

A Study on Cervical Pap Smear Examination in Patient Living with HIV.

Dr. Devanshi Gosai^{1*}, Dr. Varsha Dhuliya², Dr. Monika Kohli³, Dr. Hansa Goswami⁴

^{1, 2} Third year resident, ³ Associate professor, ⁴ Professor and Head, Department of Pathology, B.J. Medical college, Ahmedabad

Abstract:

Background: Extensive screening programme of cervical Pap smear examination can detect the precancerous and cancerous lesions at an early stage and mortality & morbidity due to these lesions can be reduced. HPV infection is a known etiological agent for cervical cancer. HIV infected women are at higher risk of contracting HPV infection due to immune compromised status. **Objective:** Present study has been undertaken mainly to detect precancerous & cancerous lesions as well as inflammatory lesions in female patients living with HIV & to emphasize the fact that Pap smear examination should be established as a part of routine protocol for examination in HIV infected women. **Methods:** The study was carried out on 369 HIV infected females attending Integrated Counselling & Testing Centre of government institute. As controls, 142 females (not falling under high risk category), attending the Obstetrics & Gynaecology OPD with various gynaecological complaints were taken & results were compared. **Results:** Squamous cell abnormalities were found about four times high as compared to control group. High incidences of squamous cell abnormalities were noted in patients with high parity (parity three or more). **Conclusion:** Regular gynaecological examination including Pap smear examinations is highly recommended for HIV infected females. Pap smear examination is a simple, cheap, safe & practical diagnostic tool for early detection of cervical cancer in high risk population.

Key Words: HIV, Pap smear, Patient Living with HIV (PLWH)

Introduction:

A common precursor to cervical cancer in women is abnormal cell growth brought on by HPV. As HIV positive women have lower immunity and CD4+ count, they are more prone to other infections also. HIV positive women are at an increased risk of contracting HPV infection and disease and also are more likely to have abnormal Pap smear result. In immune competent subjects, HPV infections normally clear in 6-24 months but women infected with HIV have a higher prevalence of HPV infection, are more likely to develop persistent HPV infection & are more frequently infected with multiple HPV types & thus are at greater risk (nine times increased risk) of developing cervical intraepithelial neoplasms.¹ Periodic cervical screening is thus necessary in HIV infected women and adolescent. Both the Centre



* Corresponding Author:

Dr. Devanshi Gosai
E-mail: gosaidevanshi.1011@gmail.com

for Disease Control & Prevention and the Agency for Healthcare Policy & Research recommend that HIV infected women should have a

gynaecological evaluation including a Pap smear & pelvic examination as a part of their initial evaluation. The cytological screening is very effective in preventing cervical cancer is that majority of cancer cases are preceded by a long standing latent period. Pap smear is the standard screening tool to detect the presence of abnormal cells that could become cancerous. Other gynaecological infections can be prevented and treated as early as possible.

In present study, we detected precancerous, cancerous lesions as well as inflammatory lesions in female patients living with HIV. The aim of the study was to emphasize the fact that Pap smear examination should be established as a part of routine protocol for examination in these women.

Material & Methods:

In present study, all cases (369 cases) were HIV infected females attending ICTC (Integrated Counselling & Testing Centre) at tertiary level hospital ranging in age from 18 to 70 years with a mean of 35 years. For all these 369 cases the criteria for exclusion was age less than 18 and HIV status not confirmed yet.

As controls, 142 females attending the Obstetrics & Gynaecology OPD not falling under high risk category were taken. They were ranging in age from 20 to 70 years with a mean of 38.1 years. The only criterion for exclusion was age less than 18. The rationale behind this exclusion criterion was only that prevalence of HPV is 57% higher in sexually active adolescent women.

The study has been conducted after getting ethical committee clearance from the same institute. Their detailed clinical history particularly related with various risk factors, obstetric & menstrual history along with clinical examination findings including per abdominal examination, per speculum examination, per vaginal examination & relevant investigations were recorded. Pap smear of these females (case & control subjects) were collected, fixed, examined & reported as per standard Bethesda system 2001.

Results:

Out of 369 study cases 35 smears & out of 142 controls 13 smears were reported as unsatisfactory for evaluation (USFE) & were excluded from the study. Cervical Pap smear findings in case vs control group are shown in table 1. Overall incidence of maximum HIV infected cases were in age group 26-35 years (52.56 %). In control group, maximum subjects were in the age group 36-45 year (36.41 %) followed by 26-35 year (35.38 %). 44.56 % of case subjects had complaints of whitish discharge & 15.85% had abdominal pain. In control subjects 31.80 % had whitish discharge & 22.06% had abdominal pain. 32.65% cases were multiparous with parity three or more. On per speculum examination of case subjects, 58.41 % did not show any abnormality in cervix, 13.52 % had cervical erosion, 13.78 % had discharge per vaginum, 3.32 % had hypertrophied cervix & 2.55 % had uterine descent. In control subjects, 34.35 % subjects did not show any abnormal finding in cervix, 12.83 % were with cervical erosion, hypertrophied cervix in 7.69 %, discharge per vaginum in 14.88 % & uterine descent in 10.76 %. In cases the most common infection was Bacterial Vaginosis (15.18%) followed by Candida infection (1.08%). In control subjects the most common infection was Bacterial Vaginosis (12.67 %) followed by Candida infection (1.4 %). The

scenario of CD4 count in cases of present study along with Pap smear findings and statistical comparison of case & control subjects are shown in Table 1.

Table 1: Cervical Pap smear findings with clinical history

	Control	Case
No. of cases	142	369
Age (years)	38.1 ± 10.5	35.0 ± 9.0
CD 4 cell count		
>500	-	48(13%)
200-500	-	283(76.69%)
<200	-	38(10.2%)
Gynaecological complaints	142(100%)	216 (58.5)
Parity	-	2.0 ± 1.2
Cervical smear cytology		
Unsatisfactory for evaluation	13 (9.15%)	35 (9.48)
NILM without inflammatory changes	14 (9.86%)	112 (30.4%)
NILM with Nonspecific inflammation	71 (50%)	108 (29.3%)
NILM with specific infections	22 (15.49%)	65 (17.6%)
NILM with reactive changes	1 (0.7%)	2 (0.54%)
NILM with atrophic changes	17 (11.9%)	21 (5.69%)
ASCUS	2 (1.4%)	13 (3.52%)
LSIL	1 (0.7%)	8 (2.17%)
ASC-H	1 (0.7%)	2 (0.54%)
HSIL	0	2 (0.54%)
Squamous cell carcinoma	0	1 (0.27)

Discussion:

Results were compared with various studies carried out on HIV infected females as well as on general population. In both cases & controls, the most common complaint was whitish discharge per vaginum (46.55 % in cases & 33.86 % in controls). In studies on general population the incidence of discharge per vaginum was 42.5 % in Sherwani et al, 27.43 % in Dhaubhadel et al & 28.5 % in Sharma et al.^{2,3,4} The high incidence in case subjects is due to more susceptibility of HIV infected females to infection due to lowered immunity. The second most common complaint was abdominal pain. The other less common complaints encountered during present study were muco-purulent discharge, irregular menstruation, burning micturition, bleeding per vaginum, something coming out per vaginum etc. The findings of present study were quite comparable to other studies.

Incidence of infective lesion in general population was 6.05 % in Mulay et al, 9.86 % in Ranabhat et al & 22.02 % in Jain et al.^{5,6,7} It was 17.6 % in case subjects of present study as compared to 15.49% of control subjects in the present study. In other studies in general population incidence of multiple infections was 0.43 % in Mulay et al & 0.47 % in Ranabhat et al.^{5,6} The reason for this difference can be explain by the fact that in present study cases were HIV infected females & had lowered immunity & so more susceptible to multiple infections.

Table 2: Cervical Pap smear findings in HIV infected females in various studies

	Amphan et al	Leibenson et al	Jennifer et al	Present study
No Epithelial cell abnormalities (in %)	84.6	79.76	34.5	86.25
Epithelial cell abnormalities (in %)	15.4	20.24	66.5	13.75
ASCUS	2.8	0	15.3	3.52
LSIL	8.5	19.05	40	9.15
HSIL	3.5	1.19	10.2	0.54
ASC-H	0.6	0	1	0.54

Table 3: Findings of CD4 count and Incidence of epithelial abnormalities in various studies

	Amphan et al	Leibenson et al	Jennifer et al	Present study
CD4 less than 200/ μ L (in %)	28.87	39.75	92.67	10.07
Epithelial cell abnormalities (in %)	15.4	20.24	66.5	13.75

Among various studies on HIV infected women like Amphan et al there were 28.87 % cases with CD4 count less than 200/ μ L & median CD4 count was 324 / μ L.⁸ In Leibenson et al there were 39.75 % cases with CD4 count less than 200/ μ L & median CD4 count was 307 / μ L.⁹ In Jennifer et al there were 92.67 % cases with CD4 count less than 200/ μ L & median CD4 count was 125 / μ L.¹⁰ In HIV infected females of present study there were 10.2 % cases with CD4 count less than 200 / μ L & median CD4 count was 328 / μ L. The median CD4 count was quite comparable in all of them except in Jennifer et al in which it was very low. The incidence of epithelial abnormalities in various studies on HIV infected females were 15.4 % in Amphan et al, 20.24 % in Leibenson et al & 66.3 % in Jennifer et al.^{8,9,10} In case subjects of the present study incidence of epithelial cell abnormalities was 13.75 %. Furthermore the incidence of various epithelial abnormalities in case subjects of present study are shown in details & are compared with other studies in Table 3. From the Table 3, it appears that incidence of epithelial abnormalities increases with the more number of cases showing CD4 count less than 200/ μ L & probably this may be the reason for comparative low incidence of epithelial abnormalities in present study as the number of cases with CD4 count less than 200/ μ L was only 10.2 % in present study. This signifies that HIV infected women have more risk of having cervical epithelial abnormalities as compared to general population.

In various studies on general population, number of females with parity-3 or more were 50.85 % in Dhaubhadel et al, 47.04 % in Aggarwal et al & 32.65 % in case subjects of present study. There were 32.57 % females with parity-2 in Dhaubhadel et al, 28.18 % in Aggarwal et al & 31.38 % in case subjects of present study. There were 14.87 % females with parity-1 in Dhaubhadel et al, 10.59 % in Aggarwal et al & 26.54 % in case subjects of present study. There were 1.71 % Nulliparous females in Dhaubhadel et al, 14.19 % in Aggarwal et al

& 9.43 % in case subjects of present study.^{3, 11} It is very well seen that in all the above studies maximum number of females had parity-3 or more.

From all these comparative studies we can summarize that in all above studies, HIV infected females had lowered immunity & so more susceptible to multiple infections. Incidence of epithelial abnormalities increases with the more number of cases showing CD4 count less than 200/ μ L and with increased parity in all above studies. So all the risk factors must be studied properly in the screening programmes.

Conclusion:

The incidence of epithelial abnormalities in case subjects was quite high (five to six times more) as compared to control subject of present study & other studies on general population. The high incidence of dysplasia in HIV infected women supports the recommendation of Centre for Disease Control for regular gynaecological examination including Pap smears in all these women even if they do not have any gynaecological symptoms. There is a need to have a regular follow up so that appropriate therapeutic measures can be taken. Health awareness programmes particularly by media & government with their implementation in the form of screening camps would be of great help to these high risk HIV infected women. High incidences of squamous cell abnormalities were noted in patients who had high parity (Parity-3 or more) suggesting that squamous cell abnormalities are directly related to multiparity.

References:

- 1 Rashmi Bagga, Ajay Wanchu, Arvind Rajwanshi, KR Gupta, GRV Prasad, Sarala Gopalan et al. Pap smear abnormalities in HIV infected women in north India. *Asia pacific journal of clinical oncology* 2005; 1Suppl2-3: 77-80.
- 2 Sherwani RK, Khan T, Akhtar K, Zeba A, Siddiqui FA, Rahman K et al. Conventional Papsmear and liquid based cytology for cervical cancer screening – acomparative study. *Journal of cytology* 2007; 24Suppl4: 167-72.
- 3 Dhaubhadel P, Vaidya A, Choudhary P. Early detection of precursors of cervical cancer with cervical cytology and visual inspection of cervix with acetic acid, *J Nepal Med Assoc* 2008; 47Suppl170: 71-6.
- 4 Sharma P, Rahi M, Lal P. Acommunity based cervical cancer screening program among women of delhi using camp approach. *Indian J Community Med* 2010; 35: 86-8.
- 5 Kaustubh Mulay, Meenakshi Swain, Sushma Patra, Swarnalata Gowrishankar. A comparative study of cervical smears in an urban hospital in India and a population-based screening program in Mauritius. *Indian Journal of Pathology and Microbiology* 2009; 52Suppl1: 34-7.
- 6 Ranabhat SK, Shrestha R, Tiwari M. Analysis of abnormal epithelial lesions in cervical Pap smears in Mid-Western Nepal. *Journal of Pathology of Nepal* 2011; 1: 30-3.

- 7 Jain Madhu, Gupta Charu, Kumar Mohan. Sexually Transmitted Diseases and Carcinogenesis. *J ObsGynInd*2004;54 Suppl1: 73-6.
- 8 Amphan Chalermchokcharoenkit, Chenchit Chayachinda, Manopchai Thamkhantho, Chulaluk Komoltri. Prevalence and cumulative incidence of abnormal cervical cytology among HIV-infected Thai women: a 5.5-year retrospective cohort study. *BMC Infectious Diseases* 2011; 11: 8.
- 9 Lilach Leibenson, Shirly Banani, Avraham Borer, Mihai Meirovitz, Yonat Shemer Avni, Doron Singer. The prevalence of Human Papillomavirus and cervical cytology abnormalities in women infected with Human Immunodeficiency Virus in Southern Israel. *IMAJ* 2011; 13: 34- 38.
- 10 Jennifer R Moodley, Deborah Constant, Margaret Hoffman, Anna Salimo, Bruce Allan, Ed Rybicki et al. Human Papillomavirus prevalence, viral load and pre-cancerous lesions of the cervix in women initiating highly active antiretroviral therapy in South Africa: a cross-sectional study, *BMC Cancer* 2009;9:275.
- 11 Aggarwal R, Gupta S, Nijhawan R, Suri V, Kaur A, Bhasin V et al. Prevalence of high risk Human Papillomavirus infections in women with benign cervical cytology: A hospital based study in North India. *Indian J Cancer* 2006; 43Suppl3: 110-6.