



CERVICAL CANCER SCREENING ASSESSMENT AMONG CHILD-BEARING WOMEN IN NNEWI METROPOLIS USING THE PAPANICOLOAU TECHNIQUE

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Article Received on 17/07/2019

Article Revised on 06/08/2019

Article Accepted on 27/08/2019

ABSTRACT

Objective: This study was designed to determine the level of awareness and utilization of papanicolaou test as a cervical cancer screening (Premalignant and malignant) method among women of child –bearing age. The cervical smears of 50 child bearing women who had no history of any type of cancer were recruited for the study. **Method/Materials:** Smears were obtained by introducing a cusco's speculum into the external os of the vagina and with the aid of the ayre's spatula, samples were collected through a 360° rotation at the squamo columnar junction. After fixation and staining, each slide was meticulously examined. **Results:** Result obtained shows that about 72% of the subjects have normal cells. The epithelial abnormal cells which includes ASCUS (atypical cells of undetermined significance) is 12%, LSIL (low grade squamous intraepithelial lesion) is 8% and HSIL (High grade squamous intraepithelial lesion) is 8%. **Conclusion:** These results reveal that majority of the subjects have normal cells which underscore their prior knowledge of cervical cancer. However, they have low level of awareness hence need for more intensified awareness programs through media and seminars to be created among this age group while the adoption of the Pap test for examination of cervical cancer among women should be encouraged.

KEYWORDS: Cervical cancer, Papanicolaou test, Awareness, HSIL, ASCUS, LSIL.

INTRODUCTION

Internationally, cervical cancer has been regarded as the commonest female genital malignancies and the third most common form of cancer among women in developing countries after breast and colo-rectal cancer.^[1] However, it is considered one of the most preventable cancers.^[2] Systematically, organized population-based cervical smear screening programs for cervical cancer have shown its effectiveness in reducing mortality and pre-disposing risk factors among women such as early age of first intercourse, multiple sexual partners, co-infection with human papilloma virus and Human Immunodeficiency Virus (HIV), certain dietary deficiencies and use of immunosuppressant.^[3]

The papanicolaou test abbreviated as (pap test) known earlier as pap smear or cervical smear or smear test is a method of cervical screening to detect potentially pre cancerous and cancerous processes in the cervix

(opening of the uterus or womb).The test was invented by and named after the prominent Greek doctor George papanicolaou. Pap smear permits cervical lesions to be detected before they become cancerous and its usage has led to the reduction of cervical cancer by 70-90% in screened industrialized countries.^[4] In Nigeria for instance, although there is a national guideline for routine examination of cervical cancer, there is no effective and thorough screening programs in place. Consequently this has led to a poor prognosis as about 75% of patients present at an advanced state (stage 3 or 4) of the disease unlike what is obtainable in developed countries where 75% have higher prognosis.^[5]

Several institutes have recommended Pap smear screening for every sexually active woman with studies revealing that women who had 1-2 yearly screening test have 93% lower risk of cervical cancer and 80% for those who had their screening done every 5 years.^[6] Also

a single screening pap test performed once in a lifetime within the age of 40-50 years reduces the incidence of malignancy by 25%.^[7]

A pap smear is performed by opening the vaginal canal with a speculum then collecting cells at the outer opening of the cervix at the transformation zone (where the outer squamous cervical cells meet the inner glandular endocervical cells). The collected cells are examined under a microscope to look for abnormalities. The test aims to detect potentially pre cancerous changes called cervical intraepithelial neoplasia (CIN) or cervical dysplasia; the squamous intraepithelial lesion system (SIL) is also used to describe abnormalities which are caused by human papillomavirus, a sexually transmitted DNA virus. The test remains an effective, widely used method for early detection of pre cancer and cervical cancer although the test may also detect infections and abnormalities in the endocervix and endometrium.

MATERIALS AND METHODS

Background Information on study area

The study was carried out in Okofia which is one of the villages in otolo-- an autonomous community in Nnewi and is about 353 km of Abuja, the country's capital. Nnewi is the second largest city in Anambra state in south-eastern Nigeria. Nnewi as a metropolitan city encompasses two Local Government areas, Nnewi North and Nnewi South; Nnewi North is commonly referred to as Nnewi central and comprises four autonomous quarters: Otolo, Uruagu, Umudim and Nnewiichi. As of 2006, Nnewi has an estimated population of 391,227 according to Nigeria census. The city spans over 1,076.9 square miles in Anambra state of Nigeria and is a home to nearly 2.5 million residents.^[8]

Study design

A total of 50 women who were between 18-54 years were recruited for the study. The subjects were essentially within the reproductive years. Baseline information on awareness of cervical cancer and uptake of screening test was collected from participants using an interviewer administered questionnaire. During the intervention phase, health education was provided on cervical cancer, Pap smear test with emphasis on its benefit and procedure and on proximate health institutions that provide such services to the intervention group

Administration of questionnaires

Demographic and risk factor data of each participant was obtained using questionnaire. Such data included age, occupation, age at first pregnancy, multiple sex partners, miscarriages etc.

Sample collection

Pap smears were collected from each respondent after filling out the questionnaire. With the subjects in lithotomy position smears was obtained under direct vision after introducing a cusco's speculum into the

vagina by inserting the longer limb of the Ayre's spatula into the external os and then rotating it through 360° to sample the squamo columnar junction. The smears were evenly spread on pre labelled slides and immediately inserted in jars of 95% alcohol for fixation.

LABORATORY ANALYSIS OF SMEAR

Fixation

The smears were sent to the laboratory in a coupling jar of fixative and were left in the fixative for a minimum of 45 minutes to ensure proper fixation before staining.

Staining

Method: Papanicolaou Staining Technique.^[9]

Principle: The acidophilic components of the cells are stained by the basic dyes while the basophilic components of the cells are stained by the acidic dye. The basic Harri's haematoxylin stains the acidophilic nuclei whose blue colour is restored in the neutral Scott tap water. The orange-G6 stains the acidophilic cytoplasm of the superficial cells while the Eosin Azure stains the basophilic cytoplasm of the intermediate and Parabasal cells.

Procedure: fixed smears were treated as follows;

Transferred from 95% alcohol fixative to descending grades of alcohol (90%, 70%, 50%) and then to water, stained with Harri's Haematoxylin for 5 minutes, washed in water, differentiated in 1% acid alcohol, blued in Scott tap water for 5 minutes, transferred to 70% alcohol and then to 95% alcohol, stained in Orange-G6 for 5 minutes, washed in 3 changes of 95% alcohol, stained in Eosin Azure -50 for 5 minutes, washed in 3 changes of 95% alcohol, dehydrated in absolute alcohol, cleared in xylene and mounted in DPX.

3.5.3 Microscopy and photomicrography: The stained smears were examined with a light microscope and a photomicrograph of each slide was taken.

RESULT

50 subjects were used for the study which involved women of child bearing age. Thirty six (72%) of them were students, twelve (24%) were traders while two (4%) of them were civil servants. They were grouped according to their ages. The age group 18-24 had sixteen (32%) cases, 25-31 had thirty (60%) cases, 32- 40 years had four (8%) cases and (100%) of them were sexually active, maintained good hygiene and have heard of cervical cancer before, while ten (20%) have done cervical pap test .Twelve (24%) of them had their first child between the age range of 18-22 years while fifteen (30%) of them between the ages of 25-27 years. four(8%) have had miscarriage before Forty one (72%) of them indicated having only one sexual partner while nine(18%) of them indicated having multiple sexual partners. Their cytoscreen reveals that majority of the subjects have normal cervical cells while few of the subject's cells are LSIL and HSIL. The result of this study is thus illustrated in tables below:

Table i: The Age ranges of the participants involved in the research. The table revealed that 25-31 (60%) were the highest in participation and 32-38 (8%) were the least.

Table ii: The Relationship between the Cytological pattern of the participants and their age ranges. The chi-square result between age ranges and the cytological pattern showed that there was a significant relationship ($p < 0.05$) with a chi-square value of ($X^2 = 60.202$). This result inferred that there exist an association between age ranges and the Cytological pattern of the participants involved in the study.

Table iii: Describes the relationship between their sexual lifestyle and the cytological patterns. The results reveals

that cytological pattern of the cells has a significant effect on the sexual lifestyle of the subjects

Table iv: describes the chi-square result of the relationship between awareness and the cytological pattern of the participants involved in the research.

The result showed that when the relationship between awareness and cytological pattern of the participants was compared using chi-square. The chi-square result showed that there was a significant relationship ($p < 0.05$) with a chi-square value of ($X^2 = 22.680$). This result revealed a direct between Sexual lifestyle and the cytological pattern of the participants implying that cytological pattern to some extent has a significant effect on the sexual lifestyle.

Table i: The Age ranges of the participants involved in the research.

Age Ranges (years)	Frequency	Percentages
18-24	16	32
25-31	30	60
32-38	4	8
Total	50	100

Table ii: The relationship between the age ranges of the participants and their cytological patterns.

Age Ranges (years)	Cytological pattern				Total
	HSIL	LSIL	ASCUS	Normal cells	
18-24	0	0	0	16	16
25-31	0	4	20	6	30
32-38	2	2	0	0	4
Total	2	6	20	22	50
Pearson Chi-Square value	60.202				
p-value	0.002				

Table iii: Relationship between the sexual lifestyle of the participants and their cytological patterns.

Sexual lifestyle	Cytological pattern				Total
	HSIL	LSIL	ASCUS	Normal cells	
Sexually active	2	6	15	10	33
Multiple sex partner	0	0	0	8	8
Age at first pregnancy	0	0	9	14	23
Miscarriage before	0	0	5	0	5
Total	2	6	29	32	69
Pearson Chi-Square value	20.763				
p-value	0.023				

Table iv: Relationship between level of awareness and cytological patterns.

Awareness	Cytological pattern				Total
	HSIL	LSIL	ASCUS	Normal cells	
Have you heard of cervical cancer	2	3	0	0	5
Have you be maintaining good hygiene	2	6	20	22	50
Has pap test done on you before	2	6	20	22	50
Total	6	15	40	44	105
Pearson Chi-Square value	22.680				
p-value	0.002				

Abbreviations:

HSIL – High grade Squamous Intraepithelial Lesions.

LSIL – Low grade Squamous Intraepithelial Lesions.

ASCUS – Atypical Squamous Cells of Undetermined Significance.

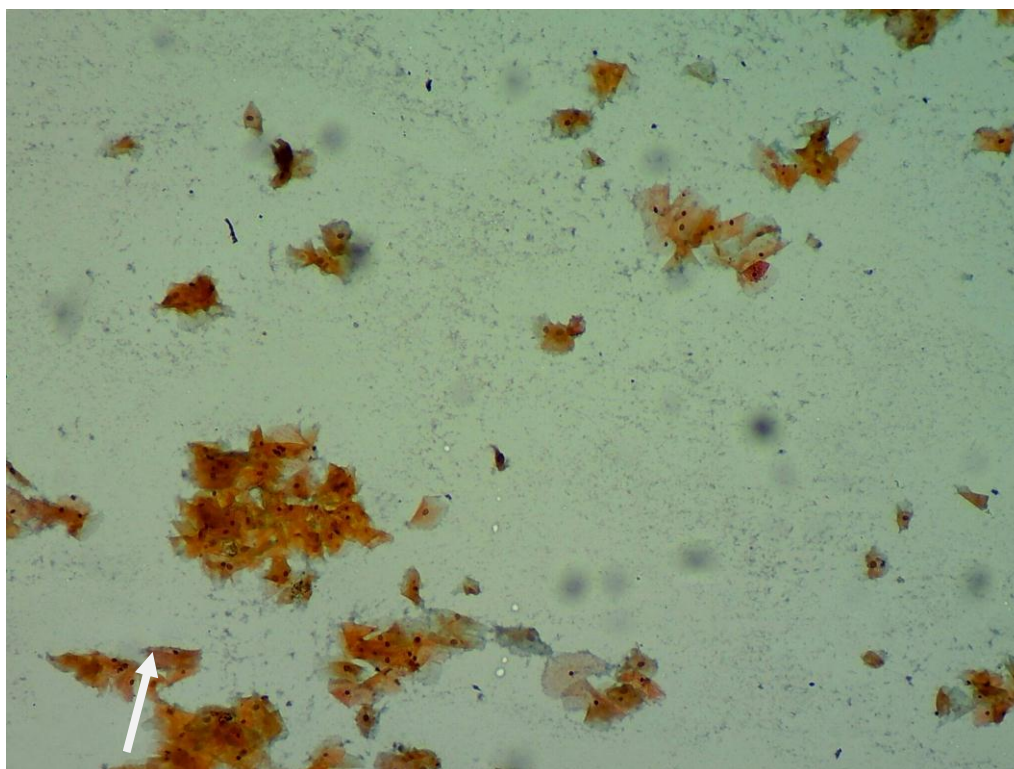


Figure 1: Photomicrograph of slide shows cellular dysplasia with multi nucleation (Pap x 100).

DISCUSSION

This study is based on the cervical cancer screening of women of child bearing age which according to International Cancer Registry Program, opined that there should be an effective mass screening program for women aimed at a specific age group for detecting pre-cancerous situations before they progress to invasive cancer.^[10]

Our findings shows that majority of the women of child-bearing age are aware about the Pap smear screening program and the ideal age for sexually active women, however their knowledge about the screening was poor. Pap smear programs are complex and costly to run and have failed to reach a significant proportion of women in developing countries where health systems and infrastructures are weak.^[11] Thus, the most probable explanation of the low knowledge of cervical cancer screening among the child bearing women can be attributed to the fact that most Nigerians are not financially buoyant enough and secondly, are unconscious of preventive health programs which prevent them from striving to know about things that may have both direct and indirect implications to their health. Also, this condition could be attributed to the fact that most Nigerian women do not see themselves vulnerable to certain health condition challenges such as cancer or to be infected by such health problem which makes them unaware about any preventive measures.^[12]

In this study, 72% patients had normal cells with normal nuclei while 16 % reveals cytological diagnosis of benign/inflammatory cells and severe dysplasia (HSIL)

(Fig.1) present in 6% of the cases. This is in consonance to Saha and Thapa^[13] in which normal cells were 68.5 and severe dysplasia was diagnosed in 6.97% of the patients. The cases of HSIL seen could be attributed to previous genital infections and early exposure to sexual activities which are risk factors of cervical cancer as these subjects who were multiparous (having more children) had their first Intercourse between the ages of 17-20 and also, had multiple sexual partners. When compared with those with normal cells, findings reveal that they maintain a healthy sexual lifestyle as they were not exposed to coitus at a teen age. Previous studies have found the correlation between multiparity, early sexual activity and previous viral infections as risk factors of cervical cancer^[14,15] which thus, confirmed our findings.

CONCLUSION

Awareness campaign should be intensified through regular radio programmes and jingles including seminars/workshop especially in rural communities for women geared at informing them about the need for cervical screening. Also, the cost of pap smear screening in many developing countries should be reduced to enable access to more women as many women are not economic buoyant to afford the cost of the test.

REFERENCES

1. Saslow D, Runowicz, CD, Solomon D. "American Cancer Society guideline for the early detection of cervical neoplasia and cancer: Cancer J Clin., 2002: 52(6): 342–362.
2. Palefsky JM. Cervical human papillomavirus infection and cervical intraepithelial neoplasia in

- women positive for human immunodeficiency virus in the era of highly active antiretroviral therapy. *Curr Opin Oncol.*, 2003; 15(5): 382–388.
3. Micheletti V, De Freitas DE, Murta FC. Cervicovaginal cytological abnormalities in patients with human immunodeficiency virus infection, in relation to disease stage, CD4 cell count and viral load,” *Diagn Cytopathol.*, 2009; 37(3): 164–169.
 4. Wang N, Emancipator S, Rose P. Histologic follow-up of atypical endocervical cells. Liquid-based, thin-layer preparation vs. conventional Pap smear. *Ann Cytol.*, 2009; 46: 453–457.
 5. Bukhari M, Majid M, Qamar S, Niazi S, Syed SZ, Yusuf AW. Clinicopathological study of Papanicolaou (Pap) smears for diagnosing of cervical infections. *Diagn Cytopathol.*, 2010; 40: 35–41.
 6. Wright, J. "The Effect of Using Water-based Gel Lubricant During a Speculum Exam On Pap Smear Results". *J Med Cytol.*, 2010; 23:39-45.
 7. Goldie S, Weinstein M, Kuntz K, Freedberg KA. The costs, clinical benefits, cost-effectiveness of screening for cervical cancer in HIV-infected women. *Ann Intern Med* 1991; 130: 97-107.
 8. Discover Okofia: Okofia in Nigeria (Anambra state). Okofia destinationguide Available via <http://www.tripmondo.com/Nigeria/anambra-state/okofia.html> (Accessed 13 July 2008).
 9. Nwosu OB, Okafor CI, Obiechina NJ, Odike, MA. The Pattern of Cervical Cytology in Obstetrics and Gynecology Clinics in Nnewi, South Eastern Nigeria. *Orient J Med* 2010; 22: 1-4.
 10. Mohammed S, Fohadiya Y, Raja R. Pap smear screening for precancerous conditions of cervical cancers. *Pak J Med Res.*, 2005; 44: 111-113.
 11. Awodele O, Adeyomoyo A, Kwashi V, Dolapo, D. A study on cervical cancer screening amongst women in Lagos state University Teaching hospital, Lagos, Nigeria. *J Med Educ.*, 2015; 3: 497-504.
 12. Okure B. Cervical cancer a growing menace. (case report). *Nurs Dig* 2015; 48: 5-9.
 13. Saha R and Thapa M (2005). Correlation of cervical cytology with cervical histology. *Kat Univ Med J* 2005; 3(3): 222-224.
 14. Akujobi C, Ihechebelu J, Onunkwo I,. Knowledge, attitude and practice of screening for cervical cancer among female students of a tertiary institution in south eastern Nigeria. *Niger J Clin Pr.*, 2008; 11: 216-219.
 15. Aniebue P and Aniebue U. Awareness and practice of cervical screening among female undergraduate students in a Nigerian university. *J Cancer Educ.*, 2010; 25: 106-108.