

Screening of human immunodeficiency virus positive women for abnormal cell cytology by Pap smear

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Human immuno deficiency virus (HIV) infection is emerging as a major public health problem in developing countries like India. The rate of cervical human papilloma virus (HPV) infection and cervical intra-epithelial neoplasia (CIN) have clearly increased in HIV positive women.¹ Although there are various methods for screening precancerous cervical lesion, Pap smear is still the most common, particularly in developing countries.² Pap smear is widely accepted as an effective screening method for cervical lesion, and in this context this study was carried out to find out the prevalence of abnormal cell cytology in HIV positive women attending the antiretroviral therapy (ART) clinic at a tertiary care hospital.

The study was conducted on 55 HIV positive women attending the ART Clinic of Jawaharlal Nehru Medical College and Hospital, Aligarh Muslim University, Aligarh, Uttar Pradesh, India from April to July 2009 after obtaining ethical approval from the institute. This study was a prospective observational type. After obtaining consent, the women underwent history examination including the per speculum and per vaginum examination. Baseline investigations like hemogram, CD4 cell count, liver function tests (LFT), renal function test (RFT), Venereal Disease Research Laboratory (VDRL), and hepatitis B surface antigen were carried out in every HIV positive women reporting to the ART Clinic. Cervical scrape cytology was obtained by conventional method for the first time, and the slides were sent to the cytology section of the Pathology Department. All HIV positive women, irrespective of the stage of the disease, and irrespective of regimen, or highly active antiretroviral therapy (HAART) were included in the study. Women who had history of hysterectomy, proven carcinoma cervix, cryotherapy, conization, and loop electrosurgical excision procedure were excluded. Smears were analyzed according to dysplasia/CIN system. The Chi square test was used to analyze the data.

The age of women ranged between 15-55 years, and the mean age was 34.1 (Table 1). Most women in our study had heterosexual mode of transmission (72.7%), and 63.63% of these women were receiving HAART (Table 1). There was no statistical significance regarding

abnormal cell cytology when demographic characters like age, mode of transmission, CD4 cell count, and HAART were taken into account ($p>0.05$) (Table 1). Pap smear examination revealed 7 women have normal smear, 39 women with inflammatory smear, and 9 women (16.6%) had abnormal cell cytology (one [1.8%] had squamous atypia, 6 [10.9%] had CIN I, and 2 (3.6%) had CIN II (Table 1). The down staging per speculum findings is shown in Table 2.

The HIV infection is a major public health problem in India, and women are at increased risk of infection due to heterosexual mode. The HIV positive women are at greater risk of developing CIN and invasive cancer, which tends to be more progressive and aggressive compared with HIV negative counter parts.³ A recent study showed that the regression of CIN was twice

Table 1 - Demographic characteristics and Pap smear results in human immuno deficiency virus positive women (N=55).

Characteristics	Smears, n			P-value
	Normal	Inflammatory	Abnormal*	
<i>Age (years)</i>				>0.05
15-35	5	20	5	
>35-55	2	19	4	
<i>Modes of infection</i>				>0.05
Heterosexual	5	29	6	
Others	2	10	3	
<i>CD4 cell count/ mm³ of blood</i>				>0.05
>200	4	13	4	
<200	3	26	5	
<i>Anti retroviral therapy (HAART)</i>				>0.05
Yes	4	24	7	
No	3	15	2	

*squamous atypia - 1 patient, cervical intra-epithelial neoplasia (CIN I) - 6 patients, CIN II - 2 patients

Table 2 - Number of women according to down staging per speculum findings (N=55).

Speculum findings	n (%)	
Normal	26	(47.3)
Erosion	17	(30.9)
Hypertrophy	16	(29.1)
Prolapse	2	(3.6)
Bleeding per vaginum on touch	3	(5.5)
Prolapse with erosion	1	(1.8)
Erosion with hypertrophy	7	(12.7)
Erosion with bleeding per vaginum on touch	1	(1.8)
Hypertrophy with bleeding per vaginum on touch	1	(1.8)

as high in women receiving HAART compared with women not receiving it,⁴ and in the present study, 63.6% of HIV positive women were receiving HAART, which might be the reason for the CIN to regress. Previous studies have demonstrated that the amount of CD4 cell count is a significant predictor for developing CIN,^{5,6} however, in our study we are unable to determine the effect of CD4 cell count on the underlying pathology due to the small sample size.

This study has limitations like the small sample size, short duration of study, no follow up for colposcopy, however despite this, the present study showed a high prevalence of abnormal cervix on visual inspection and abnormal cell cytology on Pap smear examination.

Women with abnormal cell cytology on Pap Smear and unhealthy cervix on down staging should be counseled for follow up Pap smear, colposcopy, and for cervical biopsy, if necessary. In addition, the associated factors for abnormal Pap smear in HIV infected women should be further studied to avoid false results.

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