Cervical Smear Analysis of Women in Cross River State, Nigeria

Ayodele Omotoso[1*], Patience Odusolu[2], Godstime Irabor[3], Olukayode Oshatuyi[4] and Wilson Nnenna[4]

[1]*Department of Pathology, University of Calabar, Calabar, Nigeria.*
[2]*Department of Obstetrics and Gynaecology, University of Calabar, Calabar, Nigeria.*
[3]*Department of Pathology, Saba University School of Medicine, Saba, Netherlands.*
[4]*ARISH Specialist Laboratory (Diagnostic, Research and Forensic), Calabar, Nigeria.*

Authors' contributions

This work was carried out in collaboration between all authors. Author AO designed the study, wrote the protocol and wrote the first draft of the manuscript. Authors PO and GI managed the analyses of the study and performed the statistical analysis. Authors OO and WN managed the literature searches. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

Background: Cervical cancer is the most common genital malignancy and one of the leading causes of death among the female population. Cervical cancer continues to be with high prevalence among the populace in Africa. It is one of the cancers whose incidence has been drastically reduced due to continuous systematic screening.
Aim: To evaluate the cervical smear analysis of women in Cross river State, Nigeria.
Methodology: This is a cross sectional study of cervical smear of women in 5 out of the 18 local government areas of Cross River State (CRS), Nigeria. These local governments were randomly selected. These local government areas include, Akpabuyo, Biase, Calabar south, Municipality and Akamkpa local government areas. The primary health care centres in each of these five local governments were visited, Pap smear was done for the women who visited these primary health care centre and the results were analysed.

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*Corresponding author: E-mail: ayomemee@gmail.com;
E-mail: isiinafrica@yahoo.com;

Results: A total of 114 cervical smears were analyzed. The age range of the subjects is between 20-69 years. The mean age in this study is 34.2 years. In all, 7.0% of the cervical smear show squamous intraepithelial lesions out of which 6.14% had low grade squamous intraepithelial lesion (LSIL) and 0.9% had high grade squamous intraepithelial lesion (HSIL). Cervical smear that were negative for intraepithelial lesion had a prevalence of 93.0%.
Conclusion: The prevalence of squamous intraepithelial lesion (SIL) is relatively high in semi-rural areas in Cross River State and there is urgent need for improvement in screening programs in order to reduce the incidence rate of the cervical cancer.

1. INTRODUCTION

Cervical cancer is the most common genital malignancy and one of the leading causes of death among the female population [1]. It is the most common female genital cancer in developing countries [2]. Cervical cancer continues to be with high prevalence among the populace in Africa. Invasive cervical cancer is essentially preventable through organized screening programs because it develops from well-defined precursor lesions which can be detected through cervical cytology. About 60-75% of women in sub-Saharan Africa who develop cervical cancer live in rural areas and mortality rate is very high [3,4]. The annual number of cases of cervical cancer in Nigeria is estimated as 14,089 and the annual number of cervical cancer death is also estimated as 8, 240 [5]. Risk factors of cervical cancer includes the following: Human papillomavirus (HPV) infection, smoking, having a weakened immune system, chlamydia infection, a diet low in fruits and vegetables, being overweight, long-term use of oral contraceptives (birth control pills), intrauterine device (IUD) use, having multiple full-term pregnancies, being younger than 17 at your first full-term pregnancy, low economic status, and having a family history of cervical cancer.

Many developed countries with well-organized cervical cancer screening programme have experienced a reduction in the incidence of cervical cancer and its associated mortality. Vaccination provides a supplementary or alternative for preventing or reducing the incidence of cervical cancer worldwide [5]. There are two types of vaccine against the high risk human papillomavirus (HPV), the aetiologic agent in cervical cancer. They include the divalent vaccine (against HPV 16 and 18) and the quadrivalent vaccine (against HPV 6,11,16 and 18). However, in sub-Saharan africa, there are yet to be well-organized cervical cancer screening programmes or vaccination programmes against high risk HPV. This has contributed to the high incidence of cervical cancer in this environment [5,6].

2. METHODOLOGY

This is a cross sectional study of cervical smears from female patients between age 15 and 80 years attending the primary health care centres in cross river state. Five out of the 18 local government areas of Cross River State were randomly selected using simple random sampling. These local government areas include, akpabuyo, calabar south, municipality, biase and akamkpa local government areas. All the primary health care centres in each of these local government areas were used in this study. This study was done between 1st February and 28th October, 2016. Three research assistants were employed to assist in this study. Ethical clearance for this study was obtained from the cross rivers state ministry of health and informed consent was obtained from all the women.

At each of the primary health care centres in each of the above local government areas, health talks were delivered with emphasis on breast and cervical cancer, clinical breast examination and Pap smear were conducted. Cervical smear was obtained from these women and processed/analyzed using liquid based cytology while observing standard precautions and protocols.

Using a disposable speculum and cyto-brush, sample of cells were collected from the cervix. The samples were transferred into a container containing fixative promptly. The samples were then transported to ARISH Specialist laboratory, Calabar, where an aliquot of the cell suspension from each sample vials was selected for processing. The cells are separated by centrifugation and the deposits were smeared on glass slides. The slides were stained with Pap

stain using standard protocols. The 2001 Bethesda System (TBS) of reporting cervical and vaginal cytology was used as the basis for cytology classification. Individual results were communicated to the participants and appropriate counselling and referral was made where necessary.

The data and result collated were analyzed using Microsoft Excel 2013. The data was analyzed using simple inferential statistics.

3. RESULTS

A total of one hundred and fourteen (114) women were available for cervical cancer screening at the primary health centres of the five (5) local government areas in Cross River State, Nigeria. The age range of the women that participated in this study ranges between 20 and 69 years. The mean age is 34.2±11.8 years. The age range and Pap smear reports are presented below.

Table 1. Social demographic data

Age range	Frequency (n=114)	Percentage (%)
20-29	31	27.2
30-39	35	30.6
40-49	27	23.7
50-59	14	12.3
60-69	7	6.1

Majority of the participants are 30-39 years age group (30.6%), followed by 20-29 years (27.2%); then 40-49 years (23.7%) and 60-69 years (6.1%). The mean age ± SD is 34.2±11.8 years

Table 2. Marital status and educational level

Marital status	Frequency (114)	Percentage (%)
Married	66	57.9
Single	36	31.6
Divorced	6	5.3
Widowed	6	5.3
Educational level		
Primary	27	23.7
Secondary	53	46.5
Tertiary	34	29.8

Majority (57.9%) of the women are married, 31.6% are single, 5.3% are divorced and 5.3% are widows. In all 46.5% of the women has secondary level of education, 29.8% has tertiary level of education while 23.7% has primary level of education

4. DISCUSSION

The main aetiology of cervical cancer is from infection with the high risk human papillomavirus (HPV) commonly serotypes 16 and 18 [7,8]. Nigeria currently have a population of about 50.33 million women ages 15 years and older who are at risk of developing cervical cancer [9].

The major findings from this study revealed that the prevalence of premalignant lesions of the cervix among the women is 7.0%. These premalignant lesions comprised of low grade squamous intraepithelial lesion (LSIL) and high grade squamous intraepithelial lesion (HSIL) accounting for about 6.1% (7) and 0.9% (1) respectively. The 7.0% prevalence rate of cervical premalignant lesion from this study is consistent with results from similar studies in Abuja where premlignant lesion accounted for about 6.8% of the cervical smears. However the prevalence of premalignant lesions in this study is slightly lower when compared to similar studies from Jalingo, Abakiliki, Kano, Enugu, with premalignant lesion accounting for 16.1%, 11.2%, 10.3% and 12.2% of the total cervical smears analysed respectively [1,10,11,12]. This figure is relatively higher when compared to results of similar studies in Lagos with a prevalence of 5% [2].

The low grade squamous intraepithelial lesion dominated among the SIL with a higher prevalence of 6.1% and this is consistent with result from similar studies in Benin, Jalingo and Turkey [1,13,14]. A similar study by Proca in Ohio among inmates show an LSIL prevalence of 5.9% which is a little lower than that from this study [12].

High grade squamous intraepithelial lesion appeared to have a low prevalence of about 0.9%. This is in contrast to the finding from a study in Kano where the prevalence of HSIL among the patients were higher [11]. Also the study done by Proca et al in 2006 in Columbus, Ohio show a higher prevalence for HSIL of 1.3% [15]. This may likely represent difference in the type of human papillomavirus causing the lesion [16]. Another study by Vijaya et al in 2016 in India shows a much lower prevalence of HSIL, which is 0.1% of the total cervical smear studied [17].

This high prevalence and incidence rate of cervical cancer in sub-Saharan Africa may be due to unavailability of regular screening
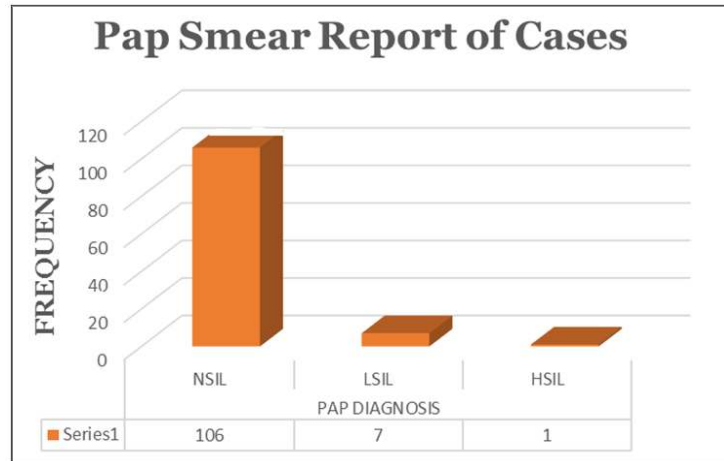
Fig. 1. PAP smear report of cases
*HSIL has a prevalence of 0.9%, LSIL has a prevalence of 6.4% and negative for intraepithelial lesion has a
prevalence (NSIL) of 93.0%
HSIL = High grade squamous intraepithelial lesion
LSIL= Low grade squamous intraepithelial lesion
NSIL= Negative for intraepithelial lesion*

programs which would aid early diagnosis of premalignant cervical lesions and treatment. Also social factors or lifestyle in this environment would have played a significant role in determining the prevalence of the squamous intraepithelial lesion in the subjects.

5. CONCLUSION

The prevalence of SIL is high in Cross River State. There is urgent need for improvement in screening programs in order to reduce the incidence rate of cervical cancer. Well-organized cervical cancer screening programme is capable of bringing about a significant decrease in the incidence of cervical cancer.

CONSENT

As per international standard or university standard, patient's written consent has been collected and preserved by the authors.

ETHICAL APPROVAL

As per international standard or university standard, written approval of Ethics committee has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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