

## ORT\_06 - Human papillomavirus DNA versus Pap smear screening test in women living with human immunodeficiency virus

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**Introduction:** Human Papillomavirus (HPV) is a potentially oncogenic, sexually transmitted virus that causes cervical cancer, one of the most prevalent forms of cancer in women worldwide. Infection with this virus is even more common in women who are also infected with the Human Immunodeficiency Virus (HIV) due to immunocompromisation.

**Objectives:** This study aimed to compare the effectiveness of the Pap smear examination and Polymerase Chain Reaction (PCR) in detecting HPV infection, both separately and in combination, as part of routine screening in Women Living with HIV (WLWH). Additionally, the goal was to correlate these results with clinical and laboratory parameters related to HIV and socioepidemiological variables of the patients.

**Methodology:** For this purpose, cervical smears from 100 women were collected. HPV detection was performed using conventional PCR with MY09/11 primers, and genotyping was done using the DNA Microarray Hybridization technique. Through a review of medical records, we obtained the CD4+ T lymphocyte count conducted by flow cytometry and quantification of HIV viral load by real-time PCR. The results were correlated with the Pap smear examination results.

**Results:** Out of the 100 women analyzed, 29% were found to be infected with HPV. The presence of 14 different viral genotypes was detected, with the most prevalent being HPV 6 (26%), 18 (18%), 11 (15%), and 16 (11%). In the Pap smear examination, 16% showed altered cytology (high and low-grade lesions [H-SIL and L-SIL] or carcinoma). There was a correlation between viral load and cytology results ( $p = 0.02$ ), suggesting that HIV presence may affect susceptibility to HPV infection, but variations in viral load are not necessarily associated with variations in the occurrence of cytological abnormalities. We also found a correlation between HPV detection by PCR and cytological results ( $p < 0.001$ ). Thus, among samples with altered cytological results, 94% ( $N = 15/16$ ) were positive for the presence of HPV DNA. Among samples with normal cytological results, 17% ( $N = 14/84$ ) were positive for HPV in PCR. In statistical analyses, confidence intervals were maintained at 95%, and  $p < 0.05$ .

**Conclusion:** Therefore, the incorporation of PCR combined with the cytological examination in diagnostic screening has proven effective, providing a more sensitive and accurate detection of HPV infections. The data support the integration of molecular biology into primary HPV screening, especially in the target population of our study, WLWH.

**Keywords:** Human papillomavirus (HPV); Pap smear; DNA HPV