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CERVICAL CANCER SCREENING USING VISUAL INSPECTION WITH ACETIC ACID AND IODINE (VIA/VILI) BY A NON-GOVERNMENTAL ORGANIZATION IN RIVERS STATE, NIGERIA.

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ABSTRACT

Background: Cervical cancer is the fourth most common cancer among women worldwide, with the highest burden in in low- and middle-income countries (LMICs) where it is the second most common cancer in women.Nearly 90% of the estimated 570,000 new cases and 311,000 deaths in 2018 occurredin LMICs.

Aim/Objective: The objective of the program was to promote cervical cancer awareness and early detection strategies including the introduction of Visual Inspection with Acetic Acid (VIA) and Iodine (VILI) as screening tools among our women.

Method: This was a cross – sectional study a reflective analysis of the VIA/VILI result of 101 women who participated in a cervical cancer awareness and screening community outreach organised by Preventive Health Care Initiative, a nongovernmental organization in Rivers State, Nigeria. A structured survey form was administered to all the women who consented to screening (after explanation of the procedure).The data was coded and analysis was performed in simple statistical method.

Results: The age range of women screened was between 19 and 73years with a mean age of 39years and 82 (81%) were within the reproductive age. Sixty six (65%) of the women had tertiary education while thirty and three of them had secondary and primary education respectively, only two women had no formal education.

Majority of the women 56 (55%) were married while 35 (32%) were single and 10 (9%) were widows. The average age of participants at first sexual exposure was 20 years with 25 (23%) commencing sexual activity before 18 years. Forty one (37%) of the women were grand multiparous, only eighteen (16%) claimed never to have been pregnant. There were 15 (15%) VIA /VILI positive cases and 3 (2.7%) were clinically suspicious of invasive cervical cancer.

Conclusion: The study revealed that there were 15 (15%) VIA /VILI positive cases and 3 (2.7%) were clinically suspicious of invasive cervical cancer. In addition, the study revealed the average age at coitarche was20 years.

Key words: Cervical cancer, Screening, Preventive Healthcare Initiative, Nigeria.

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INTRODUCTION

Cervical cancer is the fourth most common cancer among women worldwide, with the highest burden in in low- and middle-income countries (LMICs) where it is the second most common cancer in women[1-4]. Nearly 90% of the estimated 570,000 new cases and 311,000 deaths in 2018 occurredin LMICs [1-2].Cervical cancer is a largely preventable, but remains a major cause of cancer

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related death in low- and middle-income countries (LMICs), where resources for effectiveprevention and screeningprograms are scarce and inaccessible. Nearly 80% ofcervical cancer cases in LMICs like Nigeriapresent with advanced-stage invasive cervical cancer, with high morbidity and mortality [1,5], whereas the incident and mortality rates are almost 6-7 times lesser in High-Income Countries (HIC) [6].

The preventive strategies are based on the established knowledge that nearly all cases of cervical cancer are attributable to persistent HumanPapilloma Virus (HPV) Infection [7]. The infection is naturally followed by a predictive course of progression from mild dysplasia to invasive cancer over 10-20 years [7,8].Thus,justifying the rationale for cervical cancer prevention through HPVvaccination, screening and treatment of precancerous lesions. Additionally, primary preventioncan also be achieved through health promotional activities thatinvolve community education aboutcervical cancer and risk reduction strategies that are culturallyappropriate. Thisis particularly important in LMICs, where several studies have shown poor knowledge of the disease [9] and HPV vaccine is inaccessible and vaccination coverage is poor [1-4]. Secondary prevention strategy like cervical screeningsubsequently should be adopted in battling the cervical cancer burden in LMICs [13].The recommended screening tests include cytology (Conventional (Pap smear) andLiquid based), HPV- DNA testing, and Visual Inspection with either Acetic Acid (VIA) or Lugol's Iodine (VILI) or both.

In High Income Countries (HICs)over 80% decline in cervical cancer has been achieved through organised screening cytology-basedprogramme. Whereas, in LMICs cytology-based screening has remained ineffective, with poor coverage.In view of the failure of cytology -based screening programmes, the World Health Organization recommendedvisual inspection (VIA/VILI) as alternative screening method in LMICs [3-4]. The method is easier to perform, accurate, cost-effective and the results are instant which allows treatment at a sitting [1-4]

Several studies have also shown that visual inspection demonstrated a close diagnostic accuracy to cytology,[2,4]and already adopted by twenty-six countries [4].

In Nigeria, with an estimated 14,943 new cases and 10,403 deaths annually, the cytology-based screening uptake is relatively low, essentially due inadequate resources in running an organised national prevention program for women [1,3],[9-11].

It is against this backdrop that that Preventive Healthcare Initiative organised a cervical cancer awareness and early detection out reach at the Amadi Polytechnic Medical Centre, Rumuadolu, Port Harcourt. The program was preceded by a week-long public enlightenment and awareness campaigns on social media, radio and television.

The objective of the program was to promote cervical cancer awareness and early detection strategies including the introduction of Visual Inspection with Acetic Acid (VIA) and Iodine (VILI) as screening tools among our women.

METHOD

This study is a reflective analysis of the VIA/VILI result of 101 women who participated in a cervical cancer awareness and screening community outreach organised by Preventive Health Care Initiative, a nongovernmental organization in Rivers State, Nigeria.Following the preliminary cervical cancer education session ,a structured survey form was administered to all the women who consented to screening (after explanation of the procedure).All the participants were asked to respond to questions related to their age, educational level, last menstrual period (LMP), first sexual exposure, marital status, parity and complaints related to cervical cancer. The screening method was visual inspection with acetic acid (VIA) and Lugol's iodine (VILI). The procedure and interpretation of results were as directed in the WHO manual (A Practical Manual on Visual Screening for Cervical Neoplasia). The procedure was well tolerated by the participant with no complaints.

The Interpretation of the VIA and VILI colour changes were both classified as negative, positive, or suspicious (clinically suspicious cases of invasive cancer). The VIA colour changes were recorded as positive (for aceto white lesion at the squamo-columnar junction), negative (no aceto-white lesion).

Results were classified as suspicious when the lesions macroscopically suspicious cases of invasive cancer.The analysis was performed in simple statistical method.

RESULTS

The age range of women screened was between 19 and 73years with a mean age of 39years and 82 (81%) were within the reproductive age. Sixty six (65%) of the women had tertiary education while thirty and three of them

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had secondary and primary education respectively, only two women had no formal education.
Majority of the women 56 (55%) were married while 35 (32%) were single and 10 (9%) were widows. The average age of participants at first sexual exposure was 20 years with 25 (23%) commencing sexual activity before 18 years. Forty one (37%) of the women were grand multiparous, only eighteen (16%) claimed never to have been pregnant. There were 15 (15%) VIA /VILI positive cases and 3 (2.7%) were clinically suspicious of invasive cervical cancer. All positive cases were referred to Rivers State University Teaching Hospital and successfully navigated for further investigation and received appropriate treatment and follow up.

DISCUSSION

This study was carried out by Preventive Health Care Initiative, a nongovernmental organization in Rivers State, Nigeria. The analysis from the study showed that 15% of the populace were positive for VIA/VILLI. This result was lower than the upper limit of 25% by the study done by Ajenifuja KO et al in a population-based study in rural Nigeria [9]. Furthermore, in another cross-sectional study by Stravasta et al in India over an eighteen month period revealed that 21.38% that were screened for cervical cancer using VIA were positive, this was higher than the result of 15% from our study. However, in a study in Ethiopa by Hailemariam G et al was 9% for the positive VIA screening for the populace that were screened for cervical cancer which was not in agreement with our study [11].
The challenges of screening with VIA/VILLI are myriad; though the World Health Organization (WHO) recommends screening for cervical cancer using the human papillomavirusDNA testing.[12]. This recommendation is based on the fact that this testing modality is more sensitive and detects precancerous and cancers compared to VIA/VILLI [12-13]. However, human papillomavirus screening is not widely available in Nigeria and many other developing countries of the world [12-16]. For this reason the WHO allows alternative screening modality of VIA/VILLI as part of “screen and treat” as an inexpensive as well as a simple procedure by trained health personnel thus give a wider screening coverage [12][18-20]. However, issues such as false positivity and over treatment are challenges with VIA/VILLI due to subjectivity and variability in the interpretation of results between health care providers [12-14].
For low resource settings like ours options of treatment during screening with VIA/VILLI include cryotherapy using nitrous oxide or in some other settings using carbon dioxide for precancerous lesions [12-16].In addition, more recent modality for treatment in “screen and treat” using VIA/VILLI is the use of thermal ablation as suitable for low-resource setting [12-15]. The reason for this recommendations by WHO is base on the use of light weight equipment, short treatment time and the use of hand-held battery operated and solar powered models [12-16].
The study revealed that majority of the respondents 66% had tertiary level of education this is in agreement with studies done in urban cities in the country,[9-14][18-20] this figure is shown in **Table 1** and **pie-chart**.

Table 1: Distribution of the level of educational status of respondents

Level of education	**Frequency (%)**
No formal education	2 (2 %)
Primary	3 (3 %)
Secondary	30 (30%)
Tertiary	66 (65%)
Total	110 (100%)

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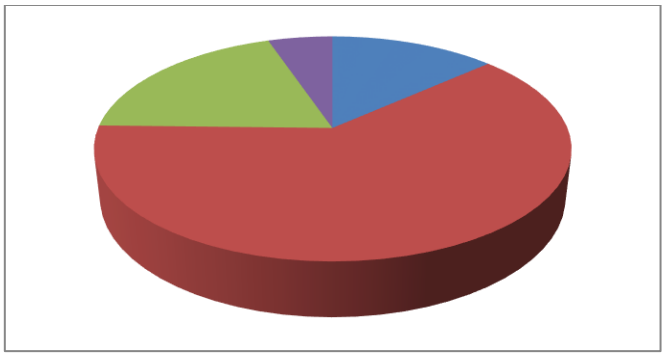

Figure 1 : Distribution of educational status of the respondents

Primary – 2 (2%) …….. Blue
Secondary – 30 (30%) …… Grey
Tertiary – 66 (65%) ……. Brown
No formal education – 2 (2%) Yellow,,
Total = 110 (100%)

CONCLUSION

The study revealed that there were 15 (15%) VIA /VILI positive cases and 3 (2.7%) were clinically suspicious of invasive cervical cancer. In addition, the study revealed the average age at coitarche was 20 years. Enlightenment campaign by the government and nongovernmental organisations is highly recommended as well as organized screening modalities for at risk persons for cervical cancer to prevent morbidities and mortalities from the disease condition.

RECOMMENDATION

All the whose had negative results were counselled based on the SOGON/National screening recommendation for negative (VIA/VILI) results. All positive cases were however referred to Rivers State University Teaching Hospital and successfully navigated for further investigation and received appropriate treatment and follow up.
Large scale study with larger sample size is recommended.
There was no conflict of interest.

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