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Potential Implication on the Introduction of the Nonavalent Vaccination Against HPV: an analysis HPV prevalence in 13,665 patients over a 18-year study period

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Context: Human papillomavirus (HPV) vaccination protected against cancerous/precancerous condition of the genital tract. The quadrivalent vaccine type 6,11,16,18 (4vHPV-V) was licensed in 2006. Recently, the Food and Drugs Administration (FDA) approved the nonavalent (9vHPV-V) vaccination against HPV.

Objective: To test the theoretical utility of the incorporation of 9vHPV-V into a clinical setting.

Methods: Data of consecutive patients undergoing sampling for HPV DNA testing from 1998 to 2015 were retrospectively searched in order to identify changes in HPV prevalence during three study periods (T1, 1998-2003; T2, 2004-2009; and T3, 2010-2015).

Patients: 13,665 patients were enrolled: 1361, 5130, 7174 patients, in T1, T2 and T3, respectively.

Intervention: HPV testing

Main outcome measure: To compare the potential utility of 4vHPV-V vs. 9vHPV-V, evaluating trends in HPV types prevalence over the study period

Results: the 4vHPV-V protected against HPV infection in 71.5%, 46.5% and 26.5% of patients tested in T1, T2 and T3, respectively (p-for-trend<.001). While, the 9vHPV-V protected against HPV infection in 92.5%, 72.3% and 58.1% of patients tested in T1, T2 and T3, respectively (p-for-trend<.001). The proportion of patients with genital dysplasia grade2+, not related to HPV genotypes covered by 4vHPV-V (13% in T1, 21% in T2 and 34% in T3) and 9vHPV-V (3% in T1, 12% in T2 and 19% in T3) increased over the time (p-for-trend<.001). For all study period the 9vHPV-V was superior that 4vHPV-V in protect against HPV infection (p<.001). Considering HPV types not covered by 9vHPv, we observed that the most common HPV was HPV53 (n=956, 6.9%), followed by HPV51 (n=536, 3.9%) and HPV66 (n=521, 3.8%). Other HPV types had a limited prevalence (low than 2.5%).

Conclusions: Our data suggested that potentially the introduction of the 9vHPV-V would improve protection against HPV infections and HPV-related genital dysplasia2+. Moreover, we can speculate that cross protection of 9vHPV-V will be related to a highest coverage against other HPV types.

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