

Prevalence of HPV and HIV among female drug addicts attending a drop-in center in Tehran, Iran

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Understanding the prevalence of HIV and HPV infection among drug-addicted women and detecting high-risk HPV types could lead to integration of prevention and treatment into public health planning.

This cross-sectional study of HPV and HIV prevalence was performed between 2007 and 2008 among women attending a drop-in center in Southern Tehran, Iran, that provides food and methadone to drug-addicted women. All addicted women attending the center were included in the study.

All study participants were interviewed and their method of drug use was determined. After obtaining consent, a gynecological exam was conducted and a cervical swab sample was obtained for laboratory studies. If participants had vaginal discharge or there was clinical suspicion of pelvic infection, appropriate tests and treatment were provided.

A 2 mL-sample of blood was obtained from the study participants and tested for HIV using an ELISA test (Adaltis Inc, Montreal, Canada). Positive screens were followed by western blot for confirmation. If test results were positive for HIV, referral was made to specialty clinics for further evaluation and possible treatment.

Cervical swabs and scrapes obtained for HPV detection in all cases were transferred into tubes and transported at 8°C to the Virology Research Center of the National Research Institute of Tuberculosis and Lung Disease, Tehran.

At the laboratory the cervical samples were resuspended in 500 µL of phosphate-buffered saline, immediately centrifuged, and the pellet was stored at -70 °C until further processing. For detection of HPV genotypes, nested polymerase chain reaction (PCR) analysis was performed using MY09/MY11 as the outer primers and GP5+/GP6+ as the inner primers, as previously described and with minor modification [1]. The positive samples were genotyped using a GP-E6/E7 nested multiplex PCR assay [1]. HPV genotypes were divided into 3 groups: high-risk genotypes (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, 68); low-risk genotypes (6-11, 42, 43, 44); and genotypes that could not be identified.

The study protocol was approved by the scientific and ethics committee of the National Research Institute of Tuberculosis and Lung disease, Tehran.

Data were analyzed using SPSS version 15.0 (SPSS, Chicago, IL, USA). Continuous variables were expressed as group means ± SD. The χ^2 test without Yates correction and a Fisher exact test were used as appropriate. All reported *P* values are two-sided. *P* < 0.05 was considered statistically significant. Multivariate logistic regression was used to determine the independent risk factors for HPV and high-risk genotypes.

A total of 118 women were included in the study. The average age of the participants was 35.06 ± 1.16 years (range, 15-61 years). There were 15 participants with a history of intravenous drug use. A total of 91 (77.1%) women had a history of crack cocaine use. Ten (8.5%) participants had a history of crack cocaine abuse and intravenous drug use. A total of 29 (24.6%) women had multiple sexual partners. Five (4.2%) women were unmarried, 51 (43.2%) were married, 51 (43.2%) were divorced, and 11 (9.3%) were widowed. Seventeen (14.4%) women were illiterate, 89 (75.4%) had a level of education below diploma level, and 12 (10.2%) participants had a diploma or higher level of education. Vaginal discharge was reported by 64 (54.2%) women. Candidiasis was found in 22 (18.6%) women and discharge caused by other infection was found in 44 (35.6%) participants. A total of 8 participants (6.8%) tested positive for HIV.

The vaginal swab samples of 59 (50%) women tested positive for HPV. More than one type of HPV virus was identified in 16 (13.6%) women. There were 26 (22%) cases of high-risk HPV, 9 (7.6%) cases of both high-

Table 1

Identifiable HPV genotypes among the study patients (n = 43).

HPV genotype	No. (%)
16 ^a	7 (16.3)
6, 11	5 (11.6)
18 ^a	3 (7.0)
51 ^a	2 (4.7)
68 ^a	2 (4.7)
42	2 (4.7)
16 ^a , 18 ^a	2 (4.7)
6, 16 ^a	1 (2.3)
18 ^a , 35 ^a , 51 ^a	2 (4.7)
45 ^a	1 (2.3)
44	1 (2.3)
58 ^a	1 (2.3)
35 ^a	1 (2.3)
66 ^a	1 (2.3)
39 ^a	1 (2.3)
6, 51 ^a	1 (2.3)
42, 51 ^a	1 (2.3)
58, 66 ^a	1 (2.3)
16 ^a , 42	1 (2.3)
6, 68 ^a	1 (2.3)
16 ^a , 31 ^a	1 (2.3)
18 ^a , 33 ^a , 51 ^a	1 (2.3)
6, 16 ^a , 18 ^a	1 (2.3)
42, 43, 51 ^a , 58 ^a	1 (2.3)
6, 16 ^a , 42	1 (2.3)
6, 43, 51 ^a	1 (2.3)

^a High-risk genotype.

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Table 2
Univariate analysis of variables associated with HPV infection.^a

Variable		HPV		P value (95% CI)
		+	-	
IVDU	Yes	7 (46.6)	8 (53.3)	0.78
	No	52 (50.5)	51 (49.51)	
Crack cocaine	Yes	50 (55.5)	40 (44.4)	0.030 (1.08–6.46)
	No	9 (32.4)	19 (67.6)	
Multipartner	Yes	16 (55.17)	13 (44.83)	0.52
	No	43 (48.3)	46 (51.7)	
HIV	Yes	5 (62.5)	3 (37.5)	0.717
	No	54 (49.1)	56 (50.0)	
Age		32.89 ± 10.30	37.27 ± 12.57	0.041 (–8.58 to 0.17)

^a Values are given as number (percentage) or mean ± SD unless otherwise indicated.

risk and low-risk HPV, and 8 (6.8%) cases of low-risk HPV identified. The HPV genotype could not be identified in 16 (13.6%) women.

Half of the high-risk genotypes identified were types 16 and 18, and the rest were of 9 different types (Table 1). In univariate analysis, age and crack cocaine use were significantly associated with HPV infection (Table 2), but did not remain so following multivariate analysis. With multivariate analysis, crack cocaine use remained independently associated with high-risk HPV genotypes (OR 15.6; 95% CI, 1.67–146.4, $P=0.016$).

Few studies have been conducted on the prevalence of HPV among HIV-negative female drug addicts and the existing literature relates primarily to female addicts who are HIV positive. Dev et al. [2] reported a 26% prevalence rate of HPV in drug-addicted women [2], while the present study reported a relatively higher rate of 50%. Dev et al. [2] reported no cases of high-risk HPV at the beginning of the study, whereas in the present study 29.7% (35/118 women) had a high-risk

type. In a study by Syrjanen et al. [3], the prevalence of high-risk HPV among addicted women was approximately 30%, which was higher than for their control group (21.9%).

In the present study the prevalence of HIV was 6.8%, which is higher than the overall rate in Iran (<1%) but less than that reported by Dev et al. [2]; the prevalence of HIV was not reported by Syrjanen et al. [3]. Of note is the prevalence of crack cocaine use among our study participants. Crack cocaine is among the newer drug substances available and, therefore, this study is of particular importance for public health policy decision-makers.

Although the most prevalent high-risk HPV types were types 16 and 18, other high-risk types such as 51 and 35 were seen in a high number of participants. Existing HPV vaccines cover only 4 types (18, 16, 11, 6); therefore, production of vaccines covering other high-risk types is of importance for prevention of all cervical malignancies [4].

Conflict of interest

The authors have no conflict of interest.

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Hysterosalpingographic evaluation of 998 consecutive infertile women in Jos, Nigeria

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Infertility remains a major health problem in Nigeria—with distressing psychosocial implications for the couple, and emotional and physical repercussions for the woman [1]. The World Health

Organization study of the etiology of infertility [2] and studies from southwestern Nigeria [3] have shown the preponderance of infection-related tuboperitoneal disease, with resultant tubal occlusion, to be the major cause of infertility in women. Hysterosalpingography (HSG) has widely replaced Rubin's test for assessing tubal patency in infertile women, and is routinely performed on women evaluated for infertility at Jos University Teaching Hospital (JUTH), Jos, Nigeria. The aim of the present study was to determine the pattern of HSG findings among infertile women in central Nigeria.

A retrospective study was carried out in a teaching hospital with limited facilities for evaluation of infertile couples. Hysterosalpingograms and radiology reports for consecutive infertile women who underwent HSG between July 1988 and June 1998 at JUTH were retrieved and reviewed. Data were analyzed using descriptive statistics. The Ethics Committee of the hospital approved the study.

In total, 1026 hysterosalpingograms were available for study, but only 998 (97.3%) radiographs met the inclusion criteria. Of the 998 corresponding hysterosalpingograms, 389 (39.0%) and 609 (61.0%) were of women who presented with primary and secondary infertility, respectively.

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