Abstract

Background: Cervical cancer is the commonest gynecological malignancy in our environment and is an Acquired Immuno-Deficiency Syndrome (AIDS)-associated malignancy. Documented data on the Human Immune-deficiency Virus (HIV) seroprevalence among patients with cervical cancer in our environment are scarce. Objective: The aim of this study is to determine the prevalence of HIV infection in women with cancer of the cervix. Study Design: The work is a descriptive survey by design, concentrating in frequency of occurrences of prevalence of the disease in either cases for a number of years retrospectively carried out at the Radiotherapy and Oncology Centre of Ahmadu Bello University Teaching Hospital (ABUTH) Zaria. Setting: The study was carried out at the Radiotherapy and Oncology Centre of ABUTH, Zaria. Materials and Methods: A 5 years retrospective review of patients with histologically-proven cancer of the cervix seen in the Radiotherapy and Oncology Centre, ABUTH, Zaria, North-Western Nigeria was undertaken. Data such as age, clinical stage of disease and HIV seropositivity at presentation were retrieved from the case files. Data analysis was done using the SPSS statistical package version IBM 23 and results presented in frequencies and percentages and charts for graphical presentation. Results: A total of 1,639 patients seen over a period of 5 years were reviewed. The age range of both groups of patients was from 28 years to 92 years with a mean age of 50.5 years. One thousand five hundred and seventy-three of the patients (96%) were seronegative to the HIV tests while 66 (4%) were seropositive. The age range of the seropositive patients was 28 - 49 years with a mean age of 38.1 years. Their peak age at presentation was 30 - 39 years. Similarly, the age range of the seronegative patients was 30 – 92 years with a peak at 40-49 years. 51 (89.5%) of the HIV seropositive patients presented with advanced clinical stage disease, i.e, International Federation of Obstetrics and Gynecology (FIGO) stage 2B and above. 1,363 (93%) of the HIV seronegative patients presented with FIGO 2B disease and above, both scenario illustrating the general trend of late presentation of cancer patients to hospital in our environment. Conclusion: The study shows that the prevalence of HIV infection among cervical cancer patients is low in Zaria, with earlier age of development of cervical cancer among HIV seropositive patients compared to HIV seronegative counterparts. Both group of patients present with cervical cancer at an advanced stage. More studies therefore needed to be done to identify the predisposing factors to the high incidence of invasive cervical cancer in our environment and introduction of cervical cancer screening at an earlier age among HIV seropositive patients.

Keywords: Human immunodeficiency virus, invasive cervical cancer, seropositive

Résumé

Arrière plan: le cancer du col de l’utérus est la tumeur maligne gynécologique, la plus courante dans notre environnement et est une tumeur associée au syndrome immunitaire déficient acquis (SIDA). Des données documentées sur la séroprévalence du virus de l’immunodéficience humaine (VIH) au sein des patientes atteintes du cancer du col de l’utérus dans notre environnement sont rares. Objectif: Le but de cette étude est de déterminer la prévalence de l’infection du VIH chez les femmes qui ont le cancer du col de l’utérus. Plan d’étude: Cette étude est une enquête descriptive par sa conception, se concentrant de manière rétrospective sur la fréquence de la prévalence de la maladie dans le de cas pendant un nombre d’année, au centre de Radiothérapie et Oncologie du Centre Hospitalier Universitaire Ahmadu Bello (ATBU) Zaria. Milieu clinique: L’étude a été effectuée au centre de

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radiothérapie et oncologie du centre hospitalier de l’Université Ahmadu Bello, Zaria. Matériaux et méthodes: une étude rétrospective de 5 ans a été menée sur les patientes qui ont été prouvées avoir souffert historiquement du cancer du col de l’utérus et qui ont été examinées au centre de Radiothérapie et Oncologie du Centre Hospitalier Universitaire Ahmadu Bello (ATBU) Zaria, Nord Ouest du Nigeria. Les données telle que l’âge, la phase clinique de la maladie et la séropositivité du VIH au moment de la présentation de la patiente ont été récupérés de dossiers. Une analyse de donnée a été effectuée en utilisant le format SPSS Logiciel Statistique Version IBM 23 et les résultats ont montré des fréquences et pourcentages et des graphiques pour la représentation graphique. Résultats: Un total de 1639 patientes examinées sur une période de 5 ans ont été revues. La tranche de deux groupes de patientes était de 28 à 92 ans avec une moyenne d’âge de 50,5 ans. Mille cinq cent soixante-treize de patientes (96%) ont testé séronégatives alors que 66 (4%) étaient des séropositives. La tranche d’âge de patientes séropositives était de 28-49 ans avec une moyenne d’âges de 38,1 ans. Le pic d’âge à la présentation était de 30-39 ans. De même, la tranche des patientes séronégatives était de 30-92 ans avec un pic de 40-49 ans. 51 (89,5%) des patientes séropositives pour VIH souffraient de maladie clinique en phase avancée, ex : le niveau 2B et bien au dessus de la Fédération Internationale du Gynécologie et d’obstétriques (FIGO). 1363 (93%) des patientes séronégatives et séropositivités pour le VIH de la maladie 2B de FIGO et bien au delà. Les deux cas illustrent la tendance générale des patientes atteintes de cancer dans notre environnement et qui se présentes tardivement a l’hôpital. Conclusion: L’étude démontre que la prévalence de l’infection du VIH parmi les patientes atteintes du cancer du col de l’utérus est basse à Zaria, en ce qui concerne un développement tôt du cancer du col de l’utérus chez les patientes séropositives pour le VIH par rapport a leurs homologues séronégatifs pour le VIH. Les deux groupes de femmes ont présentés le cancer de col à une phase avancée. Il faudra donc entreprendre plus de recherche pour identifier les facteurs contribuant aux taux élevés de cancer envahissant du col du l’utérus dans notre environnement, et l’introduction au dépistage du cancer du col de l’utérus a un jeune âge plus parmi les femmes séropositives pour le VIH.

Mots-clés: VIH Séropositive, Cancer envahissant du col de l’utérus

INTRODUCTION

Cervical cancer is one of the most common neoplastic disorders affecting women worldwide and accounting for almost half a million new cases annually, second only to breast cancer.[1] In Nigeria,[2] according to a hospital-based study, it accounts for about 30.8% of all female malignancies. Carcinoma of the cervix has been classified as one of the AIDS-defining malignancies having been strongly associated with the human immunodeficiency virus (HIV) infection.[3] The reported seroprevalence among adults aged 15–49 years in Nigeria was 3.1 (95% confidence interval [CI], 2.3%–3.8%) with significant regional variations.[4] In Ibadan, Nigeria, about 2.7% of patients with cervical cancer were found to be HIV seropositive.[5] This is in sharp contrast to findings in Johannesburg, South Africa, with a very high prevalence of HIV infection at 9.1% in the female population.[6,7]

Overall, the risk of invasive cervical cancer in an HIV-infected population is high, with reported cases in the literature suggesting that invasive cervical cancer in HIV-infected individuals is often of a highly aggressive and advanced nature, with poor response to treatment, rapid recurrence, and metastases to unusual sites.[8] Consequently, there is a rapid mortality among these group of patients when compared to non-HIV-infected cervical cancer patients.[8,9] In general, in populations where treatment for HIV/AIDS with highly active antiretroviral therapy (HAART) is available, individuals with HIV live longer and are in a relatively good health. In such populations, HIV/AIDS-related malignancies have become the single-most important cause of morbidity and mortality.[10] Therefore, in this group of patients, treatment may become difficult due to altered sensitivity to side effects of HAART, chemotherapy, and radiotherapy.[11]

The purpose of this study was to determine the prevalence of HIV seropositivity among patients with invasive carcinoma of the cervix presenting to the Radiotherapy and Oncology Centre of Ahmadu Bello University Teaching Hospital, Zaria, Nigeria.

MATERIALS AND METHODS

Patients who were diagnosed with invasive cervical cancer and are HIV positive and managed at the Radiotherapy and Oncology Centre between January 1, 2012, and December 31,

Table 1: Age distribution of all patients

| Class limits | Frequency (%) |
|--------------|---------------|
| 20-29        | 2 (0.1)       |
| 30-39        | 330 (20.1)    |
| 40-49        | 484 (29.5)    |
| 50-59        | 442 (27.0)    |
| 60-69        | 288 (17.6)    |
| 70-79        | 77 (4.7)      |
| 80-89        | 12 (0.7)      |
| 90-99        | 4 (0.2)       |
| Total        | 1639 (100)    |

Figure 1: Age distribution of patients
Abdullahi, et al.: HIV seroprevalence in cervical cancer patients

2016, were included in this retrospective descriptive study. A total of 1726 patients were identified from the departmental database. A total of 1639 (95%) of these patients satisfied the study criteria and were included in the final analyses of the study. Totally, 1467 (90%) of the above 1639 patients contain adequate information on the International Federation for Obstetrics and Gynaecology (FIGO) staging of the patients. Patients’ case notes were reviewed retrospectively, and data such as the patients’ age, stage of disease at presentation, and seropositivity to HIV infection were extracted for analysis. The FIGO staging system was adopted in this study.

Table 2: Distribution for stage at presentation for all patients

| FIGO stage | Frequency (%) |
|------------|---------------|
| 1A         | 9 (0.6)       |
| 1B         | 43 (2.9)      |
| 2A         | 52 (3.5)      |
| 2B         | 400 (27.3)    |
| 3A         | 233 (15.9)    |
| 3B         | 336 (22.9)    |
| 4A         | 307 (20.9)    |
| 4B         | 87 (5.9)      |
| Total      | 1467 (100)    |

FIGO=International Federation for Obstetrics and Gynaecology

Table 3: Distribution for stage at presentation in human immunodeficiency virus seropositive patients

| FIGO stage | Frequency (%) |
|------------|---------------|
| 1A         | 0             |
| 1B         | 2 (3.5)       |
| 2A         | 4 (7.0)       |
| 2B         | 13 (22.8)     |
| 3A         | 8 (14.0)      |
| 3B         | 14 (24.6)     |
| 4A         | 7 (12.3)      |
| 4B         | 9 (15.8)      |
| Total      | 57 (100.0)    |

FIGO=International Federation for Obstetrics and Gynaecology

Human immunodeficiency virus seropositivity

All categories of patients presenting to the Radiotherapy and Oncology Centre, including those with histologically diagnosed cervical cancer, undergo voluntary screening tests for HIV using enzyme-linked immunosorbent assay. Those patients with screening test results from other referral hospitals were rescreened if they present with discordant results. Only patients with positive confirmatory tests using Western Blot were classified as HIV positive.

Data analysis

Data analysis was done using the IBM SPSS Statistics for Windows, Version 23.0. (Armonk, NY: IBM Corp) with descriptive method using the frequencies and percentages and bar charts for graphical presentation.

RESULTS

During the period under review, a total of 1639 patients with cancer of the cervix were studied. A total of 1573 (95.9%) patients were seronegative to the HIV test, while only 66 (4%) were seropositive. The patients’ ages ranged between 29 years and 92 years with a mean of 50.5. The age range for the seronegative patients was 30–92 years with a peak in the 40–49 years age group accounting for 29.5%. The HIV-seropositive patients’ ages ranged between 28 years and 49 years with a mean value of 38.1, and a peak at 30–39 years accounting for 57.5%. Figure 1 shows a chart of the age distribution of patients according to HIV status. Table 1 shows the age distribution of the patients. Figure 2 illustrates the proportion of the patients according to their HIV status.

Staging

The FIGO staging system was adopted in this study. Adequate staging information was available for 1467 (89.5%) of the patients. Staging information was unavailable for 172 (10%), out of which 9 (0.5%) were HIV seropositive. Of the 1467 patients in whom staging information was available, 1363 (93%) presented with late disease, FIGO stage 2B or above, with stages 2B, 3A, and 4A accounting for 1271 (86.6%). Fifty-one (89.5%) of the HIV-seropositive patients presented with advanced disease, with FIGO stages 2B and 3B accounting for 23% and 24.5%, respectively. Only 6 (10.5%) of the HIV-seropositive patients presented with advanced disease.
early FIGO stage disease (FIGO stage 2A and below, with 2 (3.5%) and 4 (7%) patients presenting at stages 1B and 2A, respectively. Figure 3 shows a chart of patients’ distribution by FIGO staging. Tables 2 and 3 show all patients’ distribution by FIGO staging and FIGO distribution in HIV-seropositive patients, respectively.

**Discussion**

The findings of this study showed that most of the patients who presented with cervical cancer in this environment during the study were seronegative to HIV (96%), with only 4% of the patients found to be seropositive. This appears to support the findings of Abdu-Salam et al. who reported a low prevalence of 2.7% HIV seropositivity among patients with cancer of the cervix in a study conducted in Ibadan. Similarly, a study by Sally N Akarolo-Anthony et al. showed a prevalence of HIV seropositivity of 8.6% in a cohort of patients with various malignancies. In contrast, a high prevalence of HIV (19%) was reported among cancer patients in a study in Limpopo province of South Africa. The prevalence of 4% HIV seropositivity among patients with cervical carcinoma in this study is slightly less than the national (Nigerian) prevalence figure of about 4.4%. According to a report on the global HIV/AIDS epidemic 2008, the seroprevalence of HIV among adults aged from 15 years to 49 years in Nigeria was 3.1 (95% CI, 2.3%–3.8%) with significant regional variations. These variations may be due to uneven and inadequate population-based cancer registration and effect of urbanization with its attendant social problems including a higher rate of sexually transmitted diseases and HIV infection in urban centers.

Another observation in this study is the problem of late presentation of malignancies and in particular cervical cancer in HIV-infected women in Nigeria. Of the 1467 patients in whom staging information was available, 1363 (93%) patients presented with late disease, FIGO stage 2B or above, with stages 2B, 3A, and 4A accounting for 1271 (86.6%). Fifty-one (89.5%) of the HIV-seropositive patients presented with advanced disease, with FIGO stages 2B and 3B accounting for 23% and 24.5%, respectively. Only 6 (10.5%) of the HIV-seropositive patients presented with early FIGO stage disease (FIGO stage 2A and below, with 2 (3.5%) and 4 (7%) patients presenting at stages 1B and 2A, respectively. This supports the findings in the literature that HIV-positive patients with cervical cancer are more likely to have an advanced disease at presentation, shorter duration of symptoms, undifferentiated histology, poor response to conventional treatments, higher recurrence rate, and metastasis to unusual sites. This may be attributed to the fact that a high incidence of cervical cancer usually occurs in regions with low-resource settings, where access to cancer screening and early treatment of the disease is low and most patients with cervical cancer present late irrespective of their HIV status. Possible reasons for late presentation of cancer patients in our environment include lack of education and conflicting theories about disease etiology, lack of awareness on the symptoms and signs of cancer, low economic status preventing early presentation to appropriate health facility, bad cultural attitude, and high rates of patronage of traditional and alternative medicine practitioners in Nigeria. Of particular note is the fact that despite massive public health education effort, a large proportion of the Nigerian populace still has little or no knowledge of HIV, its health effects, and treatment options.

From the findings of the study, the mean age of 38.1 years at diagnosis of the HIV-seropositive cancer of cervix patients was about a decade lower than that of the HIV-seronegative counterparts. Similar findings were reported by Gichangi et al. and Msadabwe. However, studies from two high HIV prevalence countries carried out by Shrivastava et al. in India and Al-Noseery in Zambia showed a slightly higher median age between 41 and 42 years, respectively. In both cases, the median age of the HIV-seropositive patients is about a decade lower than that of their non-HIV-seropositive counterpart. The implication of this is that HIV screening should be done in patients presenting at a very young age with cervical cancer and advanced disease. This will allow for early intervention and institution of adequate and proper management.

This study has confirmed a low prevalence of HIV affection among cervical cancer patients in spite of the high burden of invasive cervical cancer in our environment as well as the problem of late presentation of invasive cervical cancer patients in Nigeria. This study is however limited by poor record keeping, misplaced patients’ case files, lack of standard cancer registry, and the retrospective nature of the study.

**Conclusion**

The study has shown that the prevalence of HIV in patients with invasive cervical in Zaria is low. There is the need for collaborative studies and research to determine if this is suggestive of low predisposition of HIV to cervical cancer in our environment. Findings from this study might provide a platform for population-based studies to better determine the peculiarities of AIDS-associated malignancies in our environment and the most effective strategies for their prevention, screening, and treatment.
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Conflicts of interest
There are no conflicts of interest.

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