

Genital warts and condom use in HIV-positive patients referred to High-Risk Behaviors Consultation Center in Shiraz, Iran, between 2018 and 2019

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Abstract

Introduction: People with untreated human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) are more prone to present active human papillomavirus (HPV) infections, and may experience worse symptoms of HPV, such as cervical and penile warts. Therefore, HPV prevention is especially important in HIV-positive individuals. This study aimed to investigate the frequency of genital warts and condom use in sexually active individuals with HIV/AIDS treated in the Behavioral Counseling Center of Shiraz.

Material and methods: 224 HIV-positive subjects (112 males and 112 females) were included in this cross-sectional study, selected from database of the Behavioral Counseling Center of Shiraz, with simple random sampling. Data were collected using demographic questionnaires, interviews, and medical records.

Results: Genital warts were reported only in 13.4% of women and 17.0% of men, and the percentage of condom use among women and men was 65.2% and 74.1%, respectively. Moreover, 68.8% of men and 87.5% of women presented first stage of HIV infection.

Conclusions: According to the results, condoms were the most commonly used form of contraception in women and men with HIV/AIDS, and genital warts were reported only in 13.4% of women and 17% of men, few of whom did not use any contraception. Due to high percentage of genital warts among participants, there is a need to encourage these patients to use condoms due their protective effects and reduction of cervical and penile lesions.

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Key words: genital wart, contraception, HIV/ AIDS, condom. comparison between BD and FDMN.

Introduction

Cervical cancer is one of global health problems resulting in malignancy due to infection with human papilloma-

virus (HPV) [1, 2]. Although HPV consists of roughly 100 subtypes, not all HPV types have been linked to cervical cancer. HPV16 and HPV18 are the most commonly occur-

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ring subtypes, which lead to approximately 70% of cervical cancers [3].

Many studies have indicated types 16, 18, 45, and 31 as the commonly found HPVs in cervical cancer cells. In fact, there are 16 high-risk types (26, 31, 33, 35, 39, 45, 51, 52, 53, 56, 58, 59, 66, 68, 73, and 82) and 4 low-risk types (6, 11, 42, and 44) [4].

HPV prevalence varies in different regions. It is estimated to be 25-34% in Asia, Europe, and North America, and more than 57-64% in Africa and Latin America [5]. In Iran, studies were carried out in this field for the first time in 2012, and reported 7.7% of women with genital warts [6].

Low-risk group HPV types 6 and 11 cause 90% of external ano-genital warts. It should be noted that human immunodeficiency virus (HIV)-positive patients with genital warts are more resistant to standard treatment, and HIV-positive women undergoing treatment for cervical intrauterine neoplasia are more likely to have a recurrence of HPV [7].

The risk for HIV infection is double in HPV-infected women, regardless of the oncogenic potential of HPV (high-risk or low-risk). Moreover, HIV infection increases with the number of HPV types [8].

A study by Mirzazadeh investigated HIV and other sexually transmitted infections in sex workers included 872 cases in 2010 and 1,337 cases in 2015 in Iran. According to that study, 2.1% and 2.8% of them had HIV infection in 2010 and 2015, respectively. Also, the rate of HPV infection in 2015 was 41.8% among those patients [9]. Therefore, as an important point in cervical cancer treatment, it is best to identify high-risk types of HPV, and follow them up, especially in HIV patients.

In a study on 126 men with HIV in Eastern India aiming to detect HPV infection and their abnormal anal cytology, HPV virus was identified in 27.73% of DNA tests, and HPV16 was the most common type [10]. Also, in 2019, Nelson pointed out that cultural and social differences influence sex preferences (e.g., multiple sexual partners and men who have sex with men) and the risk of developing other sexually transmitted infections, such as HPV, which was more evident in men who had sex with men [11].

Healthcare providers recommend that specific contraceptive methods with a significant impact on HIV and HPV prevention, should be used among the groups of people who have sexual relationships with these patients. According to a systematic study in Africa, many sex workers tend to use contraceptive methods, but they face significant barriers, including access to services, misconceptions about side effects, male partner preferences, and cost. About 90% of HIV-infected women used condoms as a contraceptive method due to proper training and interventions of healthcare staff [12]. According to Rwamugira (2019), most men preferred to be educated in a group, which provided a practical, feasible, and cost-effective education about these health issues. However, in Iran, while women attend healthcare facilities for services and counseling, there are no specific health centers for men [13].

This study aimed to investigate the frequency of genital warts and condom use in sexually active people with HIV/AIDS treated in the High-Risk Behavioral Center of Shiraz. Sub-objectives were determining as: 1) clinical staging of HIV/AIDS for adults; 2) frequency of using contraceptives among men and women with HIV/AIDS; 3) frequency of genital warts among HIV/AIDS-positive men and women.

Material and methods

This cross-sectional descriptive study was included 112 women and 112 men with HIV/AIDS, who were referred to the Behavioral Counseling Center in Shiraz. After obtaining approval from the Ethics Committee of Shiraz University of Medical Sciences (approval No.: IR.SUMS.REC 1396.S735), it was sent to Behavioral Health Counseling Center of Shiraz with a letter of introduction to collect data via distributing study questionnaires.

Sampling was based on convenience purposive method. Samples were based on self-reporting HIV patients and after describing genital warts, their physical symptoms and medical records were collected. Data accuracy was verified according to patients' records. These patients had no active symptoms of HPV and were in the silent phase. The authors then compared their statements with their medical records. Inclusion criteria were informed consent, positive HIV test based on patient's records, age over 18 years, and Iranian citizenship. Exclusion criterion was severe cognitive impairment.

Sample size was determined with a power of 90% and an error of 5%, and data collection tool was a demographic questionnaire. The researcher-made questionnaire consisted of 48 items on personal data (demographic questions), sexual partner status, and disease status. Diagnosis of HPV was based on self-reporting and describing genital warts and physical symptoms of HIV. Then, the authors compared participant's statements with their medical records. After data normalization, analysis was performed using SPSS-23 software.

In terms of ethical considerations, before beginning of the study, subjects were informed about the study plan and written consents were obtained. Subjects were informed about the objectives, confidentiality of information, and provision of information in general as well as their freedom to withdraw from participation in the study at any time.

Results

According to the results, genital warts were the most frequent among men and women of 40-50 years old. The majority of participants were 29-39 years old (men, 43.8%; women, 46.4%). Most HIV-positive men had completed elementary school education (42%) and were self-employed (89.3%). Most women with HIV had completed secondary school education (30.4%) and were housewives (77.7%). Among the subjects, 44.6% of men and 49.1% of women were married (Table 1), and 20.5% of men and 52.7% of women

had an HIV-positive sexual partner (Table 1). Also, 68.8% of men and 87.5% of women were in the first stage of HIV infection (asymptomatic, persistent generalized lymphadenopathy), and 1.8% of men and 2.7% of women were in the clinical stage 4 of HIV (severely symptomatic stage) (Table 2). Moreover, the highest percentage of condom use among women and men was 65.2% and 74.1%, respectively; however, 7.1% of men and 5.4% of women did not use any contraception (Table 3). Genital warts were reported only in 13.4% of women and 17.0% of men (Table 4).

Discussion

The aim of the present study was to assess the frequency of genital warts and condom use in sexually active individuals with HIV/AIDS at the Behavioral Counseling Center of Shiraz. Out of the total of 224 HIV-positive subjects, 19 (17.0%) men and 15 (13.4%) women had HPV, despite most of them using condom as a contraception (men: 83, 74.1%, and women: 73, 65.2%).

According to the results, it can be argued that condom is the most widely used contraceptive by men ($n = 83$, 74.1%) and women ($n = 73$, 65.2%). A cross-sectional study by Nasirian in Isfahan, Iran, evaluating the prevalence of sexually transmitted infections on 99 female sex workers, demonstrated that the prevalence of HPV infection was 5.7%. Moreover, 78.0% of males and 6.8% of females reported the use of condoms, and 15.0% used both types of condoms [14].

Another study by Ghazizadeh revealed that the prevalence of HPV among 58 kidney transplant recipients was only 6.9%, and the most common methods of contraception among them were withdrawal and condom use (37.9% and 6.9%, respectively) [15]. Also, a few of participants in this study did not use any contraception (Table 3); thus, healthcare providers and clinicians should inform them about danger of HPV infection and protective effects of barriers methods of contraception, such as condoms.

A Danish national cohort study among 2,874 individuals with HPV showed that the risk of developing HPV with contraceptive pills increased during the first year of patient's follow-up. However, a review study found that the use of oral contraceptives was not associated with HPV [16]. A study with 288 HIV-positive women in five Brazilian cities indicated that the prevalence of HPV was high (78.8%), and condoms were used by 42.7% of participants [17]. According to Tran, the effect of condom use in preventing HPV transmission has not been fully established, and regular condom use was associated with a lower possibility of both high-risk-type and multi-type HPV infections ($p = 0.032$), although further studies have shown a protective effect [18].

Qiuli reported that risk factors associated with HPV infection included economic level, differences in behavior, and socio-cultural aspects, and there was a negative correlation between educational level and HPV prevalence. Additionally, Qiuli found that men who had extramarital sex presented an increased risk of HPV infection [19]. Tran showed that older age at the time of first sexual intercourse was one

of the risk factors for high-risk HPV infection. Participants' age at the first intercourse and frequency of condom use were significantly associated with high-risk HPV infection in comparison with no infection. Age at the time of first sexual intercourse was also inconsistently related to HPV risk in a previous study [20].

Similarly, the effect of condom use in preventing HPV transmission and infection has not been fully established in the present study, although according to other research, condoms demonstrated protective effects [21].

A cohort study among 150 teenage American girls showed a significant correlation between re-diagnosis of HPV and combined use of contraceptive pills over the past three months compared with women who had not taken any contraceptive pills [21]. Furthermore, a study by Kumar with 213 women, including two control groups and 40 HPV patients, showed

Table 1. Demographics and clinical characteristics of participants

Variable	Frequency, men (%)	Frequency, women (%)
Age		
18-28	4 (3.6)	30 (26.8)
29-39	49 (43.8)	52 (46.4)
40-50	42 (37.5)	26 (23.2)
≥ 51	17 (15.2)	4 (3.6)
Education		
Illiterate	6 (5.4)	3 (2.7)
Primary-middle school	47 (42.0)	27 (24.1)
High school/Diploma	28 (25.0)	34 (30.4)
Diploma	20 (17.4)	26 (23.2)
Academic education	11 (9.8)	17 (15.2)
Missing data	–	5 (4.5)
Marital status		
Married	50 (44.6)	55 (49.1)
Single	32 (28.6)	8 (7.1)
Widowed	4 (3.6)	18 (16.1)
Divorced	22 (19.6)	20 (17.9)
Temporary marriage	4 (3.6)	11 (9.8)
Job status		
State employed	12 (10.7)	10 (8.9)
Self-employed	100 (89.3)	12 (10.7)
Housewife	–	87 (77.7)
Missing data	–	3 (2.7)
HIV-positive partner		
Yes	23 (20.5)	59 (52.7)
No	67 (59.8)	37 (33.0)
Do not know	18 (16.1)	13 (11.6)
Missing data	4 (3.6)	3 (2.7)

Table 2. Clinical staging of HIV/AIDS for adults

Clinical stage	Clinical conditions or symptoms	Frequency, men (%)	Frequency, women (%)
1	Asymptomatic Persistent generalized lymphadenopathy	77 (68.8)	98 (87.5)
2	Moderate and unexplained weight loss (< 10% of presumed or measured body weight) Recurrent respiratory tract infections, such as sinusitis, bronchitis, otitis media, pharyngitis Herpes zoster Recurrent oral ulcerations Papular pruritic eruptions Angular cheilitis Seborrheic dermatitis Onychomycosis (fungal nail infections)	20 (17.9)	5 (4.5)
3	Unexplained chronic diarrhea for longer than one month Unexplained persistent fever (intermittent or constant for longer than one month) Severe weight loss (> 10% of presumed or measured body weight) Oral candidiasis Oral hairy leukoplakia Pulmonary tuberculosis (TB) diagnosed in last two years Severe presumed bacterial infections (e.g., pneumonia, empyema, meningitis, bacteremia, pyomyositis, bone or joint infection) Acute necrotizing ulcerative stomatitis, gingivitis, or periodontitis	13 (11.6)	6 (5.4)
4	HIV wasting syndrome Pneumocystis pneumonia Recurrent severe or radiological bacterial pneumonia Chronic herpes simplex infection (orolabial, genital, or ano-rectal for more than one month duration) Esophageal candidiasis Extrapulmonary tuberculosis Kaposi's sarcoma Central nervous system toxoplasmosis HIV encephalopathy	2 (1.8)	

Table 3. Frequency of using contraceptives

Sex/Index	n (%)
Men, contraceptive	
Condom	83 (74.1)
Natural method	21 (18.8)
No contraception used	8 (7.1)
Women, contraceptive	
Condom	73 (65.2)
Natural method	19 (17.0)
LD pills	8 (7.1)
Depo-Provera	2 (1.8)
IUD	1 (0.9)
TL	3 (2.7)
No contraception used	6 (5.4)

LD – low-dose estrogen, IUD – intrauterine device, TL – tubal ligation

that HPV patients were more likely to use a highly effective contraceptive Depo-Provera ($p = 0.0049$), and experienced fewer number of hysterectomies ($p = 0.0129$) [22].

Table 4. Frequency of genital warts

Sex/Index	n (%)
Men	
HPV	
Yes	19 (17.0)
No	93 (83.0)
Women	
HPV	
Yes	15 (13.4)
No	97 (86.6)

The different results of this study might be because samples were taken from HIV/AIDS-positive individuals, who were forced to use condoms due to sensitivity of their disease, although they did not like to do so. Moreover, in a Pierce's study on 3,323 sexually active males, the risk of HPV among men who used condoms was twice lower than in those who never used condoms (risk ratio of 0.54) [23]. Chikandiwa's study among 1,238 women with HIV, aged 25-50 years, showed a general incidence of 2.3 cases of this

disease per 100 persons in a year. Also, low CD4+ cells count was associated with prevalence of HPV, but prolonged use of HIV/ AIDS drugs did not have a protective effect [1]. Decreased CD4+ cells would increase the risk of HPV. In other words, HIV is a risk factor for HPV; also, failure to receive prompt antiviral treatment in AIDS patients can make them susceptible to other sexually transmitted infections (STIs) [24, 25] due to HPV transmitted via skin-to-skin contact. Therefore, barrier methods, such as male and female condoms, should be recommended, but the users need to be aware that condoms do not guarantee full protection [26].

A study among American young women showed that unvaccinated women had a lower socio-economic status compared to vaccinated ones, which may affect their access to preventive healthcare. The study emphasized the need to focus on improving screening in this population by eliminating barriers both for the provider and patient. Recognition of disparities in screening among unvaccinated women is the first step towards improving cancer preventive care and health equity in this group. The need for targeted educational and strategic programs by healthcare providers for screening and vaccination was emphasized [27].

Another important point is the encouragement of education, and its' ability to prevent cervical cancer and recommended use for all genders. Emphasis on girls, as on those who need to be concern about HPV because the virus can result in cervical cancer, may draw away attention from boys who also need to be trained.

Anderson explored primary care and the role of physicians in deciding to vaccinate the patients. Respondents were three times more likely to get vaccinated if they learned about the vaccine from their physician's, compared to those who came to know about it from the media or advertisements. Physicians have an important role to play. However, since they are also faced with serious time limitations, it is better to train people by other healthcare providers [28].

It appears that the reason for the difference between the present study and others is patients' self-reporting on HPV infection in comparison with those who refused to express the real condition of the disease, either because of ignorance or shame of talking about it.

Due to a problem of accessing patients and their records in the community, sampling was performed among patients who referred to the center as self-reported cases. This could be considered as an obstacle to generalize the results of this study to the patients throughout the country.

Limitations

One limitations of this study was difficulty to access patients in the community and multiple medical centers; therefore, we have to choose AIDS/HIV patients from the Behavioral Counseling Center of Shiraz, which could be an obstacle to generalize the results throughout the country. Sometimes, the participants after giving a consent for participating in this research interrupted the interview and

wanted to leave, then the researcher tried to talked and convinced them to cooperate; however, some of them did not agree to continue. This prolonged the time of the study. Due to nature of the research and reluctance of patients to physical examination, questionnaires were applied.

Conclusions

According to the results, condoms were the most commonly used form of contraception in women and men with HIV/AIDS, and genital warts were reported only in 13.4% of women and 17.0% of men. Moreover, most of these patients were in the first stage of HIV infection and they did not show any symptoms. This group of individuals is more likely to be exposed to HPV due to immunodeficiency. Therefore, they need to be encouraged to use condoms because of their protective effects. It is vital that HIV-positive patients are informed by the health care providers about the risk of acquiring HPV from close physical contact with presence of HPV lesions. Additionally, it is important that these patients should be educated by healthcare providers that barrier protections, such as condoms, does not provide complete defense against genital HPV.

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Conflict of interest

The authors declare no conflict of interest.

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