

Prevalence of sexually transmitted infections in HIV positive and HIV negative females, in a tertiary care hospital - An observational study

Dimple Chopra, Ivy Sandhu, RK Bahl, Ruby Bhatia, Anupama Goyal
Department of Dermatology, Government Medical College, Patiala, Punjab, India

Address for correspondence:

Dr. Dimple Chopra, 27, Bank Colony, Patiala, Punjab, India, E-mail: drdimplechopra@gmail.com

Abstract

The presentation and course of Sexually transmitted diseases (STI) may be altered by presence of coexisting HIV status. Aim of the study was to study the prevalence of STI in 50 females with HIV infection and 50 females without HIV infection and to study the pap smear of patients to look for any cellular changes (dysplasia) due to sexually transmitted infections. **Material and Methods:** The present study was an observational study, which was undertaken on 100 females with STIs (50 females with coexistent HIV infection and 50 females without HIV infection), in the age group 15-49 years attending Skin and VD OPD of Rajindra hospital, Patiala. **Results:** In our study, the commonest presenting complaint in case of both HIV positive (66%) and HIV negative (80%) women was vaginal discharge. PAP smear abnormalities were present in 28 (56%) HIV positive women and 11 (22%) HIV negative women. In case of HIV positive women, the inflammation was trichomonal in 4 (8%), bacterial in 2 (4%), fungal in 2 (4%) and non-specific in 20 (40%) patients. In HIV negative women, the inflammation was trichomonal in 2 (4%) patients, bacterial in 2 (4%) patients and non-specific in 7 (14%) patients. The difference in abnormality seen in PAP smear between HIV positive and HIV negative women is statistically significant only in case of non-specific inflammation which is more common in case of HIV positive women. **Conclusion:** From the present study, it was concluded vaginal discharge was the commonest presenting complaint in both HIV positive and HIV negative women, though the commonest cause of vaginal discharge was candidiasis in HIV positive females and bacterial vaginosis in HIV negative females. Also, PAP smear abnormalities were significantly higher in HIV positive women than HIV negative women. So it is important that HIV positive women should have complete gynecological evaluation including a PAP smear with aggressive screening of STIs.

Key words: HIV seronegative, HIV seropositive, observational study, PAP smear, sexually transmitted infections

INTRODUCTION

RTIs are defined as any infection of the reproductive system. They include STIs and also other infections of the reproductive system that are not caused by

sexual contact. STIs are infections transmitted from person to person by sexual contact.^[1]

HIV infection, as a global pandemic has very significantly affected the approach to treatment of sexually transmitted infections, as the most important mode of HIV transmission is heterosexual and the sexually transmitted infections play a facilitative role in the acquisition and transmission of HIV. Also the natural history, manifestations and treatment of classic STDs may be altered by concurrent HIV infection.^[2] Women are more susceptible to STIs during sexual intercourse because the vaginal surface

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is larger and more vulnerable to sexual secretions than the primarily skin-covered penis in men. Sexually transmitted infections (STI) have been associated with a number of adverse pregnancy outcomes including spontaneous abortion, stillbirth, prematurity, low birth weight (LBW), postpartum endometritis, and various sequelae in surviving neonates.^[3] STIs, including HIV, are believed to be of particular importance in determining pregnancy outcome in the developing world because the prevalence of infection is so high.^[4]

MATERIALS AND METHODS

The present study was an observational study, conducted at STI clinic of Skin and VD department and Obstetrics and Gynaecology department of Rajindera Hospital, Patiala during July 2011 to June 2012. Consecutive 50 female patients with coexistent HIV infection and 50 female patients without HIV infection, having sexually transmitted illnesses were included in the study. They were in the age group of 15-49 years. The aim was to study the prevalence of sexually transmitted infections in them and to study their PAP smears to look for any cellular changes (dysplasia) due to sexually transmitted infections. In each case detailed history, thorough physical examination and various laboratory investigations – microbiological, cytological and haematological, were carried out.

Microbiological tests

- I. Wet mount (KOH wet mount for *Candida* and/or normal saline wet mount for BV and *T. vaginalis*): Specimens for wet smear examination were taken from the posterior fornix with a sterilized cotton swab which was mixed with a drop of normal saline or KOH, taken on a clean glass slide. A cover slip was mounted on the glass slide and the wet film was examined immediately under microscope. Vaginal secretions were also used for making the wet smear
- II. Gram's staining: Smears were prepared from the swabs and were stained with Gram's Method. These smears were examined under oil immersion lens
 - *Candida albicans* – pseudohyphae with budding yeast cells
 - *Gardnerella vaginalis* – clue cells
 - *Neisseria gonorrhoeae* – Gram negative intracellular diplococci
 - *Haemophilus ducreyi* – gram negative bacilli in a 'school of fish' appearance.
- III. Whiff test for Bacterial vaginosis: By adding a small amount of KOH to a microscopic slide containing the vaginal discharge, characteristic fishy odor was considered a positive Whiff test.

Cytological tests

- Pap smear: Was done in all cases to study cellular changes due to various STIs and neoplasia. Women who had a cytological diagnosis of high-grade SIL or squamous cell carcinoma were referred to Gynecology department to undergo colposcopy-directed biopsy
- Tzank smear: Was done in suspected cases of Herpes simplex virus infection to look for multinucleated giant cells.

Blood tests

5ml of blood was collected in sterilized containers for performing following tests:

- HIV antibody test was done in all cases
- VDRL/RPR test for syphilis was done for all cases.

After diagnosing the women with STIs, they were encouraged to bring their sexual partners for diagnosis and treatment of sexually transmitted diseases and providing counseling services for both.

Observations

The commonest presenting complaint in case of both HIV positive (66%) and HIV negative (80%) women was vaginal discharge, followed by genital ulcer (16% HIV positive and 8% HIV negative women), genital growth (14% HIV positive and 8% HIV negative women), other complaints like vulval itching (4% HIV negative women) and mixed complaints (4% HIV positive women), in that order [Table 1]. In HIV positive women, the most common cause of vaginal discharge came out to be candidiasis which was seen in 16 patients (32%), followed by trichomoniasis in 6 patients (12%), bacterial vaginosis in 4 patients (8%), mixed infection in 4 patients (8%) and gonorrhoea in 3 patients (6%). In HIV negative women, the most common cause of vaginal discharge came out to be bacterial vaginosis, which was seen in 14 patients (28%), followed by candidiasis in 11 patients (22%), trichomoniasis in 9 patients (18%), mixed infection in 5 patients (10%)

Table 1: Distribution according to the presenting complaint

Complaint	No. of HIV positive women	No. of HIV negative women	P	Significance
Vaginal discharge	33 (66%)	40 (80%)	0.4126	NS
Genital ulcer	8 (16%)	4 (8%)	0.2482	NS
Genital growth	7 (14%)	4 (8%)	0.3657	NS
Others	-	2 (4%)	0.1573	NS
Mixed	2 (4%)	-	0.1573	NS
Total	50	50		

and gonorrhoea in 1 patient (2%). Difference in the cause of vaginal discharge, between both the groups, was statistically significant only in case of bacterial vaginosis, which was significantly more in case of HIV negative women [Table 2].

A total of 8 (16%) HIV positive women and 4 (8%) HIV negative women had genital ulcers. Herpes genitalis was the cause of genital ulcers in 5 (10%) HIV positive women and 3 (6%) HIV negative women, followed by syphilis which was the cause in 3 (6%) HIV positive women and 1 (2%) HIV negative women. The difference in HIV positive and HIV negative women is not statistically significant as far as the causes of genital ulcers are concerned [Table 3]. 7 (14%) HIV positive women and 4 (8%) HIV negative women presented with genital growths. The cause of genital growth in HIV positive women was warts in 4 (8%) patients and molluscum in 3 (6%) patients. The cause of genital growth in HIV negative women was warts in 2 (4%) patients and molluscum in 2 (4%) patients [Table 4]. As shown in Table 5, PAP smear abnormalities were present in 28 (56%) HIV positive women and 11 (22%) HIV negative women. This is statistically highly significant, with high number of HIV positive women having PAP smear abnormalities as compared to HIV negative women. The abnormality seen in

PAP smear in both HIV positive and HIV negative women was inflammation. In case of HIV positive women, the inflammation was trichomonal in 4 (8%), bacterial in 2 (4%), fungal in 2 (4%) and non-specific in 20 (40%) patients. In HIV negative women, the inflammation was trichomonal in 2 (4%) patients, bacterial in 2 (4%) patients and non-specific in 7 (14%) patients. No patient showed dysplasia or atypical squamous cells on PAP smear. The difference in abnormality seen in PAP smear between HIV positive and HIV negative women is statistically significant only in case of non-specific inflammation, which are significantly more common in case of HIV positive women as shown in Table 5.

DISCUSSION

Vaginal discharge

In our study, 66% HIV positive women and 80% HIV negative women came with vaginal discharge as their presenting complaint in accordance with the study conducted by Sharma *et al*^[5] where 64% HIV positive women and 78% HIV negative women had vaginal discharge.

According to our study, the most common cause of vaginal discharge in HIV positive women was candidiasis (which was seen in 32% patients),

Table 2: Distribution according to the cause of vaginal discharge

Cause of vaginal/ cervical discharge	No. of HIV positive women with discharge (%)	No. of HIV negative women with discharge (%)	P	Significance
Candidiasis	16 (32)	11 (22)	0.3359	NS
Gonorrhoea	3 (6)	1 (2)	0.3173	NS
Trichomoniasis	6 (12)	9 (18)	0.4386	NS
Bacterial vaginosis	4 (8)	14 (28)	0.0184	S
Mixed	4 (8)	5 (10)	0.7389	NS
Total	33 (66)	40 (80)		

Table 3: Distribution of patients according to the cause of genital ulcer

Cause of genital ulcer	No. of HIV positive women with ulcer (%)	No. of HIV negative women with ulcer (%)	P	Significance
Herpes progeneralis	5 (10)	3 (6)	0.4795	NS
Syphilis	3 (6)	1 (2)	0.3173	NS
Chancroid	-	-	-	-
Granuloma inguinale	-	-	-	-
LGV	-	-	-	-
Total	8 (16)	4 (8)		

Table 4: Distribution of patients according to the cause of genital growth

Cause of genital growth	No. of HIV positive women with growths (%)	No. of HIV negative women with growths (%)	P	Significance
Genital warts	4 (8)	2 (4)	0.4142	NS
Genital molluscum	3 (6)	2 (4)	0.6547	NS
Total	7 (14)	4 (8)		

Table 5: Pap smear examination report

Smear results	No. of HIV positive women	No. of HIV negative women	P	Significance
Normal smear	22 (44%)	39 (78%)	0.0295	S
Inflammation	28 (56%)	11 (22%)	0.0065	HS
Trichomoniasis	4 (8%)	2 (4%)	0.4142	NS
Bacterial	2 (4%)	2 (4%)	1	NS
Fungal	2 (4%)	-	0.1573	NS
Nonspecific	20 (40%)	7 (14%)	0.0124	S
Dysplasia	-	-		
Atypical squamous cells	-	-		
Total	50	50		

followed by trichomoniasis (12%), bacterial vaginosis (8%), mixed cause (8%) and gonorrhoea (6%), in that order. This is in close agreement with the study conducted by Sharma *et al.*^[7] where the most common cause of vaginal discharge in HIV positive women came out to be candidiasis (34%). Other causes included trichomoniasis (12%), mixed cause (10%), bacterial vaginosis (5%) and gonorrhoea (3%), in that order. Also, the results of our study comply with the study conducted by Oyewole *et al.*^[8] where also the most common cause of vaginal discharge came out to be *C. albicans* (77%).

In our study in case of HIV negative women, it was seen that the most common cause of vaginal discharge was bacterial vaginosis (28%). This was followed by candidiasis (22%), trichomoniasis (18%), mixed cause (10%) and gonorrhoea (2%) in compliance with the study conducted by Oyewole *et al.*^[8] where the most common cause of vaginal discharge in HIV negative women also came out to be bacterial vaginosis (40%), which was followed by *C. albicans* (20%) and trichomoniasis (2%). However in the study conducted by Sharma *et al.*^[7] the most common cause of vaginal discharge in HIV negative patients was candidiasis (37.5% patients), followed by trichomoniasis (18.75%), mixed cause (9.37%), bacterial vaginosis (9.37%) and gonorrhoea (3.13%).

Genital ulcer

In our study, 16% HIV positive women and 8% HIV negative women presented with genital ulcers comparable to the study conducted by Sharma *et al.*^[7] where 12% HIV positive women and 6.25% HIV negative women had genital ulcers.

In the present study, in case of HIV positive women, the most common cause of genital ulcer was herpes genitalis (10% patients). This was followed by syphilis which was the cause in 6% women in agreement with the study conducted by

Sharma *et al.*, where 11% ulcers in case of HIV positive women were caused by herpes simplex virus, followed by 2% cases of genital ulcers caused by syphilis. However, in a study conducted by Bersoff-Matcha *et al.*^[7] both herpes genitalis and syphilis accounted for 6% cases each.

Also, in the present study in case of HIV negative women, genital ulcers were most commonly caused by herpes simplex virus (6%), followed by syphilis (2%). In case of study conducted by Sharma *et al.*^[7] all the cases of genital ulcer were due to herpes simplex virus, and no case of syphilis was seen. However, in a study conducted by Mohanty *et al.*^[8] herpes genitalis and syphilis were seen in 21.89% and 16.27% patients with STDs, respectively.

Genital growth

In the present study, 14% HIV positive women and 8% HIV negative women presented with the complaint of genital growths.

In case of HIV positive women, the cause of genital growths was warts in 8% patients and genital molluscum in 6% patients. This is comparable to the study conducted by Sharma *et al.*^[7] where 10% HIV positive women had genital warts, though none of the patients had genital molluscum. However in the study conducted by Bersoff-Matcha *et al.*^[6] 12.7% HIV positive patients with STIs/RTIs had genital warts.

In the present study, in case of HIV negative women, both warts and molluscum constituted 4% cases each, of patients with STIs/RTIs. However, in the study conducted by Bersoff-Matcha *et al.*^[6] 10.2% HIV negative women with STIs had warts, while none of the HIV negative patients in the study conducted by Sharma *et al.*^[7] had genital warts or molluscum.

In our study both genital warts and genital growths came out to be almost equally important causes of genital growths in both HIV positive and HIV negative women.

Other STIs/RTIs

In our study, it was seen that 2% HIV negative women had genital scabies and 2% HIV negative women with STIs/RTIs had pediculosis pubis. No study was found to compare the results of our study.

Pap smear abnormalities

In our study, abnormal PAP smear was seen in 28% HIV positive women and 22% HIV negative women.

These percentages are very less as compared to those obtained in other studies. In a study conducted by Sharma *et al.*,^[7] especially in case of HIV positive women, 64% women had abnormal PAP smears, while comparatively just 31% HIV negative women in their study had some abnormality in PAP smear. In another study conducted by Seethalakshmi *et al.*,^[9] 58.8% HIV positive women and 43.75% HIV negative women had PAP smear abnormalities.

In our study, in case of HIV positive women 64% had abnormal PAP smear. All the abnormal smears (64% cases) showed inflammation only. No evidence of dysplasia or atypical squamous cells or malignant cells was seen in any patient. The cause of inflammation was non-specific in 40% cases. But in 8% women the cause came out to be trichomonal, in 4% women bacterial and 4% women fungal cause. However, in the study conducted by Sharma *et al.*^[7] inflammation was seen in 55% cases which was non-specific in 44% cases, trichomonal in 8% cases and fungal in 1% case. However, in their study, additionally 5% cases showed dysplasia and 3% cases had atypical squamous cells.

In the present study, in case of HIV negative women, 22% patients with STIs/RTIs had abnormal PAP smear and all these cases showed inflammation only. The cause of inflammation was non-specific in 14% cases, trichomonal in 4% and bacterial in 4% cases. In the study conducted by Sharma *et al.*,^[7] inflammation was seen in 28% cases, which was non-specific in 23% cases, trichomonal in 3% cases, fungal in 2% and bacterial in 1%. Cervical dysplasia was seen in 3% cases.

CONCLUSION

It was concluded that vaginal discharge was the commonest presenting complaint in both HIV positive and HIV negative women (candidiasis in HIV positive females and bacterial vaginosis in HIV negative females). It was followed by genital

ulcer (most commonly due to HSV, followed by syphilis), genital growth (warts and molluscum) and other complaints, in that order.

Also, PAP smear abnormalities were significantly higher in HIV positive women than HIV negative women. Hence it is important that HIV positive women should have complete gynecological evaluation including a PAP smear with aggressive screening of STIs.

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