Oropharyngeal infection due HPV in people living with HIV (PLHIV)

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Background: Antiretroviral therapy (ART) has increased life expectancy of PLHIV, and therefore the risk of non-AIDS- defining diseases. The most common non-AIDS-defining cancer in PLHIV, especially in men who have sex with men (MSM), is anal cancer related to human papillomavirus (HPV)infection. So far, there has been little data on infection and dysplasia an oro-pharyngeal mucosa

Patients/methods: this is a prospective study carried out between November 2021- April 2022, which included 142 PLHIV who belonged to a HPV-associated anal and genital cancers screening program at the "Hospital Universitario Virgen de las Nieves (HUVN)" in Granada. Data were gathered at baseline visit on sexual habits, CD4/CD8 cell/counts, HIV viral load, and the results of anal and cervical cytology (Thin Prep® Pap Test), oral, anal and cervical HPV PCR genotyping (Linear Array HPV Genotyping Test), and high-resolution anoscopy (Zeiss 150 fc © colposcope) and colposcopy in case of women (WLHIV).

Results:

Table 1. Baseline data of PLHIV	N=142
Male, n (%)	120 (84.5)
Female, n (%)	22 (15.5)
Age (year), mean (± SD)	44, (±10.6)
Nationality, Spanish, n (%)	122 (85.9)
Median of sexual partner12 months (IQR)	1 (1-5.5)
Median of sexual partner from 1st relationship (IQR)	92 (21.5-303)
% of condom use in oral sex (IQR)	0 (0-0)
% of condom use in vaginal sex (IQR)	0 (0-50)
% of condom use in anal sex (IQR)	0 (0-50)
Retired	19 (13.4)
Educational level, n (%)	
Illiterate	5 (3.5)
Primary	24 (16.9)
High school	40 (28.2)
University	69 (48.6)
Smoking, n (%	51 (35.9)
Polymedicated, n (%)	10 (7)
HPV vaccine (HPVv) administered n (%)	
Complete vaccination	31 (21.82)
4-HPVv (tetravalent vaccine)	16 (11.3)
9-HPVv (nonavalent vaccine)	23 (16.2)
HBV co-infection, n (%)	3 (2.1)
IgG HCV positive, n (%)	4 (2.8)
Syphilis in baseline visit, n (%)	7 (4.9)
History of syphilis, n (%)	62 (43.7)
Other sexual transmission diseases (STD) in baseline visit, n (%)	14 (9.8)
History of STD, n (%)	52 (36.6)
Anal-genital condylomas in baseline visit, n (%)	8 (5.6)
History of anal-genital condylomas, n (%)	54 (38)

Table 3. Oro-pharyngeal dysplasia and HPV infection	N=142
HPV positive PCR, n (%)	16 (11.2)
HR-HPV*, n (%)	11 (7.7)
HPV-33, 59, 68, n (%)	2(1.4), 2(1.4), 2 (1.4)
HR-HPV number, median (IQR)	0 (0-0)
LR-HPV**, n (%)	6 (4,2)
HPV-40, HPV-44, n(%)	2 (1.4), 2 (1.4)
LR-HPV number, median (IQR)	0 (0-0)
Mixture infection due HR and LR-HPV, n (%)	1 (0.7)
Benign Dysplasia (warts), n (%)	1 (0.7)
TSD, n (%) N. gonorrhoeae	7 (4.9)

HR-HPV*: high risk; LR-HPV: low risk-HPV**

In multivariate analysis, the only risk factor related with Oro-pharyngeal infection due HPV was *Treponema pallidum* (HR:10.45; CI95% (1.98-55.15)].

Conclusions: HPV oropharyngeal infection prevalence was 11.2% and the most frequent serotypes were 33, 59 and 68 (high risk serotypes); and the only factor associated with this infection was having a concomitant syphilis. The anal mucosa of PLHIV has the highest rate of HPV infection and dysplasia. Therefore, it is crucial to implement HPV mucosal infection screening programs in PLHIV.

Table 1. Continued	N=142
Risk factor for HIV infection, n (%)	
MSM	121 (85.2)
Heterosexual	16 (11.3)
Ex-IVDU*	5 (3.5)
Time from HIV diagnosis (months), median (IQR)	260 (24-389)
History of AIDS (A3, B3, C)	44 (31)
Baseline CD4, mean(± DS)	732.1 (±313.3)
Baseline CD8, mean (± DS)	919.2 (±491.3)
Baseline CD4/CD8, mean (± DS)	0.9 (±0.4)
Viral load < 50 cop/mL, n (%)	115 (87.1)
Time on ART (years), median (IQR)	17 (3.4-21.7)
Previous ART line, median, (IQR)	3 (2-4)
Virological failure, n (%)	1 (0.7)

EX-IVDU*: ex- injecting venous drug user

Table 2. History of Dysplasia,	N=142
History of Oro-pharyngeal dysplasia, n (%)	
Tonsil squamous cell carcinoma	1 (0.7)
Lingual squamous cell carcinoma	1 (0.7)
History of genital dysplasia n (%)	4 (2.8)
CIN 1, n (%)	8 (5.6)
CIN2-3/carcinoma in situ, n (%)	
History of anal dysplasia, n (%)	
AIN 1, n (%)	84 (59.2)
AIN 2-3/carcinoma in situ, n (%)	30 (21.1)
Anal squamous cell carcinoma, n (%)	2 (1.4)

Table 4. Genital dysplasia and HPV infection	N= 22
HPV positive PCR, n (%)	12 (54.5)
HR-HPV, n (%)	6 (27)
HPV-16, 51, n (%)	2(9), 2(9)
HR-HPV number, median (IQR)	0 (0-1)
LR-HPV, n (%)	9 (40.5)
HPV-6, 44, 62, n (%)	2(9), 5 (22.5), 2(9)
LR-HPV number, median (IQR)	1 (0-1)
Mixture infection due HR and LR-HPV, n (%)	4 (18)
Oro-pharyngeal and genital Infection due HPV, n (%)	2 (9)
CIN 1, n (%)	1 (4.5)

Table 5. Anal dysplasia and HPV infection	n = 142
HPV positive PCR, n (%)	108 (76.1)
HR-HPV, n (%)	85 (59.9)
VPH- 16, n(%)	21 (14.8)
HR-HPV number, median (IQR)	1 (0-2)
LR-HPV, n (%)	73 (51.4)
VPH-44	24 (16.9)
LR-HPV number, median (IQR)	0 (0-1)
Mixture infection due HR and LR-HPV, n (%)	53 (37.3)
Oro-pharyngeal and anal Infection due HPV, n (%)	14 (9.9)
AIN 1, n (%)	32 (22.5)
AIN2/3/C. in situ, n (%)	1 (0.7)