RESEARCH ARTICLE

Frequency of HIV among patients seeking antenatal care at a tertiary care hospital, Karachi

Omema Akhtar,[1] Osama Qazi,[2] Haleema Yasmin,[3] Khadija Bano,[4] Sabiha Qamar[5]

Abstract

Objective: To determine the frequency of human immunodeficiency virus among pregnant women reporting for antenatal care at a tertiary care hospital.

Method: The cross-sectional study was conducted at Unit-1 of the Department of Obstetrics and Gynaecology, Jinnah Postgraduate Medical Centre, Karachi, from August 2018 to January 2019, and comprised all women attending antenatal clinics aged 15-40 years having gestational age of at least 10 weeks confirmed by trans-vaginal/trans-abdominal scan. Data was collected using a predesigned questionnaire. Data was analysed using SPSS 21.

Results: There were 642 pregnant women with a mean age of 25.80±4.91 years, and mean gestational age of 24.34±5.38 weeks. Of the total, 5(0.7%) subjects had family history of human immunodeficiency virus and 1(0.2%) had a positive result for the virus. There was significant association of human immunodeficiency virus with family history of the disease (p=0.001) and with history of drug abuse (p=0.003)

Conclusion: Screening of human immunodeficiency virus during the antenatal period is a useful tool for better management.

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Introduction

Human immunodeficiency virus (HIV) is a major global public health issue having claimed more than 35 million lives so far.[1] In 2014, the World Health Organisation (WHO) reported that the pandemic of HIV and acquired immunodeficiency syndrome (AIDS) had affected 34.4 million adults all over the world and 17.4 million of them were women.[2] In 2016, 1 million people died from HIV-related causes globally.[3,4] There were approximately 36.7 million people living with HIV at the end of 2016, with 1.8 million people becoming newly infected in 2016 worldwide.[4] HIV has devastating effects on individuals and families. An HIV-infected person is treated as an outcaste. It not only contributes to the social and financial burden, but also causes mental health issues.[5] Struggles for HIV prevention, like the use of antiretroviral therapy (ART) and prevention of mother-to-child transmission (PMTCT) are practised worldwide.[6] Approximately 54% of adults and 43% of children living with HIV are currently receiving lifelong ART. More than 95% of HIV infections are in low- and middle-income countries (LMICs).[7] Global ART coverage for pregnant and breastfeeding women living with HIV is quite high at 76%.[8] As of 2014, the prevalence of HIV in Pakistan was <0.1%. A national study conducted in 2011 among 26,500 women in antenatal clinics found the prevalence to be 0.04%.[9] Another national study reported the prevalence of HIV among pregnant women to be 1.7%.[10]

The prevalence of HIV has steadily risen in the past few decades from the detection of the first HIV-infected Pakistani in 1987 to reach the prevalence of 27.2% only among intravenous (IV) drug users.[9] Pakistan is now in a group of 'countries in transition'.[11] Although, according to the statistics, HIV infection has not reached 1 adult per 1000 in Pakistan, several factors make Pakistan clearly at risk of HIV spread, like Pakistan was classified as low-prevalence high-risk country, but now Pakistan is in the concentrated phase of an epidemic;[12,13] the country shares border with India where the prevalence of HIV/AIDS is very high and there is frequent travelling of people from one country to the other; there is a high rate of illiteracy and poverty; and there is a high rate of sexually transmitted diseases (STDs) in the rural areas.

In Pakistan, the majority of current HIV infections are estimated to occur among four groups of at-risk populations, despite their accounting for under 2% of all adults: injecting drug users (IDUs) accounted for 36.4% of HIV cases, which is the largest share of infections in any one group. Female, male and transgender sex workers

[1]Jinnah Postgraduate Medical Centre, Karachi, [2]Ziauddin Medical University, Karachi, [3,4]Department of Gynaecology and Obstetrics, Jinnah Postgraduate Medical Centre, Karachi, Pakistan, [5]King Salman Hospital, Riyadh, Saudi Arabia.

Correspondence: Omema Akhtar. Email: omaima_akhter@yahoo.com

accounted for 24%, 12% and 17.5% respectively.[14] This epidemic has now transmitted to female partners of HIV-positive IDUs, bisexual men and to young children via vertical transmission. Due to social and cultural barriers, HIV-infected pregnant women and children do not have access to treatment which further impedes its prevention.[15]

HIV screening is recommended in pregnancy at the booking visit as routine investigation by the Royal College of Obstetrics and Gynaecology (RCOG).[16] One of the great achievements in the response to the AIDS epidemic in well-resourced settings is the prevention of MTCT by developing and putting into practice strategies for the care of HIV-positive pregnant women. The strategies of diagnosing or identifying HIV-infected pregnant women, the use of ART and avoidance of breastfeeding has led to the reduction in transmission to <2%. The success of this programme depends basically on the identification of HIV-positive women during pregnancy.[17]

Even though Pakistan is in the phase of a concentrated epidemic, routine antenatal screening of HIV is not conducted.[9] The current study was planned to determine the frequency of HIV among pregnant women reporting for antenatal care at a tertiary care hospital.

Subjects and Methods

The cross-sectional study was conducted at Unit-1 of the Department of Obstetrics and Gynaecology, Jinnah Postgraduate Medical Centre (JPMC), Karachi, from August 2018 to January 2019. Ethical approval was taken from Institutional Review Board, Jinnah Postgraduate Medical Centre, Karachi (NO. F.2-81/2017-GENL-IRB/16881/JPMC).

The sample size was calculated by taking the prevalence of HIV among pregnant women 1.7%,[7] confidence interval of 95% and margin of error 1.1%. The sample was raised using non-probability consecutive sampling technique from among women reporting to the antenatal clinic. Those included were aged 15-40 years with a gestational age of at least 10 weeks confirmed by trans-vaginal/trans-abdominal scan performed by a trained sonologist or ultrasound technician. Those excluded were menopausal women, confirmed by the reported age and history of cessation of menses for at least 1 year, women having systemic diseases, confirmed by relevant laboratory investigations, like tuberculosis (TB), leprosy, systemic lupus erythematosus and syphilis as these diseases may produce false positive (FP) results.

All the antenatal patients who visited JPMC during the course of study were randomly distributed in 5 chambers, numbered 1-5. Those meeting the inclusion criteria were offered antenatal testing for HIV, and those who agreed to furnish informed consent on the basis of pre-test counselling were included.

Appendix: Data-collection proforma.

PREVALENCE OF HIV AMONG PREGNANT WOMEN SEEKING ANTENATAL CARE AT JINNAH POST GRADUATE MEDICAL CENTER KARACHI

Serial Number: _____ Date: _____
1. Age: _____ years
2. Marital Status: i) Single _____ ii) Married _____
3. Gestational Age: _____ weeks
4. Gravida: _____
5. Parity: _____
6. No of Abortions: _____
7. Patient's Occupation: _____
8. Partner's Occupation: _____
9. Residence: i) Urban _____ ii) Rural _____
10. History of any surgery: i) Yes _____ ii) No _____
11. History of any dental procedure: i) Yes _____ ii) No _____
12. Frequent injections (use of I/V or I/M injections twice a month):
i) Yes _____ ii) No _____
13. Educational Status: i) Illiterate _____ ii) Primary _____ iii) Secondary _____
iv) Intermediate _____ v) Undergraduate _____ vi) Postgraduate _____
14. Socioeconomic status: i) Low (< Rs. 10,000/-) _____
ii) Middle (Rs. 10,000- 25,000) _____ iii) Upper (> Rs. 25,000/-) _____
15. Extra marital relationship: i) Yes _____ ii) No _____
16. Use of condoms: i) Yes _____ ii. No _____
17. History of blood transfusion (In last 5 years): i) Yes _____ ii) No _____
18. History of drug abuse (oral, inhalational or I/V): i) Yes _____ ii) No _____
19. Family history of HIV: i) Yes _____ ii) No _____
20. Presence of HIV antibodies: i) Yes _____ ii) No _____

A 20-item predesigned structured questionnaire was used to collect data (Appendix). Demographics contained information regarding age, marital status, occupational history and socioeconomic history. Brief obstetrical history included gravidity, parity and history of abortions, while questions regarding patient's sexual history, history of any surgery or dental procedure, drug history, family history of HIV were also part of the questionnaire.

Blood samples were collected and tested for HIV antibodies using the WHO-approved HIV Rapid test kits that have sensitivity and specificity 100% and 99.9% respectively.[18] Data was analysed using SPSS 21. Descriptive statistics were calculated for all variables. Continuous variables, like age, gestational age, gravidity, parity and number of abortions, was presented as mean ± standard deviation. Categorical variables, like residence, education level, socioeconomic status (SES), history of any dental procedure, history of any surgical procedure, frequent use of injectable, described as use of IV or intramuscular (IM) injections twice a month, use of condoms and family history of HIV/AIDS, marital status, patient's and partner's occupation, extra-marital relationship, blood transfusion in the preceding 5 years,

drug abuse via oral, inhalational or IV mode, and the presence of HIV, were presented as frequencies and percentages. Stratification was done on the basis of HIV results. To determine the association, chi-square test was applied. P≤0.05 was taken as significant.

Results

Of the 17,064 antenatal patients, 3402(20%) were randomly sent to chamber of the principal investigator, and, of them, 800(23.5%) who met the inclusion criteria were offered antenatal testing for HIV, and 642(80.2%) of them comprised the study sample (Figure).

The overall mean age of the sample was 25.80±4.91 years (range: 16-40 years), with 201(31.3%) aged 21-24 years and 198(30.8%) aged 25-28 years, while 640(99.7%) subjects were married and 2(0.3%) were unmarried. The mean gestational age was 24.34±5.38 weeks (range: 14-36 weeks). 458 out of 642 (71.3%) patients included in the study were housewives, 103 patients (16%) were household workers whereas 81 (12.6%) patients were teachers. Most of the patient's partners i.e. 175 out of 642 (27.2%) were road venders followed by shopkeepers 154(23.9%), drivers 150(23.3%), medical technicians 38 (6%) and teachers 91(14.1%). 34 out of 642 (5.2%) of the

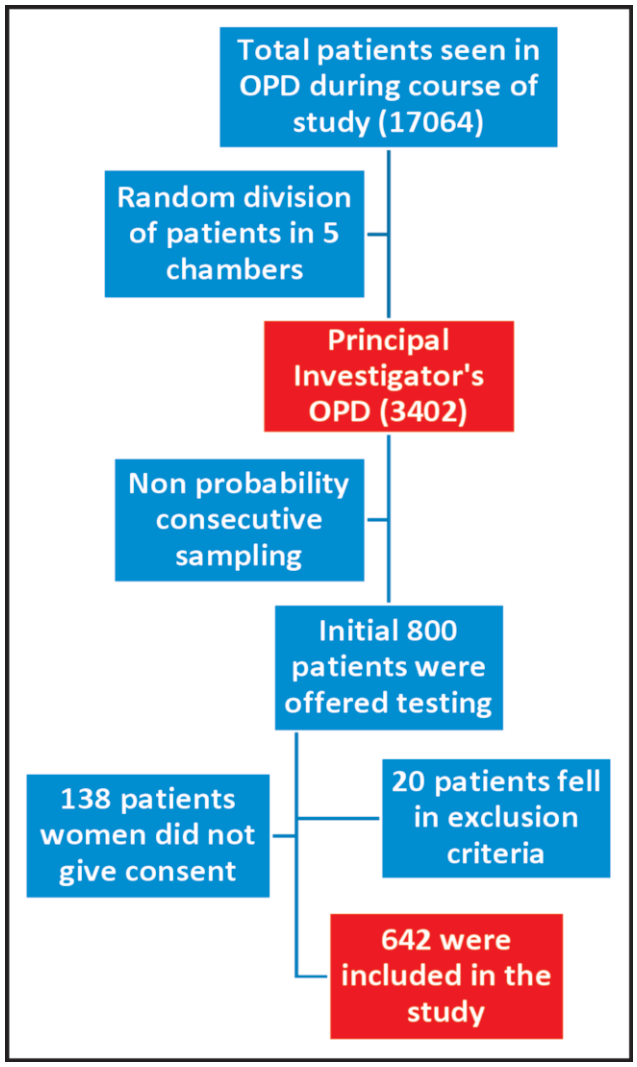

Figure: Study flowchart.

Table: Association of human immunodeficiency virus (HIV) with other variables.

Variables	Patient's HIV result	Yes	No	Total	p-value
Patient's age in years	16-20	0	45	45	0.814
	21-24	0	201	201	
	25-28	1	197	198	
	29-32	0	111	111	
	33-36	0	66	66	
	37-40	0	21	21	
Marital status of patients	Married	1	639	640	0.955
	Unmarried	0	2	2	
Patient's occupation	Housewife	1	457	458	0.818
	Household worker	0	103	103	
	Teacher	0	81	81	
Patient's partner's occupation	Unemployed	0	34	34	0.750
	Driver	0	150	150	
	Shopkeeper	0	154	154	
	Road vender	1	174	174	
	Medical technician	0	38	38	
	teacher	0	91	91	
Patient's residence	Urban	0	298	298	0.352
	Rural	1	343	344	
History of any surgical procedure	Yes	0	157	157	0.569
	No	1	484	485	
History of frequent injections (twice a month)	Yes	0	90	90	0.686
	No	1	551	552	
Patient's education	Illiterate	1	217	218	0.856
	Primary	0	234	234	
	Secondary	0	105	105	
	Intermediate	0	39	39	
	Undergraduate	0	17	17	
	Postgraduate	0	29	29	
Patient's socioeconomic status	Low	1	442	443	0.799
	Middle	0	145	145	
	Upper	0	54	54	
History of extramarital relationship	Yes	0	2	2	0.955
	No	1	639	640	
Frequency of condom use	Yes	0	64	64	0.739
	No	1	577	578	
History of blood transfusion	Yes	1	253	254	0.216
	No	0	388	388	
History of drug abuse	Yes	1	64	65	0.003
	No	0	577	577	
Family history of HIV	Yes	1	4	5	0.000
	No	0	637	637	

P value < 0.005.

patient's partners were unemployed. A total of 344 out of 642 (53.6%) patients belonged to rural areas whereas 298 (46.4%) patients belonged to urban areas. In all 157 out of 642 patients gave history of any dental or surgical procedure whereas 485 (75.5%) patients gave no history of any dental or surgical procedure. Ninety out of 642 (14%) patients gave history of frequent use of injections whereas 552 out of 642 (86%) patients gave no history of frequent use of injections.

The study included 234 (36.4%) patients with primary education, 218 (34%) were illiterate, 105(16.3%) acquired secondary education, 39 (6%) had qualified intermediate education. A total of 17 (2.6%) patients were undergraduates and 29 (4.5%) were postgraduates. Of the 642 patients, 443 (69.0%) belonged to low socioeconomic class, 145 (22.6%) to middle class and 54 (8.4%) to the upper class .Two out of 642 (0.3%) patients had extramarital relationships.

Condoms were used by 64 (10%) patients, 254(39.6%) gave a history of blood transfusion in the last 5years and 65 (10.1%) patients were drug abusers. Five of 642 (0.7%) patients had a family history of HIV with one out of 642 (0.2%) showing a positive result for HIV.

There was significant association of HIV with family history of HIV and with history of drug abuse (Table).

Discussion

The current study found 0.2% HIV prevalence among pregnant women. Family history of HIV was positive in 5 of 642 patients. A national study with 5,263 pregnant women also showed the prevalence figures of HIV to be 0.2%,[19] and family history was positive in 1 out of 5,263 patients.

The current study showed significant positive association of HIV with family history of HIV and history of drug abuse, which is similar to the results of other national studies.[9,19]

HIV infection during pregnancy can have serious consequences on maternal and foetal outcome.[20,21] Attempts for prevention and management of HIV and PMTCT can reduce maternal and perinatal morbidity and mortality.[22] Prompt treatment and providing pregnant women access to HIV testing can result in the reduction of adverse pregnancy outcomes because of HIV.[23] HIV is an epidemic in Pakistan and there is a threat of its expanded outbreak because of lack of awareness, taboo associated with it, and lack of testing facilities.[24] Majority of the pregnant women have poor knowledge regarding HIV, its prevention and transmission. It is, therefore, important to provide knowledge regarding HIV and MTCT, and to simultaneously know the HIV status when women visit antenatal clinics.[25]

The current study has limitations as it was conducted at a single centre for a short duration with a small sample size.

A national study regarding HIV prevalence is required for general antenatal population. HIV screening should be carried out in routine at the time of antenatal booking, especially in the high-risk population.

Conclusion

Screening of HIV during the antenatal period is a useful tool to diagnose HIV-positive women as this might be the only time a woman visits hospital owing to the local socio-cultural restraints. A detailed history is required to identify a high-risk individual by maintaining strict confidentiality and an empathic attitude. Screening of HIV will further lead to the provision of optimum treatment to HIV-positive women, leading to decreased ratio of vertical transmission. Hence, its transmission and spread can be prevented.

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