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Cervical Cancer in a Tertiary Hospital in South-South, Nigeria: A 5-Year Review

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Authors' contributions

This work was carried out in collaboration among all authors. Author DOA wrote the protocol of the study and supervised the entire research. Author LO participated in literature searches and wrote the discussion. Author PCO conceptualized and designed the study, managed literature searches, participated in data collation and wrote the first draft of the manuscript. Author EST participated in literature searches and wrote the results. Authors CN and ASA participated in literature searches and writing of the results and discussion. Authors CI, KMM and TJW collected data. Authors OSO, OI and GA collated data. All authors read and approved the final manuscript.

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ABSTRACT

Background: Cervical cancer is the most common gynaecological cancer in developing countries. The World Health Organisation estimated that there were about 570,000 new cases of cancer of the cervix in 2018 and about 311,000 women died of the disease.
Objective: To determine the prevalence and characteristics of patients with cervical cancer at the Federal Medical Centre, Yenagoa, Bayelsa State, Nigeria.
Materials and Methods: This was a descriptive study which involved all the patients with histologically confirmed cervical cancer managed at the gynaecological unit of the hospital from 1st January, 2016 to 31st December, 2020. Information was extracted from the gynaecological records and entered into a predesigned proforma. All available data were retrospectively analysed with SPSS version 23.0, and results were presented in tables and frequencies.
Results: There were 31 cases of cervical cancers out of the 2,478 gynaecological cases seen. The prevalence of cervical cancer was 1.25%. About one-third of the women were in the sixth

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decade of life (32.3%). About half of the women were diagnosed at Stage 2 of the disease (51.6%) and squamous cell carcinoma accounted for 80.6% of the cancers. Radiotherapy was the most used treatment option (64.5%). About one-quarter died (25.8%).
Conclusion: Most of the patients in this study presented in the advanced stages of the disease, with death of about one-quarter of them. Prevention and early presentation to the hospital are key in the prevention of poor quality of life and deaths. All hands must be on deck to tackle this disease.

Keywords: Cervical cancer; most common; developing countries; death.

1. INTRODUCTION

Cervical cancer is the most common gynaecological cancer in developing countries [1]. The World Health Organisation estimated that there were about 570,000 new cases of cancer of the cervix in 2018 and about 311,000 women died of the disease [2] about 84% of all the cases of cervical cancer and 88% of all associated deaths occurred in the developing countries of the world [3]. Studies from Nigeria reveal that up to 90% of women who are diagnosed with cervical cancer have advanced disease [4-6]. Lack of information and screening facilities, and cost of screening were among the factors that have been identified to limit uptake of cervical cancer screening services [7-8].

There is no clear-cut screening programme for cervical cancer in Nigeria. However, every Centre has its own protocol for screening. The age range for cervical cancer screening, as recommended by the Royal College of Obstetricians and Gynaecologists (RCOG) is 25 – 64 years with 3-yearly tests from 25 – 49 years and 5-yearly tests afterwards to 64 years [9]. The Society of Gynaecology and Obstetrics of Nigeria (SOGON) recommends a screening target population of 25 – 65 years [10].

Nigeria has a population of approximately 200 million people with a land mass of 923,768 km^2 (356,669 sq mi) [11]. It has the largest population in Africa, and the sixth largest in the world [12]. Most of the population of Nigeria consists of young people, with 42.5% between 0 – 14 years of age [12-13]. The percentage of women between the age-group of 25 – 64 years is 17.4% [12]. Nigeria has a very high dependency rate of 88.2 dependants per 100 non-dependants [12].

As of 2018, 50.3% of Nigerians lived in the urban areas, while 49.7% lived in the rural areas. The rate of urbanization is 4.3% per year [12]. Those that live in the rural areas are more of people of the low socio-economic status. The health facilities are situated more in the urban areas. Therefore, most times the rural dwellers will need to go to the urban areas for medical consultation. Many Nigerians still pay their medical bills out-of-pocket, as those that benefit from the health insurance scheme are those that are gainfully employed.

The healthcare facilities in Nigeria include primary, secondary and tertiary health institutions. The catchment areas for the tertiary health institutions are all the primary and secondary Centres. The transportation options to health facilities are mainly by road and water.

Human Papilloma Virus (HPV) which is known to cause cervical cancer is sexually transmitted, and high-risk sexual behaviour including early age at coitarche, involvement with multiple sexual partners are risk factors for the condition. Married to a high-risk husband, High parity, tobacco use, use of the combined oral contraceptive pill, low socio-economic status and HIV infection are known risk factors for cervical cancer [1,4]. Cervical cancer is an AIDS defining illness [1].

Early-stage cervical cancer may be asymptomatic. Clinical presentation in general, depends on the stage of the disease at which the patient presents, and the stage of the disease at presentation determines the chances of survival [1,5,6]. Symptoms such as watery vaginal discharge that may or may not be malodorous, contact or post coital bleeding can be seen in patients with cervical cancer.

Radiotherapy, chemotherapy with or without surgery are the mainstay of therapy in cervical cancer with multidisciplinary management being emphasised and required. At each follow up visit, questions concerning the general wellbeing of the woman should be asked. Symptoms and signs suggestive of a recurrence including the presence of a pelvic mass should be asked. A

pelvic examination should be performed and a Papanicolaou smear should be performed every six months or annually [1].

There is a need to balance the desire to maintain fertility against the risk of disease progression in young women. In women with carcinoma in situ or stage $1A_1$ disease; cryotherapy, loop excision of the transformation zone (LETZ) or cone biopsy are options of treatment with adequate counselling and follow up. For the patients with stage $1A_2$ or $1B_1$ disease, a radical trachelectomy may be considered if they meet the selection criteria and the required personnel/equipment are on hand [1,14].

Some of the differential diagnoses of cervical cancer are cervicitis, atrophic vaginitis, cervical polyps, endometrial hyperplasia and endometrial cancer [1,14].

Cancer of the cervix can be prevented by providing widespread and regular cervical cancer screening services for all women who have been sexually active. In the United Kingdom and other developed countries, proper and regular screening services have reduced the morbidity and mortality associated with cervical cancer to less than 1% [15]. Papanicolaou smears, visual inspection with acetic acid are affordable and sensitive. Visual inspection with acetic acid and lugol's iodine are simple and cost effective. Vaccination against human papilloma virus is very effective; however, it is expensive. The most common human papilloma virus types that cause cervical cancer are 16 and 18. Types 6 and 11 cause genital warts. Other types include 31, 33, 45, 52, 58.

Cervical cancer is a preventable disease. The success made in developed countries can be replicated in the sub-Saharan Africa. With proper patient education and political will of our leaders, this disease will be eradicated. The objective of this study was to determine the prevalence of cervical cancer and characteristics of patients with cervical cancer at the Federal Medical Centre, Yenagoa, Bayelsa State, Nigeria.

2. MATERIALS AND METHODS

This research was carried out at the Department of Obstetrics and Gynaecology, Federal Medical Centre, Yenagoa. It was a descriptive study which involved all the patients with histologically confirmed cervical cancer managed at the gynaecological unit of the hospital between 1st January, 2016 and 31st December, 2020. Information was extracted from the gynaecological clinic, gynaecological emergency and gynaecological ward registers, and patients' medical records were entered into a pre-designed proforma. All available data were retrospectively analysed using statistical software package and results were then presented in tables and frequencies.

3. RESULTS

There were 31 cases of cervical cancers out of the 2,478 gynaecological cases seen between 1st January, 2016 and 31st December, 2020 in the Federal Medical Centre, Yenagoa. The prevalence of cervical cancer was 1.25% of the gynaecological cases in the Centre.

3.1 Sociodemographic Characteristics and Anthropometric Measures of Patients

Table 1 showed that about one-third of the women were in the sixth decade of life (32.3%), while one-quarter of the women were in the fifth decade of life (25.8%). About 61.3% of the women were married and 83.9% were overweight.

3.2 Gynaecological Cancers in the Federal Medical Centre, Yenagoa

Table 2 showed the incidence of the gynaecological cancers seen in the Centre in the period under review. Cervical cancer was the most common, with ovarian and endometrial cancers coming second and third respectively Table 2.

3.3 Gynaecological Features of Patients with Cervical Cancer

Table 3 showed that 20 women (64.5%) had menarche at the normal age, while 11 women (35.5%) had early menarche. Mean ages of menarche, coitarche and marriage were 12.2±1.2 years, 16.5±2.1 years and 19.9±2.7 years respectively Table 3. More than half of the women were grand multiparous women (58.1%). Parity ranged between 1 and 12 with a median of 6 Table 3.

Table 1. Sociodemographic characteristics and anthropometric measures of patients with cervical cancer

Characteristics	Frequency (N = 31)	Percent (%)
Age group		
<40 years	4	12.9
40 - 50 years	8	25.8
50 - 60 years	10	32.3
≥ 60 years	9	29.0
Mean Age ± SD in years	54.5 ± 12.5	
Marital status		
Married	19	61.3
Separated	10	32.2
Widowed	2	6.5
Highest level of education		
None	8	25.8
Primary	8	25.8
Secondary	9	29.0
Tertiary	6	19.4
Occupation		
Unemployed	1	3.2
Civil Servant	7	22.6
Trader	11	35.5
Farmer	12	38.7
Mean weight ± SD in Kg	73.7 ± 6.2	
Mean height ± SD in m^2	1.63 ± 0.06	
Mean BMI ± SD in kg/m^2	27.6 ± 2.1	
Body mass index categories		
Normal (18.5 kg/m^2 – 24.9 kg/m^2)	3	9.7
Overweight (25 kg/m^2 – 29.9 kg/m^2)	26	83.9
Obese (30 kg/m^2 and above)	2	6.5

Table 2. Gynaecological cancers in the federal medical centre, Yenagoa

	Cervical cancer	Ovarian cancer	Endometrial cancer	Total
Number of cases	31	20	17	68
Percentage (%)	45.6	29.4	25	100

Table 3. Gynaecological features of patients with cervical cancer

Characteristics	Frequency N = 31	Percent (%)
Menarche		
Early menarche (< 11 years)	11	35.5
Normal menarche (11 – 15 years)	20	64.5
Mean age of menarche ± SD in years	12.2 ± 1.2	
Mean age of Coitarche ± SD in years	16.5 ± 2.1	
Mean age of Marriage ± SD in years	19.9 ± 3.7	
Parity		
Primiparous (1)	1	3.2
Multiparous (2 – 4)	12	38.7
Grand multiparous (> 4)	18	58.1
Median Parity (Range)	6 (1 – 12)	
Menopause		
Early (40 < 45 years)	0	0.0
Normal (45 – 55 years)	18	58.1
Late (> 55 years)	0	0.0
Pre-menopausal	13	41.9
Mean age of menopause ± SD in years	51.7 ± 2.3	

3.4 Presenting Complaints and Risk Factors among Women with Cervical Cancer

The leading presenting complaints are vaginal bleeding and discharges in 96.8% and 67.7% respectively Table 4. Table 4 also showed identified risk factors include history of multiple sexual partners (41.9%), history of hypertension (25.8%) and family history of gynaecological cancers (16.1%).

3.5 Staging and Histological Types of Cervical cancer

As shown in Table 5, about half of the women were diagnosed at Stage 2 of the disease (51.6%) and squamous cell carcinoma accounted for 80.6% of the cancers. Table 6 revealed radiotherapy as the most used treatment option among this population of patients (64.5%). About one-quarter died (25.8%), 19.4% defaulted in the treatment regimen probably due to financial constraint, while 16.1% had recurrence after an average of 18 months of initial resolution Table 6.

4. DISCUSSION

Cervical cancer has continued to have a devastating impact on women's health globally, and particularly in developing countries like Nigeria where it has remained the commonest gynaecological cancer [5,16]. The global incidence of cervical cancer is 13·1 per 100,000, and this varies from one country to another [3]. Greater than one-third of the global burden of cervical cancer is contributed by China and India together [3]. About 22.5% of all cancers in sub-Saharan Africa is due to cervical cancer; and most of these women reside in the rural areas [17]. The average prevalence of cervical cancer in Nigeria is 21.6%;[18] and it varies from 23% in Zaria, [19] 63% in Ilorin [20] to 65.2% in Nnewi [6]. The prevalence of cervical cancer from our study (45.6%) is double the average figures from sub-Sahara Africa, Nigeria, and Zaria, but lower than those from Ilorin and Nnewi.

In this retrospective study, a total of 31 cases of cervical cancer were diagnosed over a period of 5 years, majority of which were in advanced stages of the disease at presentation. This finding reflects the enormous burden of late presentation of cervical cancer in a resource-limited setting like ours. This finding of late presentation is consistent with a study done in Nnewi where a majority (89.3%) of the patients presented in advanced stages of the disease for treatment [6]. Other related studies in Northern Nigeria have documented the presence of advanced disease at presentation in 66 – 81% of patients with cervical cancer [17]. Cervical cancer is said to be rare in girls younger than the age of 15 years. The risk of cervical cancer increases with age. Therefore, women need to continue to have regular screening for cervical cancer [21].

Cervical cancer consisted of 45.6% of all gynaecological malignancies in this study, which was the commonest gynaecological cancer, ahead of ovarian cancer (29.4%) and endometrial cancer (25%) respectively. This trend is consistent with what is already known about cervical cancer in the developing countries [1].

Table 4. Presenting complaints and risk factors among women with cervical cancer

Characteristics	Frequency (N = 31)	Percent (%)
Presenting Complaints		
Vaginal bleeding	30	96.8
Vaginal discharge	21	67.7
Abdominal pain	7	22.6
Weight loss	6	19.4
Vaginal protrusion	1	3.2
Risk factors		
History of Multiple sexual partners	13	41.9
History of Hypertension	8	25.8
Positive family history of Gynaecological Cancer	5	16.1
History of Diabetes mellitus	3	9.7
HIV Status	2	6.5
Smoking	1	3.2
COCP Use	1	3.2
Renal failure	1	3.2
Menopausal syndrome	1	3.2

Table 5. Staging and histological types of cervical cancer

Characteristics	Frequency N = 31	Percent (%)
Tumour staging		
Stage 1	3	9.7
Stage 2	16	51.6
Stage 3	4	12.9
Stage 4	8	25.8
Histological Subtype		
Squamous cell carcinoma	25	80.6
Adenocarcinoma	6	19.4

Table 6. Treatment modality and outcome of management

Characteristics	Frequency N = 31	Percent (%)
Treatment		
Surgery	5	16.1
Radiotherapy	20	64.5
Surgery and Radiotherapy	6	19.4
Outcome		
*Recurrence	5	16.1
Defaulted	6	19.4
Death	8	25.8

**Recurrence was after an average of 18 months of initial resolution*

The demographic characteristics of the patients in this study are similar to many studies carried out in Nigeria. For instance, the mean age of patients in this study is 54.5 years which falls within the peak mean age range of about 43.5 – 54.5 years in many other studies [5,13,21]. These findings further affirm that cervical cancer afflicts women at a time when they are vital to social and economic stability [5].

The risk of developing cervical cancer was highest among grand multiparous women, which constitutes 63% of the study population, with a mean parity of 6. This is similar to the findings in Zaria by Oguntayo et al which also reported 63%, [22] and Ikechebelu et al who reported 81.3% with a mean parity of 6.8. [6] Many other studies carried out in Africa have demonstrated an association between high parity and incidence of cervical cancer [6,22]. Other risk factors identified were history of multiple sexual partners (41.9%), hypertension (25.8%) and family history of gynaecological cancers (16.1%). It has been recently estimated by the WHO that about 5% of all cervical cancer patients are due to HIV; and HIV-positive women are six times more likely to develop cervical cancer compared to HIV-negative women [23].

Most of the cases of cervical cancer are associated with sexually transmitted genital infection by human papilloma virus (HPV). Testing for human papilloma virus will greatly reduce the incidence of cervical cancer. HPV is the most prevalent sexually transmitted infection in the world occurring in up to 75% of sexually active women [24]. People (women and men) become infected with HPV when sexual activity is started. However, it can take 10 – 20 years for cervical cancer to develop [25] the risk of cervical cancer is low in Nums, Amish and Jews, and rare in virgins [1].

The mean age at first sexual intercourse in this study was 16 years. This was lower than 19 years that was reported in a study in Rivers State, Nigeria by Azuonwu et al. [21]. Early coitarche is known to be a risk factor for the development of cervical cancer. This is so because squamous metaplasia occurs at puberty and during first pregnancy [21] Women who had sexual intercourse a year after menarche had a 26 – fold increased risk of developing cervical cancer compared with women who had sexual intercourse after the age of 23 years [21].

The commonest symptom at presentation was abnormal vaginal bleeding which was seen in 98.7% of cases. Most of them had more than one symptom at presentation as this was closely followed by abnormal vaginal discharge. This finding is similar to what was reported by Ikechebelu et al, Oguntayo et al and Ijaya et al [6,22,26].

Disease staging which takes into consideration tumour size, lymph node involvement and distant

metastasis has been shown to be an important prognostic factor for cervical cancer patient survival. In this study, about half of the study population (51.6%) were diagnosed at stage 2 of the disease. Squamous cell carcinoma was the commonest (80.6%) histological type seen, while adenocarcinoma accounted for 19.4%. This is similar to the findings in Nnewi, Nigeria where squamous cell carcinoma accounted for 89.3% and adenocarcinoma accounted for 8% [6]. In a study done in Kano by Sule et al, squamous cell carcinoma was also the most common histological type seen, accounting for about 82.2% of cases [26] Adenocarcinoma was the second most common histological type in the study constituting about 12.8% of cervical cancers in Kano, Nigeria [27].

About 83.9% of the study population was referred for radiotherapy. This is lower than the 97.3% recorded in Nnewi in Nigeria by Ikechebelu et al, where almost all the patients were referred for radiotherapy [6]. During the study period, 5 (16.1%) of the patients had a recurrence, about 6 (19.4%) defaulted from treatment and follow up and about 8 (25.8%) deaths were recorded. Out of the 8 women that died, 3 had stage 3 disease, while 5 had stage 4 disease. Four of the women were in their 6th decade of life, while the other four were in their 7th decade of life. They all had squamous cell carcinoma. These information go a long way to strengthen the importance of prevention and early diagnosis.

The report of 8 (25.8%) deaths from cervical cancer in our facility in the period under review is not different from what is obtained in other Centres in sub-Saharan Africa and other developing countries of the world. Therefore, to prevent these deaths from cervical cancer, adequate preventive measures must be put in place. Prevention of cervical cancer involves primary, secondary and tertiary preventive measures.

Primary prevention includes awareness creation on cervical cancer, avoidance of risky behaviour, use of barrier methods of contraceptives, healthy living (healthy food, exercise, and avoidance of sedentary life style), avoidance of prolonged use of oral contraceptive pills, avoidance of smoking, male circumcision and HPV vaccination (Gardasil 9) for both sexes. The HPV vaccines in present use are the bivalent (cervarix) for types 16 and 18; quadrivalent (Gardasil) for types 6, 11, 16, and 18) and Nonavalent (Gardasil9®) for types 6, 11, 16, 18, 31, 33, 45, 52, and 58. These vaccines exhibit moderate cross-protection against some HPV types that are not targeted.

Secondary prevention includes visual inspection with acetic acid, visual inspection with lugol's iodine, Papanicolaou smear, colposcopy, HPV-DNA tests. More recent advances include cervicography, autoPAP, polar probe and the use of VGX3100 therapeutic vaccine [28]. Hybrid capture 2, careHPV and genexpert are the most recent methods for detection of HPV-DNA. Integrated approach in secondary prevention which involves 'screen and treat' is presently being advocated in developing countries.

Methylation levels of 2 genes CADM1 and MAL increases with the grade of dysplasia, and is highest in carcinomas [29]. These genes are being studied as a means of detecting cervical cancer very early. Management of pre-malignant conditions of the cervix is also part of secondary prevention. The procedures usually used are the ablative and the excisional methods. Some of these methods above, especially the recent advances, may not be feasible in the developing countries due to unavailability and high cost (where they are found).

The most readily available, cost-effective and easy methods in the developing countries are visual inspection with acetic acid, visual inspection with lugol's iodine and Papanicolaou smear. The cost of Papanicolaou smear in our Centre is ₦5,000 which is about $10. Two screening strategies are presently being used. They are Opportunistic Screening and Institutional Screening.

Tertiary prevention involves early diagnosis, giving of appropriate therapy and rehabilitation. Carboplatin, bevacizumab, and biomarkers are also being used in the treatment of cervical cancer.

To tackle cervical cancer in our sub-region, awareness campaigns and health education on the importance and need for women to have regular Papanicolaou smear screening, colposcopy, HPV vaccination (must be in the front burner of our public health efforts), training and re-training of gynaecologists (must form a core in our post-graduate training efforts), acquisition of facilities for radiotherapy in our hospitals for the treatment of various cancers, training and acquisition of facilities for HPV typing in the pathology laboratories in our various

Centres must be the core interest of the government.

5. CONCLUSION

Cervical cancer commonly affects women in developing countries, like Nigeria. Most of the patients in this study presented in the advanced stages of the disease, with death of about one-quarter of them. Cervical cancer is highly preventable. Prevention and early presentation to the hospital are key in the prevention of the poor quality of life and deaths that are associated with cervical cancer. All hands must be on deck to tackle this disease.

CONSENT

It is not applicable.

ETHICAL APPROVAL

The research work was examined and approved by the hospital research and ethics committee.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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