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Original Research Article

A study of prevalence of lower genital tract infections in HIV positive females - a cross sectional study

Jaishree Bamniya*, Pooja Singh, Anuradha Deora, Mili Markan, Himanshu Shah

Department of Obstetrics and Gynecology, GCS Medical College, Ahmadabad, Gujarat, India

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***Correspondence:**
Dr. Jaishree Bamniya,
E-mail: jaishreeskumar@yahoo.in

ABSTRACT

Background: The aim and objectives of the study was to determine the prevalence of lower genital tract infection (LGTI) with Candida spp, Trichomonas vaginalis, Neisseria gonorrhoeae, Chlamydia trachomatis, and bacterial vaginosis among symptomatic and asymptomatic women HIV seropositive females and control group attending gynec clinic.
Methods: This cross-sectional descriptive study stratified by reported symptoms of vaginal discharge was carried out at STD Clinic, Zenana Hospital with approval from Hospital Ethics Committee and informed written consent from patients. 50 HIV seropositive women and 50 control patients were included in the study. All the patients under study were subjected to Grams staining of the vaginal smear, Pap smear and Colposcopy. HPV DNA testing was done in all HIV positive patients in control group only patients showing dyskaryotic changes on cytology were subjected to colposcopy. All HIV seropositive women were subjected to additional tests of CD 4 and CD 8 cell counts.
Results: Prevalence of lower genital tract infections was high in HIV positive women (36%) as compared to HIV negative group (24%). Prevalence was significantly higher in HIV positive patients with CD 4 cell count less than 200 per microlitre that is 77.77 % with P value (0.007) which is highly significant statistically. More prevalence of Herpes (38%) Candidiasis (28%), Trichomoniasis (28%), followed by HPV (22%) and Chlamydia (8%). In control group, bacterial vaginosis is most common with co-infection with trichomoniasis.
Conclusions: In lower genital tract infections, vaginal eco-system is altered. It increases risk of infection by opportunistic pathogens when the host defences became impaired. HIV positive females showed more prevalence of Herpes (38%) Candidiasis (28%), Trichomoniasis (28%), followed by HPV (22%) and Chlamydia (8%). In control group patients with bacterial vaginosis was most common along with co-infection with trichomoniasis. HIV positive females have more dyskaryotic changes on colposcopy especially in patients with HPV positive. So HPV test should be mandatory in HIV patients to diagnose Carcinoma cervix at its initial stages.

Keywords: Colposcopy, CD4 cell count, Gram stain**,** HIV, Lower genital tract infections

INTRODUCTION

Vagina has a dynamic ecosystem**.** Susceptibility to lower genital tract infections is due to several physiologic factors in reproductive-age women, including the condition of the epithelial lining of the lower genital tract, the menstrual-cycle phase, and changes associated with pregnancy and contraceptive use.[1] Most of these lower genital tract infections are caused by sexually transmitted diseases, such as Chlamydia trachomatis and Neisseria gonorrhoea.

Other common LGTI are Candidiasis, Trichomoniasis, Herpes, HPV and Bacterial vaginosis. Women also bear a

disproportionate burden of the adverse sequelae of these infections, such as pelvic inflammatory disease (PID), ectopic pregnancy, and chronic pelvic pain. In addition, recent studies have repeatedly shown an association between the presence of lower genital tract infections and increased acquisition and transmission of HIV.[2]

METHODS

This study was conducted in 50 HIV positive and 50 control patients at STD Clinic Zenana hospital in collaboration with STD department of S.M.S Medical College.

Inclusion criteria

- Diagnosed cases of HIV
- Women in reproductive age group i.e. between 20-45
- Women with complaints of vaginal discharge, pain lower abdomen, burning, itching vulva, dyspareunia, backache
- Women having multiple sexual partners

Exclusion criteria

- Any patient with bleeding per vaginum
- Pregnant females
- Postmenopausal females
- Diagnosed cases of Carcinoma Cervix
- Patients having Prolapse Uterus
- Patients who have used vaginal pessary or douche in last 4-5 days

All the patients were subjected to detailed clinical history on predesigned proforma, Examination, Pap's smear, Grams smear of vagina, Colposcopy, HPV DNA testing, HIV ELISA and CD 4/CD8 ratio in HIV positive patients.

Candidiasis is diagnosed by microscopic detection of budding yeast or pseudohyphae in vaginal secretions. Method used for detection of Trichomonas vaginalis was culture. Bacterial vaginosis was diagnosed by Amsel criteria. At least three of the four criteria should be present for the diagnosis to be confirmed.

(1) Homogeneous adherent discharge
(2) Vaginal fluid pH greater than 4.5
(3) Amine odour
(4) Clue cells.

A diagnosis may also be made by detecting the replacement of lactobacilli by a mixed presumably anaerobic flora. This was accomplished by examining Gram stain of vaginal fluid. Herpes was clinical diagnosis and HPV diagnosed by HPV nucleic acid detection kit and that only in HIV positive patients as it is a costly test. Control group was not subjected to HPV test.

RESULTS

Maximum number of patients were in the age group of 21 to 30 years with 60% in HIV positive (Group A) and 44% in the control group (Group B). It shows that most of the women were sexually active.

Table 1: Distribution of cases according to age.

Age (in yrs)	Group A HIV positive women (n=50)		Group B Control group (n=50)	
	No.	%	No.	%
<20	2	4	6	12
21-30	30	60	22	44
31-40	15	30	17	34
>40	3	6	5	10
Total	50	100	50	100

Table 2: Distribution of patients according to LGTI.

LGTI	Group A HIV positive women (n=50)		Group B Control group (n=50)	
	No.	%	No.	%
Candidiasis	15	30	10	20
Human pappiloma virus	11	22	-	-
Trichomoniasis	14	28	12	24
Bacterial vaginosis	18	36	12	24
Chlamydia	4	8	5	10
Herpes	19	38	1	2

In our study it was found that in HIV positive group Herpes (38%) was most prevalent infection followed by Candidiasis (30%) and Trichomoniasis (28%). In control group Trichomoniasis and Bacterial vaginosis was most prevalent (28%). None of the patients in Control group were subjected to HPV testing.

Table 3: Distribution of patients according to cytology.

Cytology findings	Group A HIV positive women (n=50)		Group B Control group (n=50)	
	No.	%	No.	%
NAD	12	24	19	38
Inflammatory	29	58	28	56
Koilocytic and dyskaryotic	9	18	3	6
Total	50	100	50	100

The high prevalence of Koilocytosis and Dyskaryosis was probably due to high prevalence of HPV (22%)

infection in HIV positive group. In control group only 3 patients who showed dyskaryotic changes on cytology were subjected to colposcopy. Out of 3, one had Grade I changes and two cases had Grade II changes.

Table 4: Distribution of patients according to colposcopic findings.

Colposcopic findings	Group A HIV positive women (n=50)		Group B Control group (n=50)	
	No.	%	No.	%
NAD	25	50	-	0
Grade I	17	34	1	2
Grade II	5	10	2	4
Grade III	3	6	-	
Total	50	100	3	6

Table 5: Distribution of patients according to absolute CD4 cell count.

Absolute CD4 cell count	Group A HIV positive women (n=50)	
	No.	%
>500	7	14
200-499	18	36
<200	25	50
Total	50	100

DISCUSSION

In present study HIV positive patients showed more prevalence of Herpes (38%) Candidiasis (28%), Trichomoniasis (28%), followed by HPV (22%) and Chlamydia (8%). In control group patients with bacterial vaginosis most common co-infection was of Trichomoniasis. This correlate well with study done in STD clinic in Seattle in which 75% of women with trichomoniasis also had bacterial vaginosis compared with 47% of women without trichomoniaisis (P <0.001).[3]

Uvin C et al in his study found a prevalence of Trichomoniasis in 9.4% - 29.5% of HIV positive and 8.2%-23.4% of HIV negative females.[4]

Helfgott A et al found that difference of frequency of prevalence of Trichomoniasis in HIV positive and HIV negative group was significant (P=0.015, OR, 9.5; 95%CI, 1.6%, 54.9%). HPV was prevalent in 8.4% of HIV positive and 7.1% of HIV negative women. Study showed a high prevalence of Chlamydia in HIV negative (P=0.0001).[5]

Riordan et al reported Candida albicans and bacterial vaginosis occurred in 22-26% of women with vaginal discharge. 72% of women with vaginal pH 4.5 have trichomonas and/or clue cells compared with 15% of those with normal pH. Cervicitis or cervical contact bleeding was associated with trichomonas. Candida, but not clue cells, was linked with vaginal inflammation. N. gonorrhoea was isolated from 12 women (2.4%), 10 of whom has symptoms.[6]

Minkoff et al reported that HIV positive were 3.4 times more likely to have HPV infection as compared to general population (P<0.001, 95% CI, 3.13%-4.88%).[7] Landers et al in a study of 598 women reported bacterial vaginosis in 276 (46%), vaginal yeast (29%), Trichomoniasis (12%) and Chlamydia (11%).The most prevalent co-infection was Bacterial vaginosis with Trichomoniasis.[8] In present study in both groups cytology showed inflammatory smear in maximum no. of cases i.e. HIV positive (58%) and control group (54%). 7 patients (14%) in HIV positive and 3 cases (6%) in control group had koilocytosis and dyskaryotic changes.

Alison et al reported HIV-infected women are significantly more likely than HIV-uninfected women to have incident and persistent HPV cervical infections and to develop incident precancers such as squamous intraepithelial lesions (SIL) including high-grade SIL (HSIL). Among HIV-infected women, the incidence of HPV infection and SIL increases with lower $CD4^+$ T-cell count (CD4). This high prevalence was probably due to high prevalence of HPV (22.22%) infection in HIV positive female.[9]

Measurement of vaginal pH in the clinic is the single most useful clinical finding for directing empirical therapy. These results suggest that women with high pH could be given metronidazole before laboratory confirmation; that bacterial infection can be diagnosed by vaginal discharge, high pH and clue cells; that cervical swabs are more accurate than vaginal swabs for determining trichomonas; and that cervical smears for cytology are equally good for trichomonas; and that the high prevalence of gonococci justifies use of a culture medium that will also support growth of Candida.[10]

CONCLUSION

In lower genital tract infections, vaginal eco-system is altered. It increases risk of infection by opportunistic pathogens when the host defences becomes impaired**.**

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HIV positive females showed more prevalence of Herpes (38%) Candidiasis (28%), Trichomoniasis (28%), followed by HPV (22%) and Chlamydia (8%). In control group patients bacterial vaginosis was most common

along with co- infection with Trichomoniasis. HIV positive females have more dyskaryotic changes on colposcopy especially in patients with HPV positive. So HPV test should be mandatory in HIV patients to diagnose Carcinoma cervix at its initial stages. All LGTIs should be promptly treated to reduce the burden of complications due to these infections.

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