




## Human immunodeficiency virus, hepatitis B virus, hepatitis C virus, and syphilis co-infections among patients with anogenital warts in Tabriz, Iran

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### Abstract

**Introduction:** Genital infection with papilloma virus is the most common sexually-transmitted disease (STD). It is recommended that individuals who have a sexual risk factor, should be screened for syphilis, human immunodeficiency virus (HIV), and hepatitis B and C. However, this strategy is often not carried out in Iran. In the present study, patients with genital warts were screened for syphilis, HIV, and hepatitis B and C.

**Methods:** We evaluated 311 patients with anogenital warts visiting dermatology clinics from June 2016 to June 2017. In addition, demographic data were collected using a pre-designed questionnaire. Patients who presented to Sina Hospital, Tabriz, Iran, were examined for HIV, syphilis, hepatitis B and C, urethral and vaginal discharge, and history of painful genital lesions, while patients presenting to Bahar Behavioral Disease Counseling Center of Tabriz were examined only for HIV. Data were analyzed using chi-square and Fisher's exact tests via SPSS software.

**Results:** Out of 263 cases with genital warts presenting to Sina Hospital, 1, 1, and 2 cases were positive for HIV, syphilis, and hepatitis B, respectively. At the same time, one of the patients presenting to Bahar Center showed HIV infection.

**Conclusion:** We found two HIV-positive, two hepatitis B virus (HBV)-positive, and one syphilis cases in 311 patients with genital warts, so it is recommended to assess these tests routinely in high-risk individuals with genital warts, including multi-partner and addicted patients.

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### Introduction

Anogenital warts are symptoms of a contagious sexually-transmitted disease (STD) caused by more than 40 human papillomavirus (HPV) types.<sup>1</sup> Warts are the most easily recognized symptom of genital HPV infection. Subclinical infections are much more common than visible warts.<sup>2</sup> The wart is spread through direct skin-to-skin contact, usually during oral, genital, or anal sex with an infected partner.<sup>3,4</sup> Anogenital warts impose a high economic burden on the

health system.<sup>5,6</sup> Although the estimated number of new cases varies annually, HPV is so common that more than 50% of sexually active people will get it at some point in their lives.<sup>7-13</sup>

Studies have shown that if a patient has a type of STD, the risk of other STDs increases in the patient. For this reason, the Centers for Disease Control and Prevention (CDC) recommends that anyone who refers for sexually explicit or STD should be screened for human immunodeficiency virus (HIV),

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syphilis, and hepatitis, because the lack of identification of those who are sexually active and have STD leads to the spread of disease in the community and irreparable complications. In Iran, quantitative studies have been conducted on the demographic data of genital warts and the relation between genital mutilation and other STDs; therefore, there is limited information about the pattern of sexual behavior and risk factors of this disease.<sup>14-20</sup>

We aimed to study the demographic characteristics of patients with anogenital warts and HIV, hepatitis B virus (HBV), hepatitis C virus (HCV), and syphilis co-infections in Tabriz, Iran, during 2016-2017.

### Methods

Samples collected in this study were a census of all the patients presenting to Sina Hospital, Tabriz City, in 2016-2017 due to anogenital warts who signed the informed written consent. In addition, records of patients with genital warts presenting to Bahar Behavioral Disease Counseling Center of Tabriz in 2016-2017 were used to complete the samples. The sampling method was by convenience method.

After approval by the Medical Ethics Committee of Tabriz University of Medical Sciences (94/1-9/3), 263 patients with anogenital warts presenting to Sina Hospital who signed the informed written consent completed a questionnaire containing questions about their gender, age, marital status, number of partners, condom use, and age of the first sex. Subsequently, the anti-HIV serologic test, as well as surface antigen of HBV (HBsAg), anti HB core antibodies (HBc Ab), HCV Ab, and venereal disease research laboratory (VDRL) tests were requested for all patients, and if the VDRL was positive, the *Treponema pallidum* haemagglutination (TPHA) test would be requested. If positive, HIV was confirmed by the Western blot test. In order to complete the samples after permission from the health department of the province, information was obtained from 48 ones of the cases with

anogenital warts presenting to Bahar Counseling Center during 2016-2017. Using demographic information, we completed a questionnaire containing questions about their gender, age, marital status, level of education, number of partners, condom use, age of first sex, urethral and vaginal discharge, and history of painful genital lesions. In this center, the rapid HIV test was performed and filed in patient records. Unfortunately, it was impossible to assess syphilis and hepatitis B and C at the counseling center, and only HIV was evaluated in these patients.

Data were analyzed using SPSS software (version 19, SPSS Inc., Chicago, IL, USA). The Data were expressed as mean  $\pm$  standard deviation (SD) of frequency and percentage. Chi-square and Fisher's exact tests were used to compare two qualitative groups. In all cases, results from the study showed a statistically significant association with P-value less than 0.05.

### Results

We investigated patients with genital warts presenting to Sina Hospital for HIV, syphilis, hepatitis B and C, urethral and vaginal discharge, and history of painful vesicular lesions.

Out of 263 patients presenting to Sina Hospital, 110 were men and 153 were women [mean age:  $34.20 \pm 8.40$  (age range: 18-60 years)]. Out of 263 patients, 50 were single, 184 were married, and 29 were divorced. 5 patients were illiterate, 74 patients didn't have high school diploma, 79 patients had high school diploma, and 105 patients had university education. In patients presenting to Sina Hospital, mean number of partners was  $1.81 \pm 3.77$  (0-55). 10 patients denied sex. Mean age of first sex was  $23.08 \pm 4.76$  (range: 13-40 years). 55 (20.9%) patients regularly used condoms. In Sina Hospital only one patient (0.4%) was HIV-positive, one patient was positive for syphilis, and two patients (0.8%) were HBV-positive. In addition, no cases were found for hepatitis C. Significantly, 37 patients (14.1%) were positive

for urethral and vaginal discharge and 24 patients (9.12%) mentioned the history of painful genital lesions.

In Bahar Counseling Center, all patients were women [mean age:  $30.29 \pm 5.28$  (age range: 18-42 years)]. Out of 48 patients, 18 were single, 20 were married, and 10 were divorced. 10 patients didn't have high school diploma. 24 patients had high school diploma and 14 patients had university education. Mean number of partners was  $10.63 \pm 4.98$  (range: 3-25). Mean age of first sex was  $20.29 \pm 4.36$  (range: 13-30 year). 5 (10.4%) patients regularly used condoms. In Bahar Center, only one patient (2.8%) was HIV-positive.

### Discussion

Genital warts are a common sexually-transmitted infection caused by certain strains of HPV. The warts are especially dangerous for women because some types of HPV can cause cervical and vulvar cancers.<sup>3,21</sup>

In this study, 263 patients with genital warts presenting to Sina Hospital clinic from June 2015 to June 2016 were evaluated. The actual number of referrals was more, but they were excluded from the research because they were not willing to fill in the informed consent and the questionnaire. In most studies, the gender ratio in genital warts was not significantly different;<sup>7</sup> but in our study, anogenital wart was more common in women. Our study was consistent with studies conducted by Javidi et al.<sup>18</sup> The mean age and SD of patients presenting to Sina Hospital and Bahar Center were  $34.20 \pm 8.40$  (range: 18-60) and  $30.29 \pm 5.28$  (range: 18-42) years, respectively. In Iranian studies, mean age of patients with anogenital wart were  $29.74 \pm 8.62$ ,  $34.30 \pm 10.40$ ,  $37.30 \pm 9.60$ .<sup>15,19,20</sup> In a systematic review study conducted in 2001-2012, peak incidence were before 24 years of age in females and between 25 and 29 years of age among males.<sup>7</sup> Higher mean age of first sex in Iran compared to the other countries causes higher mean age of incidence of genital wart.

In our study, 20.9% patients in Sina Hospital, and 10.4% patients in Bahar Center

used condoms regularly. In a study conducted by Soori et al.,<sup>15</sup> 8.0% used condoms regularly. In other studies, 26.40% and 66.24% used condoms.<sup>22,23</sup> In our study, there was no significant relationship between education and condom use. In addition, in a study conducted by Malakouti et al.,<sup>19</sup> there was no significant relationship between education and decrease in the risk of genital warts, because methods for preventing STDs are not taught at higher education centers in our country. In other studies, increasing the level of education significantly reduces the risk of genital warts.<sup>7,24,25</sup>

In our study, 38.5% of the patients had single partner, 57.9% had multiple partners, and 3.8% patients denied sex. In the study conducted by Soori et al.,<sup>15</sup> 76.2% of the patients had multiple partners.

In our study, we reported one HIV-positive patient in Bahar Center; and among 263 patients with genital warts presenting to Sina Hospital, we detected one HIV-positive, one syphilis-positive, and two hepatitis B-positive patients. Our study was consistent with other studies. In the study conducted by Javidi et al., one syphilis-positive and two HIV-positive cases were reported among 100 patients with genital warts, while no cases were reported for HIV and syphilis in control group.<sup>18</sup> In a study conducted by Darjani et al., in 62 patients with genital warts no positive cases for HIV, syphilis, and hepatitis B and C were found.<sup>20</sup> In a study conducted by Al-Mutairi et al. on 150 patients with genital warts, no positive cases for HIV and syphilis were found.<sup>26</sup>

Finally, in our study, a significant percentage of patients were single (21.86%), and had multiple partners (57.90%), and relatively low percentage of patients used condoms regularly (19.29%). Regarding this information, we emphasize the importance of teaching methods for preventing STDs and using condoms. Given the high prevalence of anogenital warts, high cost of treatment, and risk of developing cervical cancer, HPV vaccination should be included in the national vaccination program.

## Conclusion

Considering the fact that we found two HIV-positive, two HBV, and one syphilis cases in 311 patients with genital warts, it is recommended to assess these tests routinely in high risk individuals with genital warts, including multi-partner and addicted patients.

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## Authors' Contribution

Sara Saniee designed the study, contributed to sample preparation, analyzed the data, and wrote the manuscript.

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Ghazaleh Davarnia, Elham Nahchami, Davood Ahmadi-Maleki, Neda Razaghi, Sahar Ebrahimi, Asal Sadri, Leila Hatamnejad, and Mir Ahad Mousavi contributed to sample preparation.

All authors discussed the results and contributed to the final manuscript.

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## Conflict of Interest

Authors have no conflict of interest.

## Ethical Approval

The study was approved by the Medical Ethics Committee of Tabriz University of Medical Sciences (approval code: 94/1-9/3).

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