



## A STUDY ON CERVICAL PAP SMEAR EXAMINATION IN WOMEN INFECTED WITH HIV

### Medical Science

**Dr Priyanka Gupta** N.S.C.B Medical College, Jabalpur, MP

**Dr. Pushpa Batham\***

N.S.C.B Medical College, Jabalpur, MP \*Corresponding Author

### ABSTRACT

**Background:** Decline in morbidity & mortality due to cervical cancer in developed countries can be mainly attributed to early detection of precancerous & cancerous lesions due to extensive screening programme of cervical Pap smear examination. 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. The aim of the present study is to assess Pap smear among HIV infected females to screen cervical premalignant and malignant lesions.

**Methods:** The study was carried out on 50 HIV infected females attending Integrated Counseling & Testing Centre of government institute. 50 females (not falling under high risk category), attending the Obstetrics & Gynecology OPD with various gynecological complaints were taken as control & results were compared.

**Results:** Squamous cell abnormalities were seen high as compared to control group. High incidences of squamous cell abnormalities were noted in patients with high parity and low CD4 count.

**Conclusion:** Regular gynecological examination including Pap smear examination is highly recommended for HIV infected females. Pap smear examination is a simple, cheap, safe and practical diagnostic tool for early detection of cervical cancer in high risk population.

### KEYWORDS

Pap smear, HIV, HPV, Squamous cell

### INTRODUCTION

Cervical cancer & infection with Human Immunodeficiency Virus (HIV) are both important public health problems in developing countries. The Human Papilloma Virus (HPV) is the known major etiologic agent for the development of cervical cancer. In immune competent subjects, HPV infections normally clear in 6-24 months in 70% of females. However the studies have shown that the women infected with HIV have a higher prevalence of HPV infection, are more likely to develop HPV infection, thus are at greater risk of developing cervical intraepithelial neoplasms<sup>(1-4)</sup>. It therefore follows that these high risk group of females should be offered more frequent cervical cytology screening<sup>(5-6)</sup>. Dysplasia has been reported in HIV infected women & these rates are higher than those observed among HIV negative women. Reduced immunity appears to be the predisposing factor for increase in cervical neoplasm in HIV. In addition, CD4 suppression is associated with HPV infection and appear to play an important role in controlling the growth of neoplastic cells as well as the disease progression<sup>(7-10)</sup>. Centre for Disease Control & Prevention recommend that HIV infected women should have a gynecological evaluation including a Pap smear & pelvic examination as a part of their initial evaluation. The reason that cytological screening is so 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<sup>(11-12)</sup>.

The aim of the present study is to assess Pap smear among HIV positive females to screen cervical pre-malignant, malignant lesions as well as inflammatory lesions.

xxHPV screening done in selected cases after colposcopic examinations. CD4 count of HIV cases also taken into account. The aim of this study is to emphasise the fact that pap smear examination should be established as a part of routine protocol for examination in high risk population.

### MATERIAL AND METHODS

The present hospital based prospective study was carried out in department of pathology NSCB medical college, Jabalpur. A total 100 pap smears were included in the study. Out of 100 papsmears, 50 were of HIV positive females attending ART Centre and 50 were of females (non HIV) attended department of Obstetrics & Gynecology OPD at N.S.C.B Medical College, Jabalpur (M.P) for various gynecological complaints. They were analysed and compared, this comparison include different abnormal cytological features seen in HIV infected patients which are suppose to be precancerous/cancerous and results were compared with controls ( Non- HIV females). Pap smears of these females (case and control subjects) collected and

reported as per Bethesda system 2001. Colposcopy done as routine procedure in both case and control. Smears were collected by cytobrush, stained by H&E and Pap stain. Mandatory CD4 counts done in HIV positive cases. 35 cases were referred to Tertiary labs at Delhi for quantitative assessment of E6 and E7 onco proteins expressions by HPV Oncotect test after colposcopic evaluation.

### RESULT

#### 1. Age distribution according to cases

Age Group (Yrs)	No. of cases	Percentage (%)
20-30	21	42
31-40	20	40
41-50	06	12
51-60	03	6
>60	0	0
Total	50	100

In our present study of 50 HIV cases, maximum cases were in the age between 20-30yr (42%) and least between 51-60 yr age group that is only 6%.

#### 2. Cases according to marital status

Marital status	No. Of cases	Percentage (%)
>5	09	18
5-10	14	28
11-15	12	24
16-20	05	10
>20	10	10
Total	50	100

In our present study of 50 HIV cases, maximum cases had marital life between 5-10yr that is 14 cases (28%) which denoting that there was no prolonged period for sexual interaction.

#### 3. Cases according to Chief complaints

Chief Complaints	No. Of cases	Percentage (%)
White discharge	19	38
Pain in abdomen	01	02
Itching	05	10
Backache	01	02
Irregular menses	02	04
Nil	22	44
Total	50	100

- In our present study of 50 HIV cases, maximum cases had no gynaecological complaints that is 22 cases (44%) followed by 19 cases (38%) presented with complaints of white discharge. While in control group maximum 30 cases (60%) cases presented with complaints of white discharge

**4. Cases according to Colposcopic findings**

Colposcopic findings	No. Of cases	Percentage (%)
Normal Study	39	78
Punctations with acetowhite Areas	01	02
Unsatisfactory	10	20
Mosaic	0	0
Atypical vessels with dense acetowhite areas	0	0
Total	50	100

- In 50 HIV cases, maximum cases had normal colposcopic study that is 39 cases (78%) which also supports the low prevalence of cervical dysplastic changes in such HIV cases.

**SHOWING COLPOSCOPIC PUNCTATION**



**5. Distribution according CD4 count**

Cd4	No. Of cases	Percentage (%)
<200	0	0
200-500	26	52
> 500	17	34
Pre-ART	07	14
Total	50	100

- In the present study out of 50 HIV cases, maximum cases had CD4 count between 200-500 that is 26 cases (52%) which also supports the low prevalence of cervical dysplastic changes in such HIV cases.

**6. Distribution according ART Therapy**

ART Therapy	No. of cases	Percentage (%)
Pre-ART	07	14
ART	43	86
Total	50	100

- In our present study out of 50 HIV cases, maximum cases were on ART that is 43 cases (86%) as a result of which maximum HIV cases had CD4 count in desirable range and maintained immunity on part of host.

**7. Distribution according Cytological results**

Cytological Results	No. of cases	No. of Controls
Sample Size (50)	50	50
Satisfactory	50	50
Unsatisfactory	0	0
Epithelial Cell Abnormalities Absent/NILM with inflammatory changes	48	50
Epithelial cell abnormalities present	ASCUS	1
	LSIL	1
	HSIL	0
	Invasive Squamous Carcinoma	0

- Out of 50 HIV cases, maximum cases had inflammatory changes only, that is 48 cases (96%) and only 2 cases (4%) had epithelial cell abnormalities. While in control group all cases that is 50 cases (100%) showed only inflammatory response, no epithelial abnormalities found in them.

**8. Cases according to HPV mRNA E6/E7 Oncoprotein Test (HPV Oncotect)**

HPV Oncotect	No. of cases	Percentage
Positive	1	2.85
Negative	34	97.15
Total	35	100

- In our present study of 50 HIV cases, only 35 suspicious cases cervico vaginal smear could be sent for HPV Oncotect test, only 1 case (2.85%) came positive and rest 34 reports were negative. It denotes good immune response in majority of our HIV cases that is 97.15%.

**DISCUSSION**

50 HIV cases and 50 (Non HIV) controls were examined for cervico vaginal smears. Maximum HIV positive cases were found between 20-30yrs of age (42%) compared with control group between 30-40yrs of age (60%).

Presenting complaints were white discharge in 46% HIV cases and 60% controls, pain in abdomen in 2% HIV cases and 20% in controls, per speculum examination showed cervicitis picture in 20% HIV cases and 40% in controls. No secondary infections like candida shift in flora found in examined cases.

Out of 50 HIV cases CD4 cell counts was carried out in 43 cases only (86%) and 7 HIV cases (14%) were in Pre ART status. No case showed CD4 count less than 200cells/cumm. 52% cases showed cell count between 200-500 and rest 48% showed count above 500cells/cumm. Out of 50 HIV cases, 43 cases (86%) were on HAART and rest 7 cases (14%) were in Pre ART status. Colposcopy of 50 HIV cases done and 35 cases were selected for HPV oncotect. 1

HIV case (2%) with CD4 cell count only 210cells/cumm showed on colposcopy punctations and aceto white area, cytology confirmed as LSIL and oncogenic HPV E6/E7 RNA test comes positive.

Another HIV case (2%) with low CD4 cell count that is 260cells/cumm showed unsatisfactory, congested on colposcopy, cytology confirmed it as ASCUS and rest 48 HIV cases (96%) were positive for NILM with inflammatory changes and all 50 patients under control group showed only inflammatory response, no dysplastic changes evident.

In the present study, most of the cases were young females with good CD4 cell counts and most of them were on HAART, immune status of patients remain good which is clearly depicted by 1 positive case of HPV, that's why majority of our cases showed features of inflammatory changes only and 1 case showed features of LSIL.

**STUDIES**

In present study, occurrence of epithelial cell abnormalities in HIV infected females compared to other studies seems to be low with maintained CD4 count >300/cumm in most of our cases, while occurrence of epithelial cell abnormalities in other studies conducted on HIV cases were relatively high like 15.4% in study of Amphan et al 2011 (13), 20.24% in Leibenson et al 2011 (14), 8.34% in BM Jha et al 2011 (15), 3.92% in GV Seethalakshmi et al 2010 (16), 26.8% in Yamada et al 2008 (17). Our results were similar to BM Jha et al 2011, GV seetalakshmi et al 2010.

**CONCLUSION**

This study concludes that there is need to have regular follow up with Pap smear so that appropriate therapeutic measures can be taken. Pap smear examination is a simple, cheap, safe and practical diagnostic tool for early detection of cervical cancer in high risk population.

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