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PREVALENCE OF ABNORMAL CERVICAL CYTOLOGY AMONG WOMEN INFECTED WITH HIV IN MACHAKOS COUNTY HOSPITAL KENYA.

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ABSTRACT

Background: Cervical cancer is increasingly becoming a major threat to health among women in the world particularly in developing countries where screening programs are not well established. In Kenya, cervical cancer is the second most frequent cancer among women and the leading cause of cancer deaths in women of reproductive age.

Studies have shown that women infected with HIV especially those with low CD4 counts or decreasing immunity are at a higher risk of developing pre cancerous cervical lesions and invasive cervical cancer than those in the general population without HIV infection.

Objective: To determine the prevalence of abnormal Pap smears in HIV positive women attending Comprehensive care clinic at Machakos Level 5 Hospital.

Design: Cross sectional descriptive study

Setting: Machakos County hospital.

Subjects: Women infected with HIV attending Machakos County Hospital Comprehensive care clinic.

Results: 295 women infected with HIV were enrolled in this study and cervical smear taken for cytology screening. 22 were excluded from the analysis due to unsatisfactory smears. The prevalence of cervical cytology abnormalities was 14 out of 273 (5.1%) with HSIL being the most prevalent at 5 out of 273 (1.8%). Other lesions were ASC-H 4 (1.46%), LSIL 3 (1.05%), SCC and Adenocarcinoma both with 1(0.36%).

In this study, age and Pap smear findings had no statistically significant association, $X^2=6.262$, $p=0.618$.

Conclusion: This prevalence of abnormal cervical cytology among HIV infected women in this study was 5.2%. There was no statistically significant association between age and Pap smear findings.

INTRODUCTION

Cervical cancer is increasingly becoming a major threat to health among women in the world particularly in developing countries where screening programs are not well established. (1) In 2012, it is estimated that 528,000 new cases occurred globally, with 266,000 of the women (50% of cases) dying (2).

In Kenya, cervical cancer is the second most frequent cancer among women and the leading cause of cancer deaths in women of reproductive age. (3) Cervical cancer is considered to be one of the diseases associated with AIDS (4). Even though HPV infections are very common in the general population and most women with healthy immune systems will normally clear these infections over time, women with compromised immune systems (such as women living with HIV) are far less likely to clear an HPV infection and thus having high chances to develop pre-invasive lesions that can progress to invasive cervical cancer if not treated.

(5, 6) Studies have shown that in areas where women have been hit hardest by the AIDS epidemic, such as in the developing countries have historically also had a very high prevalence of human papillomavirus (HPV) infections and a high incidence of cervical cancer. (7) As there was no study that documented the prevalence of cervical cytology abnormalities in HIV-infected women at Machakos county Hospital, this motivated us to carry out the research. This study will be of help to policy makers in developing guidelines for prevention and treatment strategies for cervical cancer among HIV-infected women at Machakos County and Kenya at large.

MATERIALS AND METHODS

Approval to conduct the study was sought from Kenyatta University Research and Ethical

Review committee (Protocol Number: PKU/464/E42). A total of 295 HIV positive women attending Comprehensive care clinic at Machakos Level 5 Hospital were recruited in the study between June - November 2016.

An informed, written and voluntary consent was sought from the patients before obtaining samples for screening. After the participants had given their written consent (by signing the consent form), a structured questionnaire was used to collect the demographic data after which sample collection procedures and processing proceeded.

Samples were collected using Cytobrush and the cells spread on glass slides directly and fixed immediately in 95% ethanol for at least 15 minutes. All the smears were stained using the Papanicolaou staining method. Screening was done by the principal investigator and signing out by a board certified pathologist. The Bethesda system 2014 for reporting cervical cytology was used for reporting all the cytological abnormalities observed during examination and reporting. Data collected was analysed using SPSS version 18. In an attempt to find the association between the age and cases of abnormal cervical cytology, a cross-tabulation was made and Chi-square statistics was used for the statistical significance of associations between variables. A p- value below 0.05 was considered as statistically significant.

RESULTS

Table 1 shows distribution of the age groups. Out of the 295 women recruited in the study, 30 (10.2%) were between 20 – 30 years, 80 (27.1%) between 30 – 39 years, 99 (33.6%) between 40– 49, 65 (22.0%) between 50 – 59 and 21 (7.1%) were aged 60 and above.

Table 1
Distribution of Age groups

Age in years	Frequency	Percent
20 – 29	30	10.2
30 – 39	80	27.1
40 – 49	99	33.6
50 – 59	65	22.0
60 and above	21	7.1
Total	295	100.0

Table 2 shows the history of Pap smear screening prior to this study. Only 12 (4.1%) out of 295

women had had cervical cancer screening done prior to this research

Table 2

History of Pap smear screening prior to this study.

Pap smear screening before	Frequency	Percent
Yes	12	4.1
No	283	95.9
Total	295	100.0

Table 3 shows methods of family planning. Condom was the main method of family planning used (59.3%) and IUCD been the least used (3.7%)

Table 3

Methods of family planning.

Method of Family Planning	Frequency	Percent
Natural	37	12.5
Condom	175	59.3
Injection	48	16.3
Pill	24	8.1
IUCD	11	3.7
Total	295	100.0

Table 4*Pap smear findings*

Out of the total women recruited in this study, 259 (87.8%) were Negative for intraepithelial lesion or malignancy, 14 (4.7%) had abnormal

smears while 22 (7.5%) had unsatisfactory smears for evaluation.

Pap smear Findings	Frequency	Percent
NILM	259	87.8
Abnormal smear	14	4.7
Unsatisfactory smear	22	7.5
Total	295	100.0

A total of 295 women were enrolled in the study. Twenty-two were excluded from the analysis due to inadequate smear or missing cervical cells at all. The prevalence of cervical cytology abnormalities in this research was 14 out of 273 (5.1%) with HSIL being the most prevalent at 5

out of 273 (1.8%), ASC-H 4 out of 273 (1.46%), LSIL 3 out of 273 (1.05%), SCC was seen in 1 out of 273 (0.36%) and lastly Adenocarcinoma was also seen in 1 out of 273 (0.36%).

Figure 1

shows the Bethesda classification of the cervical cytology abnormalities

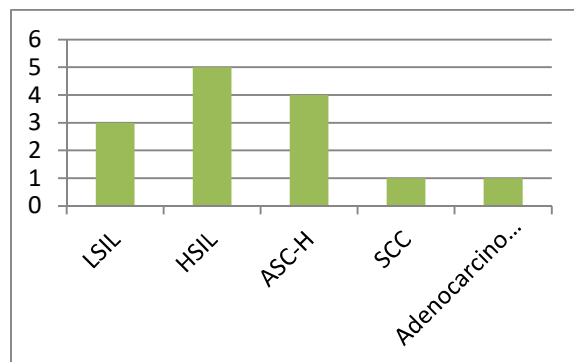


Table 5

Cross tabulation of Age groups and Pap smear findings

Age	NILM	Abnormal	Unsatisfactory	Total	Pearson Value	P-Value
20 – 29	27(10.4%)	1(7.1%)	2(9.1%)	30(10.2%)	6.262	0.618
30 - 39	72(27.8%)	3(21.4%)	5(22.7%)	80(27.1%)		
40 - 49	90(34.7%)	3(21.4%)	6(27.3%)	99(33.6%)		
50 - 59	53(20.5%)	6(42.9%)	6(27.3%)	65(22.0%)		
60 and above	17(6.6%)	1(7.1%)	3(13.6%)	21(7.1%)		
Total	259(100.0%)	14(100.0%)	22(100.0%)	295(100.0%)		

DISCUSSIONS

In this study, the prevalence of abnormal cervical cytology was 5.2% which is comparable to 6% as documented in a study done in Nigeria by Ononogbu, *et al* to determine cervical cancer risk factors among HIV-infected Nigerian women in 2013 (8).

However, this prevalence is lower compared to other studies done in Kenya and Africa. In a study done in Kenya by Memiah *et al* to determine the prevalence and risk factors associated with pre cancerous cervical lesions among HIV infected women, the prevalence of abnormal cervical cytology was 26.7% (9). Another unpublished study done at Kenyatta National Hospital in 2016 to determine cervical cytological patterns among HIV infected women on anti retroviral therapy, the prevalence of abnormal cervical cytology was 9.9%.

Studies conducted in Rwanda and Ethiopia reported a prevalence of cervical pre-cancer and cancer among HIV-positive women of 20.0% and

22.1% respectively (10, 11). Another study in Southern Nigeria to determine effect of low CD4 Cell count on cervical squamous intraepithelial lesions among HIV-positive women reported a 5.7 % prevalence of SIL among the high CD4 group and 10.2% among the low CD4 group (12).

The national cervical cancer screening guidelines recommends that HIV infected women should be screened every 1 year because of their high risk to development of cervical cytological lesions. At Machakos comprehensive care center, VIA/VILLI are done annually and positive cases referred for further management. Most of the women in this study assented to having the VIA/VILLI done in 2015 at the Comprehensive Care Center.

Early initiation and duration of combined antiretroviral therapy may have contributed to less prevalence rate as all the women in this study were on anti-retroviral therapy. A study done by Adler, *et al* showed that

women on HAART with a normal baseline smear were 38% less likely to have abnormal Pap smear on follow-up. (13) In this study, there was no statistically significant association between age and abnormal Pap smear findings. This is consistent with another study done in Rwanda by Kayumba in 2013 Which reported lack of statistically significant association between age and abnormal Pap smear findings. (10)

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