessed and discussed with pathologist. If the presence of virus was found to be positive (as per operational definition), then the patient was labelled as HIV infected. On a specially designed pro-forma, data was collected.
Results: Mean age of women was 31.12±70.89 years. Mean gestational age of patients was 24.46±7.483 wks. There was only 1(0.5%) woman in whom result was positive for HIV. Statistically significant relationship between HIV positive status and age of the women was not found. Similarly no statistically significant relationship/association between HIV positivity and parity status of women was noted.
Conclusion: Results of this study shows that HIV infection is rare in pregnant women. There was only one case reported in the whole sample.
Keywords: Human immunodeficiency virus (HIV), Infection, Pregnant females

INTRODUCTION

The Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome pandemic has continued its fatal attacks in many parts of the world. The first case of AIDS was identified in 1981 and uptill now more than 20 million people have been died of this deadly disease.[1]

The high prevalence of HIV among pregnant women, alsocarriesa particular risk to their families, offsprings and even to the health workers at the time of delivery. HIV infection in pregnancy can be associated with an adverse maternal as well as fetal outcome, which may include infectious morbidity, severe anemia and vertical transmission.[2]

According to the Department of Health guidelines, in 1992 and 1994, the clinics should offer HIV testing to all women residing in the areas of suspected or known higher prevalence and also to those women with recognized risk factors. Furthermore, the test should be readily available to all the women who request it.[3] In Australia, the Royal Australian and New Zealand College of Obstetricians and Gynecologists recommends, that after appropriate pre-test counseling, all the pregnant women should be offered with HIV testing,(a universal approach) as a part of their routine antenatal care.[3]

The screening for HIV at their first antenatal visit should be offered to all the women because this is the ideal time for initiation of the treatment in HIV positive woman that is between 15 - 19 weeks of gestation.[4]

According to the estimates, currently, the number of people living with HIV in Pakistan is nearly 100,000. About 5,000 people in Pakistan so far are killed by the Acquired Immunodeficiency Syndrome (AIDS) that is the most advanced stage of HIV infection .[5]

Another study of 2400 patients in antenatal clinic and labor ward in 2001 found no HIV and <1% of any STI. More recently, screening of antenatal clinics showed that only 21 out of the 8000 (0.003%) patients were HIV infected.[6] In an international study, HIV was found to be positive in 16% pregnant females.[7]

According to UNAIDS, the prevalence of HIV in Pakistan has nearly doubled from 11% in 2005 to 21% in 2008.[8] In a Pakistani study, 0.3% pregnant females were found to be positive (reactive) on screening.[9] In another study, the frequency of HIV positive cases was 10.84% among all pregnant ladies.[10]

The motivation for this study is to find out the frequency of human immunodeficiency virus (HIV) infection in pregnant females presenting in a tertiary care hospital. Literature has reported that the incidence of HIV seropositivity has been increasing in Pakistan. So there may be chances of pregnant females to get HIV infection from their partners which may further transfer it to their offsprings. So, early screening and management may be helpful in preventing the HIV transmission from the mothersto neonates. Moreover, the incidence of HIV seropositivity is found to be controversial in Pakistan, hence we want to confirm the frequency of HIV

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seropositivity amongst pregnant females. So that we may be able to develop surveillance programs for prevention or management such critical cases.

The objective of the study was to determine the frequency of human immunodeficiency virus (HIV) infection in pregnant females.

Operational Definition:

HIV: HIV was labelled if there was presence of RNA/ ribonucleic acid retrovirus that cause infection of the immune cells of its human hosts, particularly, CD4 helper T cells. There are two types of HIV, HIV-1 and HIV-2.The confirmation will be done through ELISA method.

MATERIALS AND METHODS

Study Design: A Cross sectional study

Setting: Department of Obstetrics & Gynecology, Postgraduate Medical Institute PGMI/ Lahore General Hospital, Lahore.

Study Duration: 06 months

Sample Size: Sample size of 200 pregnant females presenting in a tertiary care hospital.

Sampling Technique: Non probability, consecutive sampling technique

Inclusion Criteria: Pregnant females of reproductive age group 18-42 years presenting at any gestational age from 12-38 weeks (confirmed through LMP and USG).

Exclusion Criteria:

- Patients who refused for informed consent.
- Pregnant females with already proven HIV / AIDS.

Data Collection: Total of 200 women, who fulfilled the inclusion criteria, were selected for the study, from the Gynecology and Obstetrics OPD, Lahore General Hospital, Lahore. The informed consent was obtained. Also the demographic information (name, age, gestational age, parity) was noted. Then venous blood samples were obtained by using 5cc disposable syringe. All samples were sent to the Pathology department for the assessment of presence or absence of HIV by Rapid HIV Kit test method. Reports were assessed and discussed with the pathologist. If the presence of virus was found out to be positive (as per operational definition), then patient was labelled as HIV positive. The data was entered on a pre-designed proforma.

Data Analysis: The collected data was entered and then analyzed through SPSS version 20. The Quantitative variables in this study e.g., age and gestational age were presented by using mean±SD. And the qualitative data like HIV (present / absent) was presented as frequency and percentage. Frequency was used for calculation of parity. Data was stratified for age and parity. Post-stratification, chi-square test was applied by taking p-value ≤ 0.05.

RESULTS

Mean age of women was 31.12±70.89 years and minimum and maximum age of women was 18 and 38 years respective (Table1).

There were 39(19.5%) women with parity 0, 60(30%) women's parity was 1, 46(23%), women's parity was 2, 34(17%) women's parity was 3 and 21(10.5%) women's parity was 4 (Table-2).

Mean gestational age of women was 24.46±7.483 weeks. Minimum gestational age was found out 12 weeks and maximum was 38 weeks(Table-3)

There was only 1(0.5%) woman positive for HIV.

The one, diagnosed case of HIV positive belonged to the age group 29-39 years. According to the p-value, no statistically significant association was found between HIV positivity and the age ofthe women i.e. (p-value=0.485)(Table-4)

Statistically significant association was not found between HIVpositivity and parity status of women. One detected case of HIV positive patient had parity 3-4 i.e. (p-value=0.266) (Table-5).

Table 1: Age distribution of women (years)

N(number of patients)	200
Mean ± SD	30.12 ± 7.089 years
Minimum(age)	18 years
Maximum(age)	38 years

Table 2: Parity status of women

Parity	Frequency	Percentage (%)
Primiparous	39	19.5
para1	60	30
Para 2	46	23
Para 3	34	17
Para 4	21	10.5
Total	200	100

Table 3: Descriptive statistics for Gestational Age (weeks)

N (number of patients)	200
Mean ± SD(weeks)	24.46 ± 7.483
Minimum(weeks)	12
Maximum(weeks)	38

Table-4: Association of HIV with age of women, HIV status, age

Total	Positive	Negative	Total
18-28 years	0	89	89
29-39 years	1	81	82
>39 years	0	29	29
Total	1	199	200

Chi-Square Test= 1.446p-value= 0.485

Table-5: Association of HIV with parity status of women

Parity	HIV		Total
	Positives	Negatives	
Primiparous	0	39	39
para1&2	0	106	106
para3&above	1	54	55
Total	1	199	200

Chi-Square Test= 2.650 p-value= 0.266

DISCUSSION

In many developing countries HIV infection during pregnancy has become a great concern. Previous data showed that approximately 1.5 million HIV positive women are becoming pregnant each year and the annual mother to child transmission rate to be 600000 Approximately[11,12].

Studies have shown the higher incidence of HIV amongst pregnant women than in non-pregnant women[13]. During pregnancy there is an increased risk of HIV acquisition, mainly due to immunological andhormonal changes, resulting in increased progesterone levels, which affects the mucosa of the genital tract[14].

Pakistan, being the second most populous Muslim country in the world, has finally started to experience and confront the HIV/AIDS epidemic. Although the prevalence of HIV in general population of Pakistan is still low (<0.1%), but its geographic proximity to India, a country experiencing a severe HIV/AIDS epidemic, and several prevalent lifestyle risk factors make it a high-risk location for the diffusion of HIV[15].

In this study HIV was positive in 1 (0.5%) pregnant women. Among these pregnant women HIV was found only in 29-39 years age group.

But, between the age of the pregnant women and HIV positivity, no statistically significant association was found. Parity status of women was also not significantly associated with HIV positivity. HIV positivity was seen in woman whose parity was 3-4 (p-value=0.266).

Sero-conversion rate of HIV in the booked pregnant women from other developing countries is 2.1% in Jos, Nigeria,[16] 2.3% in Oshogbo, Nigeria[17], in Tanzania 3%[18], in Bangkok 4.6%, in South Africa 5.2% and 7.9%[19] in Malawi[20].

In this study, frequency of HIV infection in pregnant females was 0.5%. This frequency is lower than the reported frequency mentioned in the above studies. However, this difference might be due to difference in sample size.

Chaudhari from India reported that out of 1000 women (study population), 19 women were HIV positive. Sero-prevalence was found to be more in age more than 25 years and in registered multigravida (78.9%)[21].

In this study a different trend was seen for age among women who were positive for HIV. In younger age group i.e. no woman was diagnosed with HIV. While in 29-39 years old woman, one case was found to be positive for HIV. This finding shows that adult pregnant females have risk of developing HIV as compared to young age females.

Mitra et al found in their study, more sero-prevalence in multigravida 15 (78.95%), with mean gravidity of sero-positive women 2.1±2.8[22].

Neeta Khokhar from Gujrat India showed that 4/1020 (0.39%) women were positive for HIV; among which highest prevalence was found in the age group of 27-31 year (75%), followed by the age group 21-25 years (25%). The overall prevalence for HIV was 0.39%.[23]

A Nigerian study reported that the sero-prevalence of undiagnosed HIV infection in pregnant women was (6\224) 2.68%. The prevalence of HIV infection in non-booked cases was found to be 6.78% (4/59), while in 1.21% (2/165) of pregnant women, with negative HIV report, HIV seroconversion was found[24]. In USA, the MIRIAD study was conducted which showed a low HIV prevalence rate (0.7%) among pregnant women with unknown HIV status.[25] This is somewhat similar as Reported in our study.

ParveenMalhotra from India recently in 2016 reported that out of the 10,000 delivered pregnant women, 84 were tested positive for anti-HIV antibodies[26].

A local study from Pakistan determined the prevalence of HIV in pregnant women who were booked in a tertiary care hospital, with a high risk factor/behavior. As per findings of study 2 women, out of the 3 were confirmed positive on ELISA. The husbands of both positive women were also tested and 01 of them was found positive. Second women had the history of blood transfusion once in life but her husband was found out to be HIV negative [9].

In an international study, HIV was found to be positive in 16% pregnant females[7]. According to UNAIDS, prevalence of HIV in Pakistan has increased from 11% in 2005 to 21% in 2008[8]. In another study, the frequency of HIV positive cases was 10.84% among all pregnant ladies[10].

Marvelous research has been conducted all over the world for reduction in the risks of HIV transmission from the mother to child.These interventions include combination of different options that is the use ofAntiretroviral drugs (ARV) during pregnancy, planned/elective caesarean section as a mode of delivery and avoiding the breast feeding. This is known as ‘PPTCT i.e., Prevention of Parent to Child Transmission of HIV.

However, the first step in these interventions is earlyidentificationof the HIV positive pregnant women. Hence, HIV testing during antenatal period is found out to be an essential part of antenatal care.In 2001, CDC has already recommended that HIV testing should be a routine part of antenatal care for all women.[27]

CONCLUSION

Results of this study show that HIV infection is rare in pregnant women. Although, literature has reported that the incidence of HIV seropositivity has increased in Pakistan. However, there was only one case reported in whole sample. So, a national level survey on priority basis is needed in the antenatal patients before widespread routine HIV testing can be implemented.

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