Original Article

# Cancer of the Cervix in Unscreened West African Women

**Sule A Gaya, Ibrahim A Yakasai, Aminu Z Muhammad[1], Hadiza S Galadanci, Ibrahim D Garba**

*Departments of Obstetrics & Gynaecology and [1]Pathology, Bayero University Kano/Aminu Kano Teaching Hospital, Kano, Nigeria*

## ABSTRACT

**Background:** Cancer of the cervix remains an important health problem amongst women worldwide. Widespread comprehensive cervical cancer control programs have resulted in a marked reduction in the incidence and mortality in most developed countries. Developing countries bear over 80% of the global burden, with only 5% of the global resources for the control of cancer. Majority of the cases in these countries present late and are incurable at the time of diagnosis. **Aim:** To review the presentation and histopathological types of cervical cancer cases seen in Aminu Kano Teaching Hospital Kano, over a sixteen-year period (1995–2010). **Materials and Methods:** Case records of histopathologically diagnosed cases of cancer of the cervix were retrieved. Demographic data, stage of the tumor at presentation, and histopathologic type were extracted. The results were analyzed using descriptive statistics. **Results:** Six hundred and sixty gynecological cancers were seen during the study period, with cancer of the cervix accounting for 58.5% (386/660) cases. Among these cases with cancer of the cervix 71.1% (275/386) were grand multiparous and majority 89.7 % 346/386 presented with advanced disease. Squamous cell carcinoma (SCC) accounted for 86.3% (333/386) of the cancers, adenocarcinoma contributed 12.4%,(48/386) and others contributed 1.3% (5/386). **Conclusion:** Cancer of the cervix is the commonest gynecological cancer at Aminu Kano Teaching Hospital, Kano, Nigeria. SCC is the commonest histological type.

**KEY WORDS:** Africa, cervical cancer, screening

## INTRODUCTION

Cancer of the cervix remains an important health problem in women worldwide. It is the second most common cancer in women globally and the most frequent in developing countries.[1,2] Cancer of the cervix accounted for 65.7% of gynecological cancers in Zaria and 63.1% of gynecological cancers in Ilorin, Nigeria.[3,4] Kano is the most populous (10 million people) state in Nigeria, and has 44 local governments, municipal being the biggest with 3.5 million people. Majority of the people have low literacy level and some are still averse to Western education. A good number of them do not avail themselves of any hospital treatment until their disease became life threatening. They have an existing sociocultural practice of polygamy which predisposes to multiple sexual partners and the women tend to have a large number of children. Widespread comprehensive cervical cancer control programs have resulted in a marked reduction in the incidence and mortality in most developed countries where precursor lesions which antedate the development of cervical cancer by several years are more often detected.[5-8] Women of low socioeconomic status and members of ethnic minorities who are medically underserved account for the majority of the cases in the United States.[5,6] In European countries with unevenly implemented screening programs and an aging population, the diagnostic rate of cervical cancer is similar to estimates for the less developed countries of Africa, and Central and South America.[7,8] Worldwide, cervical cancer accounts for 500,000 new cases diagnosed and 250,000 deaths every year. Developing countries bear over 80% of the global burden, with only 5% of global resources for the control of cancer,[1] and in these same countries, 75% of the women present with an advanced disease that may be incurable.[1,9]

Amongst the well-characterized risk factors for cancer of the cervix, some types of human papilloma virus (HPV) have been unequivocally established as causal factors of the disease.[2,10,11] HPV type 16 accounts for 50 to 60% of the cases in most countries, whereas HPV-18 accounts for 10 to 12%, and HPV-31 and 45, 4 to 5% each.[9] Assessments of

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**Address for correspondence**
Dr. Ibrahim A Yakasai,
Department of Obstetrics and Gynaecology,
Aminu Kano Teaching Hospital, PMB3452, Kano, Nigeria.
E-mail: ibrahimyakasai57@hotmail.com

HPV types in sub-Saharan Africa have shown a higher than average proportion of HPV type 45 in addition to the most common types 16 and 18.[11]

HPV is transmitted sexually and the probability of transmission is increased with first occurrence of sexual intercourse at an early age, multiple sexual partners or a consort with multiple sexual partners, and an uncircumcised male partner. Cigarette smoking, low socioeconomic status, oral contraceptive use, and immunosuppression are also factors known to influence the risk of cervical cancer positively.[2,12] Epidemiologic studies in Nigeria, where cervical cancer is the most common female cancer, have demonstrated a link with several of the risk factors known to predispose to this cancer.[13-15]

Although squamous cell carcinoma (SCC) is the predominant histologic type of cervical cancer seen globally, recent reports indicate a rising incidence and proportion of adenocarcinoma relative to SCC with similar epidemiologic risk factors.[16-18] Part of the increase has been attributed to an increasing prevalence of HPV and partly to the improvement in screening for cervical cancer.[19]

In view of the changing trend of histological types of cancer of the cervix observed in countries with organized population-based cervical screening programs, our study attempts to review cases of cervical cancer seen in our institution from January 1995 to December 2010, where only opportunistic screening exists.

## MATERIALS AND METHODS

The materials for this study were derived from the folders of patients obtained from the Department of Health Records and from surgical pathology records in the Department of Pathology, Aminu Kano Teaching Hospital Kano, Nigeria, over a 16-year period (1995–2010). Kano is the most populous (10 million people) state in Nigeria, and has 44 local governments, municipal being the biggest with 3.5 million people. The state government has a large general hospital (Murtala Muhammad Specialist Hospital) where treatment is relatively free. There is no organized screening program in the state except occasional opportunistic screening by the Medical Women's Association of Nigeria (MWAN). All records of cases of histopathologically diagnosed cancer of the cervix were retrieved from the medical records department, reviewed, and analyzed for age, parity, marital status, presenting complaint, stage of the tumor at presentation, and histopathologic type. Descriptive statistics methods were used to analyze the results as whole numbers, percentages, tables, and charts.

## RESULTS

A total of 660 gynecological cancers were seen during the 16-year study period with cancer of the cervix accounting for 386 cases, thus contributing 58.5% (386/660), emerging as the commonest gynecological cancer in our institution. This number may appear small, but most of the women with cervical cancer usually go to the state hospital where treatment is free.

Figure 1 shows the age distribution of the cancer of the cervix with the peak age between 41 and 50 years and it demonstrated a bimodal distribution with a major peak in the 41–50 year group and a relatively smaller peak in the 61–70 year age group. About 98.5% (380/386) got married in their teens [Table 1].

Most of the patients were grand multiparous accounting for 71.1% (275/386) as depicted in Table 2. Majority of the

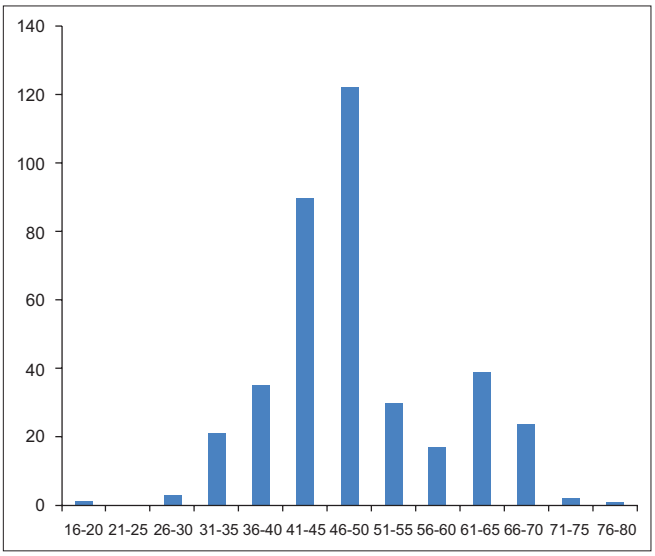


**Figure 1:** Age distribution of patients with cancer of the cervix at AKTH

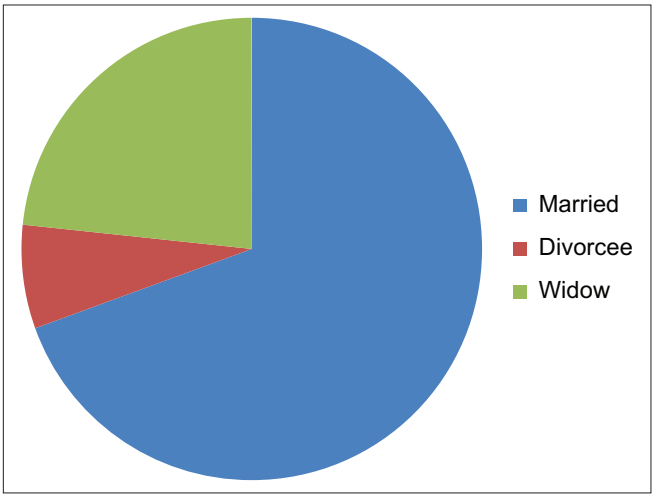


**Figure 2:** Marital status of patients with cancer of the cervix at AKTH

patients 69.5% (268/386) were married [Table 3]. About a third of the patients (31%) married more than once [Figure 2]. Only 12.7% (49/386) had used any form of contraceptives and the type of contraceptive used was distributed equally among injectable, intrauterine contraceptive devices (IUCDs), and oral contraceptive pills (OCPs).

Two hundred and forty-seven (63.9%) 247/386 patients presented with vaginal bleeding, offensive vaginal discharge, or both [Table 4]. Only 18% (69/386) of the patients were tested for HIV and five 7.3% (5/69) were positive. One hundred and sixty-eight (168/386) 43.5% of the patients were transfused, seven (1.9%) 7/386 had renal failure that warranted dialysis, and four (1%) 4/386 had vesicovaginal fistula (VVF) and rectovaginal fistula (RVF). About 67% (259/386) of the patients were referred for radiotherapy, 1% (4/386) had total abdominal hysterectomy (TAH), and 29% (112/386) had palliative treatment. Advanced disease was the commonest presentation in majority of the patients (89.7%) 346/386 [Table 5]. SCC accounted for 86.3% (333/386) of the cancers, adenocarcinoma contributed 12.4%, (48/386) and others contributed 1.3% (5/386).

## DISCUSSION

The incidence of invasive cervical cancer has been estimated to be on the increase in developing regions of the world, notably in Africa, the Caribbean, and Central and South America.[1,7,19] Our findings reveal that cervical cancer was the most common gynecological cancer during the study period accounting for 58.5% of all gynecological cancers. This figure is slightly lower than those of Zaria,[3] Ibadan,[13] and Maiduguri.[20] The establishment of opportunistic cervical screening services in Kano in 1997 has facilitated the detection of preinvasive lesions and even invasive cancers which may partly be responsible for the apparent lower contribution noted, supporting the potential benefits of opportunistic screening.[18] This lends credence to the fact that if effective and comprehensive cervical screening services are established, we can rest assured that the prevalence of cervical cancer would be reduced. The age distribution in the present study is similar to the ones reported from other studies in Nigeria,[3,20,21] emphasizing the fact that cancer of the cervix is a disease of the reproductive age group. Bosch *et al.*[2] have highlighted a bimodal age distribution for patients with cancer of the cervix based on the observation of some European cancer registries. This has also been corroborated by several other investigators in agreement with the findings in this study.[15,21,22] The second mode has been suggested to be due to the decrease in screening coverage and lower sensitivity of cytology in older women. The fact that a similar bimodal profile was seen in our study in a community with no comprehensive population-based cervical screening program suggests that additional factors may be contributory. Other factors such as acquisition of new HPV infections in older women[2] appear more convincing, particularly as polygamy is common in our society, and divorced or widowed women frequently remarry with the possibility of exposure to new strains of

**Table 1: Age at first marriage among patients with cancer of the cervix at AKTH**

| Age at first marriage | Frequency | % |
|---|---|---|
| 12 | 24 | 6.1 |
| 13 | 52 | 13.6 |
| 14 | 70 | 18.2 |
| 15 | 88 | 22.7 |
| 16 | 88 | 22.7 |
| 17 | 6 | 1.5 |
| 18 | 35 | 9.1 |
| 19 | 17 | 4.5 |
| 20 | 6 | 1.5 |
| Total | 386 | 100.0 |

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**Table 2: Parity distribution among patients with cancer of the cervix at AKTH**

| Parity | Frequency | % |
|---|---|---|
| 0 | 8 | 2.1 |
| 1 | 13 | 3.4 |
| 2 | 30 | 7.8 |
| 3 | 30 | 7.8 |
| 4 | 30 | 7.8 |
| 5+ | 275 | 71.1 |
| Total | 386 | 100 |

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**Table 3: Marital status of patients with cancer of the cervix at AKTH**

| Marital status | Frequency | % |
|---|---|---|
| Divorcee | 28 | 7.3 |
| Married | 268 | 69.5 |
| Widow | 90 | 23.2 |
| Total | 386 | 100.0 |

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**Table 4: Presenting complaints of patients with cervical cancer at AKTH**

| Presenting complaint | Frequency | % |
|---|---|---|
| Lower abdominal pain | 17 | 4.4 |
| Postcoital bleeding | 26 | 6.7 |
| Urinary incontinence | 8 | 2.2 |
| Vaginal bleeding | 296 | 76.7 |
| Vaginal discharge | 39 | 10.0 |
| Total | 386 | 100.0 |

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**Table 5: Stage of the disease at presentation**

| Stage | Frequency | % |
|---|---|---|
| 1 | 4 | 1.0 |
| 2a | 36 | 9.3 |
| 2b | 95 | 24.6 |
| 3 | 140 | 36.3 |
| 4 | 111 | 28.8 |
| Total | 386 | 100 |

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HPV[23,24] Our findings however differ with the unique profile in developed countries that show an increase after the ages of 25–30 years with a plateau after 45–50 years, accounted for by effective screening services, whereas developing countries are reported to exhibit a linear age distribution.[25]

The demonstration of the association of cancer of the cervix with high parity is similar to other findings.[13,14] This could be associated with the increased risk of exposure to the HPV virus in this group of women.

The commonest symptom at presentation was abnormal vaginal bleeding as seen in 63.9% of cases, though most of them had more than one symptom at presentation. Similar findings were reported by Oguntayo *et al.* in Zaria[3] and Ijaiya *et al.* in Ilorin.[4] The high proportion of patients presenting with late-stage disease (89.7%) is similar to the findings in some other centers.[13,15,16] Similar to the studies from Zaria, stage 3 disease was the commonest stage at presentation but on the other hand, up to 10.3% presented with early-stage disease,[3,19] In our study only four women presented with stage 1 disease. The diagnosis in one woman was confirmed following TAH due to abnormal vaginal bleeding, whereas the remaining three had TAH because of cervical intraepithelial neoplasia (CIN) 3. The other 36 presented with stage 2a disease and all were referred for radiotherapy.

Over the years, several attempts have been made to relate prognosis of carcinoma of the cervix with histological parameters. Majority of the cancers were SCC of the well-differentiated, large cell keratinizing variety in accordance with other local and international studies.[3,9,20,22,23,26,27] There was however a relatively large proportion of adenocarcinoma (12.4%) in comparison to earlier accounts of the disease in Nigerian women,[3,20] but in keeping with the global trend of increasing proportion of adenocarcinoma in developed countries.[16,22] As this pattern cannot be accounted for by opportunistic screening, the likelihood of varying patterns of HPV-type prevalence over time (with increasing incidence of HPV 18) and exposure to pertinent cofactors require consideration.[2,14] Future studies should therefore focus on the determination of HPV subtypes in relation to histological categories to confirm or refute this suggestion. Amongst black women, it has been suggested that increasing age, frequent marriages, and high parity raise the probability of developing adenocarcinoma of the cervix.[16] These factors are known to be prevalent in our environment. Women in Nigeria are largely multiparous and as shown in this study, this is partly responsible for the high incidence of this disease. Women who have seven or more children are at double the risk of women with only one or two children.[10] Reduction in parity will certainly lead to further decrease in the prevalence of cervical cancer.

These findings emphasize the need for the establishment of a national organized screening program which at present is the most effective preventive intervention that will lead to a reduction in the incidence of the disease. Cytology screening with the Pap smear has been the mainstay of cervical cancer screening for many years, but as knowledge of cervical cancer and cervical cancer screening is poor in Nigerian women, any organized screening program that is established requires to incorporate elements of population-based education and personnel training as integral components of the screening services, while other alternative approaches to screening are being evaluated. In addition to effective coverage of the population at risk, there should be emphasis on follow-up for appropriate treatment.

The introduction of HPV vaccination offers a relevant alternative for preventing cervical cancer and is already yielding promising results in some developed countries.[21] It will however take several decades to become widely available in developing countries and the relatively low immunization rates for other preventable diseases and shortage of health-care workers suggest potential challenges for introducing such a vaccine. Immunization for HPV requires a huge effort and is very costly; the three doses cost approximately $400 (60,000 N). This cost is prohibitive and unaffordable to the Nigerian woman who needs this vaccine. The prevalent HPV types in specific geographic regions also need to be determined in anticipation for future vaccines that would be developed against these HPV types; however, in cytologically normal Nigerian women, HPV 35 has been found to be as common as the more prevalent HPV 16.[9] In the meantime, the bivalent HPV-16/18 virus-like particle vaccine[28] should be made more widely available to all regions of the world, and together with other ongoing or developing screening options, it is hoped that the incidence and mortality related to cervical cancer will be brought under control.

### Limitations

This was a retrospective study and may not be as powered as a prospective one; however, it succeeded in confirming that cancer of the cervix is still a major challenge amongst women in Africa and still remains so due to lack of education and poverty. Patients still present with advanced-stage disease. Our data was hospital based and only those patients who were able to afford the fees came to the teaching hospital and not necessarily all those with cervical cancer in Kano state.

## CONCLUSION

Cancer of the cervix was the commonest gynecological cancer in Aminu Kano Teaching Hospital, Kano, Nigeria during the

study period and SCC is the commonest histological type. An increase in the proportion of adenocarcinoma of the cervix was noted.

We recommend the need to establish a rational and organized national and local screening program that will incorporate elements of population-based education and personnel training to reduce the prevalence of cancer of the cervix in our community.

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