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Research Article

Assessment of the Frequency and Level of Knowledge of Cervical Cancer Among HIV-positive Women at the University Teaching Hospital Gabriel Toure and at the Listening, Care, Animation and Advice Center in Bamako, Mali

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Abstract

The aim of our study was to contribute to the decreasing of cervical cancer incidence in women living with HIV/AIDS. We conducted an analytical cross-sectional study over a period of three months at the university teaching hospital (UTH) Gabriel TOURE and at the listening, care, animation and advice center (LCAAC) in Bamako. We have recorded 216 HIV positive women who underwent cervical cancer screening during our study period. Among these 216 cases, 16 patients (7.4%) were positive to the VIA/VILI test. The histological results available were 8 cases out of 16 biopsies performed (50%) and the histological type was: 12.5% cases of cervicitis; 12.5% CIN, 73.5% invasive cancer. Monogamous married women were significantly represented. The most dominant age group was 45-64 years (38.42%). Women out of school accounted for 66.2%. The initial viral load (chi-square = 11.149; p = 0.011), compliance with treatment (chi-square = 5.023; p = 0.025), history of sexually transmitted infection (STI) (Khi-square = 14.860, Ddl = 3, P = 0.002, type of STI treatment (Khi-square = 14.860; Ddl = 4; P = 0.005). knowledge about the existence of HPV vaccine (Chi-square = 5.260; P = 0.022) were the most found risk factors and represented respectively 67.12% of recent CD4 counts below 500 cells/mm^3, 44.44%; 29.34% and 3.1%. The rate of management of precancerous and cancerous lesions of the cervix was 50%.

Conclusion: The frequency of cervical cancer is high in HIV-positive women. The level of knowledge about cervical cancer is low. A decrease in its frequency in HIV-positive women requires management of risk factors.

Keywords: Frequency; Level of Knowledge; HIV-positive; Cervical Cancer; UTH Gabriel Toure; LCAAC

Introduction

The association between cervical cancer (CC) and HIV has been well established by studies which have shown a high prevalence of HPV (human papilloma virus)/HIV co-infection with an increase in both HPV infections and symptomatic infections. HIV-infected women with a low CD4 count are at increased risk of HPV infection, which is the etiological agent of precancerous and cancerous lesions of the cervix [1]. According to the revised classification of the Center of Disease Control in 1993, invasive cervical cancer (ICC) is one of the pathologies that classify HIV-positive women at the stage of acquired immunodeficiency syndrome (AIDS) [2].

Despite the increase in access to triple therapy, the impact of ARV treatment on the natural history of HPV infection seems

insignificant, hence the persistence of the high prevalence of cervical cancer in these patients [3,4].

In the United States, Massad., *et al*. [5] and Schumann., *et al*. [6] respectively reported incidence rates of 8.9% of CIN in 1,639 HIV-positive women in 2001 and 11.5% of CIN in 774 HIV-positive women in 2003.

A study conducted in South Africa in 2008 by Stein., *et al*. [7] reported a prevalence of 14.9% in 1,586 positive patients. In Rwanda Leroy V., *et al*. [8] found out 24.3% of precancerous lesions (PCL) in 103 HIV-positive women in 1999.

Incidence rates of ICC in HIV-positive women vary by country. In 2006, it was 0.10% in the United States [9]; 0.042% in the south of England in 2005 [10], in Switzerland it was 0.29% [6-1] in 2005 and in Uganda it was 1.62% in 2006 [11].

In Mali, a study conducted by Sissoko A. [12] at LCAAC in Bamako in 2010-2011 reported a prevalence of 16.1% of PCL (high-grade and low-grade lesions) and a prevalence of 0.3% of cancer in situ in 631 HIV-positive women followed at LCAAC in Bamako.

Cervical cancer (CC) remains a real public health issue specifically in developing countries regardless of HIV status, which motivated us to initiate this study to assess the level of knowledge of HIV-positive patients about CC in patients followed at LCAAC and UTH Gabriel Touré because it has been the subject of very few studies in our context. Our goal was to help reduce the CC incidence in women living with HIV/AIDS.

Methodology

It was an analytical cross-sectional study carried out at UTH Gabriel Touré and LCAAC in Bamako from January 1 to March 30, 2020. Were included in the study any HIV-positive women who accepted after informed consent to be screened for cervical cancer.

Not included

Were excluded in the study any HIV-positive women who did not undergo CC screening, patients who refused screening, virgin patients and those who underwent a hysterectomy during the period of the study.

Data entry and analysis were performed by using SPSS 21 software. The statistical test used was the chi-square test, for a probability $p < 0.05$.

Results

The average age was 41.62 years with extremes of 24 years and 70 years. During the study period, we performed the screening test by VIA and/or VILI in 216 HIV-positive patients, including 174 patients at LCAAC and 42 at the UTH Gabriel Touré. The VIA/VILI test was positive in 16 patients, or 7.4% (16/216). About 81.3% of women tested positive for VIA and/or VILI were out-of-school; 12.5% had a primary level; 6.3% had a secondary education level against respectively to 65%; 23.5%; 6.5%; 1.5% and 3.5% of medersa leavers among patients tested negative for VIA and/or VILI. Married women who lived in a monogamous regime represented 37.5% of positive cases to 25% for polygamists; 25.1% single and 12.5% widowed. The VIA/VILI test was positive in 50% of cases in pauciparous, primiparous 18.8%, multiparous 18.7% and grand multiparous represented 12.6% (P = 0.455). Among the women who presented abnormalities on the VIA and/or the VILI 60.4% had started sexual intercourse between the ages of 13 and 17, 35.1% between the ages of 18 and 21 and 2.4% between the ages of 22 and 25 and 3.08% at age 26 and over. About 16.6% of the women surveyed had been exposed to passive smoking in the past. During our study, the patients who were positive for the visual test at VIA/VILI had an initial CD4 count less than or equal to 499 c/mm^3 in 75% of cases; 6.3% had a count greater than or equal to 500 c/mm^3 and 18.3% did not have an available CD4 count (P = 0.868). Visual test results were positive in 31.3% of patients who had an initial viral load above the threshold (50 cells/mm^3). The duration of HIV infection in our study was less than 5 years in 31.5% of patients (with HPV positive or not) and greater than 5 years in 68.5% of cases. The longer the duration of the HIV infection (11 years and more), the more the VIA/VILI test is positive, or 50% (p = 0.588). The VIA/VILI test was positive in 43.8% of women who had a duration of ARV treatment of less than 5 years and 56.2% beyond 5 years against respectively 39% and 61% in negative patients (p = 0.588). About 96.9% of patients did not know that there is a vaccine against CC to 3.1%. And 29.37% had knowledge of the contributing factors of CC against 70.7%. We completed 16 biopsies among which 8 histologic outcomes were reported. They were 1 case cervicitis or 6.25%, 1 case of CIN1 (6.25%), 3 cases of invasive squamous cell cancer (18.75%) and 3 cases of squamous cell carcinoma (18.75%).

Discussion

Methodological aspects

We conducted an analytical cross-sectional study over a period of three months, from January 1, 2020 to March 30, 2020 at LCAAC and at the UTH Gabriel TOURE on the assessment of the frequency and level of knowledge about cancer of the cervix (CC) in HIV-positive women. Data collection was carried out as follows: reading of HIV care files, registers and F2 cervical cancer screening forms, face-to-face interviews or by telephone call with the HIV-positive women concerned and recording the results of the examinations on the questionnaire. However, we came across with difficulties such as the refusal of some patients to participate in the study despite awareness raising, for fear of their HIV status.

So far this positive HIV status has been stigmatized in our country and also poses a problem of adherence to the screening program, which remains low in the country.

Frequency

In our study, the VIA/VILI test was positive in 16 patients, with 7.4% (16/216), which is lower than that of Veldhuijzen., *et al*. [30] who reported a prevalence of HIV infection of all types of 47.0% in HIV-negative women and 72.2% in HIV-positive women in Rwanda. This rate is also lower than that of Didelot-Rousseau., *et al*. [29] who reported in 2006 a prevalence of HPV infection of all types of 54% in women in Burkina Faso and that of Antoine Jacquet [15] who reported 52.8% in the 254 HIV-positive women who could be tested during a cross-sectional study carried out at the Pasteur Institute in Abidjan and the samples tested at the virology laboratory of the Bordeaux University Teaching Hospital. The mean age was 41.62 years with extremes of 24 and 70 years. During the study period, the VIA/VILI test was positive in 16 HIV-positive patients, with a prevalence of 7.4% (16/216). Our rate was lower than those reported by Veldhuijzen., *et al*. [13] in Rwanda, Didelot-Rousseauin Burkina Faso [14], Antoine Jacquet [15] at Pasteur Institute of Abidjan, which yielded 72.2%; 54% and 52.8% in seropositive patients respectively. Among these women who were tested positive for VIA and/or VILI, about 81.3% had no schooling, 6.3% had secondary education, 12.5% primary and none of them had reached a level of higher education. According to Vikrant V., *et al*. [16] in India, 37.7% of women had no education beyond primary school. This difference could be explained by the low rate of girl schooling in Mali. Married women living in a monogamous regime accounted for 37.5% of positive cases, against 25% for polygamists, 25.1% for singles and 12.5% for widows. According to Vikrant V., *et al*. [17] single people were the most frequent with 61.7%. The VIA/VILI test was positive in 50% of cases in pauciparous, primiparous 18.8%, multiparous 18.7% and grand multiparous represented 12.6% (P = 0.455). This trend was found in the study carried out by Stanley MF Luchers., *et al*. [16]: pauciparous 41.2%, primiparous 30.2%, multiparous 16.6% and nulliparous represented 9.1% in a cross-sectional survey conducted on 820 sex workers in Mombassa, Kenya.

The age of first sexual intercourse was varied in our study. Among women who had an abnormality on VIA and/or VILI; 60.4% had had their first sexual intercourse between 13 and 17 years old, 35.1% between 18 and 21 years old and 2.4% between 22 and 25 years old and 3.08% at 26 years old and more (P = 0.401). Didelot., *et al*. [14] found in a study conducted in Bobo Dioulasso (Burkina Faso) in 2006 on a total of 379 female sex workers, a median age of first sexual intercourse of 28 years (range 16-54 years) and the mean age at first sexual intercourse was 16.7 years.

During the study period, 16.6% of women had exposure to passive smoking in the past; 44.4% were exposed to passive smoking at the time of the study and 38.8% had never been exposed to passive smoking. In contrast, M.N. Didelot., *et al*. [14] had had 7% exposure to tobacco smoke during their study among sex workers. During our study, patients who were positive for the visual test at VIA/VILI had an initial CD4 count less than or equal to 499 c/mm^3 in 75% of cases; 6.3% had a rate greater than or equal to 500 c/mm^3 and 18.3% did not have an available CD4 count (P = 0.868). Other studies have figured out similar results. Delmas., *et al*. [18], Massad., *et al*. [15], Schuman., *et al*. [6] and Strickler., *et al*. [19] found that the incidence of intraepithelial lesions was higher in women who had a CD4 count lower. According to Six., *et al*. [20], Delmas., *et al*. 2000 [18], Schuman., *et al*. [6] there is a similar correlation between low CD4 counts and the progression of cervical lesions. These results are also comparable to that of Harris., *et al*. [21] who reported that the incidence of intraepithelial lesions was higher in the group of HIV positive women with a CD4 count below 500 cells/mm^3 compared to women with CD4 above 500 cells/mm^3.

In French Guiana, according to Sobesky. M., *et al*. [22] the prevalence of precancerous lesions was 22% in HIV-positive patients who had a CD4 count of more than 500 c/mm^3. In our series, the viral load (VL) was undetectable (VL < 40 copies) in 18.8% of patients who had a positive VIA/VILI test, it was detectable but less than 50 copies in 25% of cases and detectable in 31.3%. The VL was not available in 25% of cases. The higher the viral load, the higher the VIA/VILI positivity rate with P = 0.011. According to Schuman., *et al*. the viral load in case of HIV infection was associated with a progression of intraepithelial lesions and suggests a possible HPV-HIV viral interaction [6]. These results prove that HIV infection and the immunosuppression it induces are not the only contributing factors of intraepithelial neoplasia in HIV-positive women. The duration of HIV infection in our study was less than 5 years in 31.5% of patients (with HPV positive or not) and greater than 5 years in 68.5% of cases. The longer the duration of the HIV infection (11 years and more), the more the VIA/VILI test is positive, or 50% (p = 0.588).

The VIA/VILI test was positive in 43.8% of women who had a duration of ARV treatment of less than 5 years and 56.2% beyond 5 years against respectively 39% and 61% in negative patients (p = 0.588). According to Heard., *et al*. [23], Chin-Hong Palefky [24], Conley., *et al*. [25], de San José and Palefky [26] cervical HPV infection persisted in a high proportion of patients receiving triple therapy. For Lillo., *et al*. [27] no beneficial effect of triple therapy was observed on the rate of progression/regression after adjusting for the CD4 count on new cases of intraepithelial lesions. Like these results, we find that the duration of ARV treatment alone is not sufficient to determine the persistence, progression/regression of intraepithelial lesions in HIV-positive women. About 96.9% of patients did not know that there is a vaccine against cervical cancer to 3.1%. And 29.37% had knowledge about the contributing factors of cervical cancer against 70.7%. According to Djouedjon Dakenyo [28] in Cameroon 93% were unaware of the existence of a vaccine against 7%. And 41.1% had knowledge of the contributing factors. We performed 16 biopsies including 8 histological results available, they were: 1 case of cervicitis or 6.25%, 1 case of CIN1 (6.25%), 3 cases of invasive squamous cell cancer (18.75%) and 3 cases of squamous cell carcinoma (18.75%). Vikrant V., *et al*. [16] found cases of CIN1 in 33/303 (10.9%), CIN2 in 31/303 (10.2%), CIN3 in 18/303 (5.9%) and only a woman (0.3%) was diagnosed with invasive cervical cancer (ICC).

The eight cases of dysplastic lesions out of the sixteen biopsies were taken care of, the only case of cervicitis was treated then reassured and advised of a new test in one year (12.5%), the case of CIN1 underwent the cryotherapy (12.5%), the two cases of ICC underwent hysterectomies + chemotherapy (25%), the cases of squamous cell carcinoma underwent respectively: radio palliative chemotherapy (12.5%), tumor resection of the vulva + chemotherapy (12.5%) and one case of hysterectomy with bilateral adnexectomy (12.5%). With a coverage rate of 50% lower than that of Sissoko [12] who had a coverage rate of 73.6% in 2011, or 70 lesions out of 95 treated.

Conclusion

Examination of the cervix for VIA/VILI should be systematically offered in the follow-up assessment of HIV-infected patients.

Conflict of Interest

None.

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