VAC_11 - Surveillance of Human papillomavirus genotypes in women living with Human immunodeficiency virus after eight years of vaccination

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Introduction: Human Papillomaviruses (HPV) are sexually transmitted viruses that can cause cervical cancer. This infection is more prevalent in women living with HIV (WLWH) due to immunosuppression. Campos dos Goytacazes was the first Brazilian municipality to offer the quadrivalent HPV vaccine (4vHPV) to WLWH up to the age of 45 in 2011.

Objectives: The aims were to characterize the prevalence and genomic diversity of HPV infection from cervical smears before and eight years after the application of the 4vHPV in WLWH, and to correlate possible risk factors.

Methodology: This is a cohort study with intervention, comprising three time points: T1 (2014) - 1st collection and vaccination; T2 (2018) - 2nd collection; and T3 (2022) - 3rd collection. After the initial sample collection, vaccination was administered in three doses, accompanied by a questionnaire on socioeconomic variables. Through medical record reviews, we obtained access to the Papanicolau test diagnosis, quantification of HIV viral load using real-time PCR, and CD4+ T lymphocyte count by flow cytometry. HPV infection prevalence was assessed using the Polymerase Chain Reaction (PCR) technique with MY09/11 primers. Molecular genotyping utilized a second PCR with primers for type-specific HPV gene sequences. Inconclusive cases were analyzed using DNA Microarray Hybridization.

Results: At time point T1, 156 women were analyzed, with 107 (68.6%) negative results in both Papanicolau and PCR, and 49 (31.4%) positive in at least one of the tests. Among the positive samples, 35 were diagnosed by PCR, with 31 (88%) showing viral genotypes included in the 4vHPV. The univariate analysis conducted at time point T1 considered the variables “age greater than or equal to 50 years,” marital status “married,” “number of children less than or equal to 2,” “sexual partnerships less than or equal to 3,” and “CD4+ T lymphocyte count greater than 550” as protective factors against viral infection. At time point T2, 42 patients were analyzed, with three (7%) positive cases, and one of them presented a non-vaccine type. In time point T3, 44 samples were collected, with 15 (34%) positive cases; however, genotyping is still in progress.

Conclusion: HPV infection is a major public health concern, especially for WLWH, given the profile of infections involving multiple uncommon viral genotypes. The use of the 4vHPV has proven beneficial for this population, but nevertheless, current data supports extending the vaccine age range to 45 years nationwide and implementing the nonavalent vaccine.

Keywords: Human papillomavirus (HPV); Vaccine; Molecular genotyping