

P1766

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Molecular diagnosis of sexually-transmitted pathogens

DIAGNOSIS OF ANAL AND ORAL HUMAN PAPILLOMAVIRUS (HPV) INFECTIONS IN HIV-POSITIVE PATIENTS

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Objectives:

Human Papillomavirus (HPV) is responsible for one of the most common sexually transmitted diseases. Several studies reported on the association between HPV infection and either genital tract or anal or oro-pharyngeal cancers. The aim of this study was to investigate (i) the involvement of HPV, (ii) the distribution of HPV genotypes, classified as high risk (HR-HPV) and low risk (LR-HPV) and (iii) the expression of viral oncogenes E6/E7, in oral and peri-anal infections in HIV patients.

Methods:

Fifty-two outpatients (7 females, 45 males, average age 43 years, 40% homosexuals) with HIV infection and joining the Infectious Disease Ambulatory of the Catholic University School of Medicine in Roma, were enrolled. All these patients underwent HAART, HIV-RNA <37 copies/ml and CD4>200 cells/ul. Each patient underwent oral and peri-anal brushing and the 104 specimens were analyzed through the Hybrid Capture II HPV (hc2-HPV), PapilloCheck and AnyplexII HPV28 Detection assays (HPV28) for genotyping and NucliSENS EasyQ HPV assay for the detection of E6/E7 mRNA of HR-HPV 16, 18, 31, 33, 45.

Results:

HPV infection, in 1 out of the 2 zones analyzed, was detected in the 78.8% of the individuals tested by the hc2-HPV or PapilloCheck, whereas this figure increased at 94.2% when the HPV28 assay was used. The hc2-HPV or PapilloCheck assays detected an anal HPV infection in the 78% of the positive subjects, whereas in the 15% the infection was both anal and oral. At least one HR-HPV genotype was found in the 65% of positive subjects, whereas a multiple infection was detected in the 36% of them. The 16, 51 and 56 were the main genotypes detected in the 36% of positive subjects followed by the 18, 31, 33, 45 and 68. The HPV28 assay detected an anal HPV infection in the 86.2% of the positive subjects, whereas in the 42.8% an oral and anal infection was found. At least one HR-HPV genotype was found in the 86.5% of positive subjects, whereas a multiple infection was detected in the 73.1% of them. The 16, 35 and 53 were the main genotypes detected in the 38.4% of positive subjects followed by the 18, 31, 45, 56, 66 and 68. The E6/E7 oncogene expression was found in the 5.8% and 48.1% of oral and anal specimens positive for HR-HPV, respectively. The 16 and 45 were the main genotypes detected.

Conclusions:

The above mentioned results demonstrated that HIV-positive subjects developed either anal or oral HPV infections. Furthermore, multiple infections sustained by HR-HPV expressing E6/E7 oncogenes were found in several cases. These data put forth the need for an accurate screening through sensitive and specific assays in order to reduce the incidence of anal and oral carcinomas.