

Human Papillomavirus among men in Tanzania

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Summary

Human Papillomavirus (HPV) is the most common sexually transmitted infection (STI) worldwide and it is a well-known causative agent of cervical cancer, penile cancer, vulvar and vaginal cancer, anal cancer and oropharyngeal cancer. A disproportionate number of HPV-associated cancers occur in developing countries, in particular in sub-Saharan Africa. Despite the sexually transmitted nature of the infection, relatively few studies have examined the epidemiology of HPV in men.

The purpose of this PhD thesis is to examine the epidemiology and aspects of the natural history of HPV among men in Tanzania (Papers 1 and 3) and in sub-Saharan Africa (Paper 2). For Paper 1 and 3, we used data from a cross-sectional study conducted among 1,813 men in Tanzania in 2009. Information on socio-demographic factors, sexual behaviour and history of STIs was collected through a personal interview using a structured questionnaire and information on circumcision status and body mass index was obtained from a clinical examination. Penile samples were tested for the presence of HPV using Hybrid Capture 2 and genotyping was done using the INNO-LiPA Genotyping Extra test. Blood samples were tested for HIV. For Paper 1, the overall and type-specific prevalence of HPV and 95% confidence intervals (CI) were estimated in relation to age and HIV status. For Paper 2, a systematic review of the published literature was done and a random effects meta-analysis was performed to estimate the pooled prevalence of HPV and 95% CIs in relation to relevant sub-groups. For Paper 3, risk factors for HPV were assessed using logistic regression estimating odds ratios (OR) and 95% CIs with adjustment for age, lifetime number of sexual partners and HIV status.

The prevalence of any HPV was 20.5% among men in Tanzania (Paper 1). The most common high-risk HPV types were HPV52, 51, 16, 18 and 35 and HPV6 and 11 the most common low-risk HPV types. The HPV prevalence was markedly higher in HIV-positive men than in HIV-negative men and a slightly higher prevalence of HPV16 and 18 was seen in HIV-positive men. The systematic review and meta-analysis (Paper 2) showed that the pooled prevalence of any HPV was 61.1% and that of high-risk HPV 41.6% among men in sub-Saharan Africa. The pooled HPV prevalence was considerably higher among HIV-positive than in HIV-negative men. HPV16 and 52 were the most common high-risk HPV types and HPV6 the most common low-risk HPV type. No clear pattern in the age-specific prevalence of HPV was seen. In Paper 3, the odds of HPV was almost twofold higher in HIV-positive men (OR=1.91; 95% CI: 1.30-2.82) than in HIV-negative men in Tanzania. Moreover, the odds of HPV was lower in circumcised (OR=0.77; 95% CI: 0.54-1.09) than in uncircumcised men, although not statistically significant.

HPV is highly prevalent among men in Tanzania and in sub-Saharan Africa, most pronounced among HIV-positive men. HPV16 and 52 are common high-risk HPV types in this population. Interventions to reduce this high burden of HPV infection and possible subsequent HPV-related precancerous lesions and cancer are highly needed, for example, through HPV vaccination.