

VAC_10 - Impact of vaccination on the circulation of different Human Papillomavirus genotypes in male university students from Rio de Janeiro, Brazil

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Introduction: To evaluate the impact of the vaccination offered against human papillomavirus (HPV) and possible genotype shifts and adverse effects, university students were studied prospectively, in a before-and-after study.

Objective: Nearly 80% of the students were completely vaccinated with the quadrivalent HPV vaccine, and no moderate or severe adverse effects were reported.

Methodology: Three moments were defined: right before vaccination (T0); at the second dose moment, six months later (T1); and one year later (T2). A total of 286 volunteers were attended at Sexually Transmitted Diseases Sector from Universidade Federal Fluminense, Rio de Janeiro, Brazil.

Results: Generic PCR revealed low HPV prevalence rates in both oral and genital tracts before (14.7%), at the second dose (8.7%) and after vaccination (14.6%). Genotyping by DNA microarray assay showed a profile of 30 different genotypes: 13 low-risk types, 13 high-risk types, and four possibly oncogenic types. HPV11 was the most prevalent type, followed by HPV6. Oncogenic types 16 and 18 were detected in 2.5% of the samples, each, in T0. All the students harboring HPV in the last visit (T2) presented types 6 and/or 11. Genetic shift was observed, with the disappearance of HPVs 16 and 18 over time, and the introduction of rare oncogenic types such as HPV66, 73 and 82, all absent in Gardasil 4vHPV and 9vHPV. In the oral tract, students still harbor HPV11 even after the complete vaccine scheme. Besides that, the multivariate analysis revealed independent associations between HPV infection in oral tract and men who have sex with men ($p=0.046$). Concerning the genital tract, infection was significantly associated with students from health sciences area ($p<0.001$). There was no relation between HPV infection and familiar income, number of sexual partners, use of condoms, or circumcision.

Conclusion: Due to Covid-19 pandemics, the follow-up of the students was limited. This study suggests that young male vaccination is relevant, even after sexual debut, and may contribute to control the spread of the virus and the development of benign and malignant lesions caused by HPV. Further studies are necessary to evaluate possible future genotypes shift due to selective pressure and the potential drop in vaccine efficacy.

Keywords: Human papillomavirus; Male genital infections; Vaccines