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HPV-avertable cancer risks in India: A pooled analysis of 9 observational studies

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Dear Sir,

We read with great interest the article by Michaud *et al.*[1] "High-risk HPV types and head and neck cancer." Their research presents the associations between infections with high-risk HPV subtypes and head and neck cancer risk in the US. In addition to HPV16, HPV18/33, and HPV52 emerged as important risk factors for oropharyngeal and oral cancers, respectively.

Oral cancer is the most common form of malignant cancers in the Indian subcontinent; it accounts for one-third of the global burden of oral cancer incidence and mortality.[2,3] Despite extensive improvements in diagnosis and therapy in recent decades, the prognosis of oral cancers remains poorly understood.[4] In the Indian sub-populations, oral cancer is primarily associated with commonly known risk factors such as tobacco chewing and bidi or cigarette smoking. However, additional risk factors may be at play, as suggested by the incidence of oral cancer in approximately 20% of the patients, who develop this malignancy without a definite etiology of risk factors.[5] Similarly, cervical cancer in India constitutes a quarter of the global burden with 132,000 new cases and 74,000 deaths every year.[3] It is the leading malignancy in our region with age standardized rates of 14.3 and 7.7 per 100,000 individuals from urban and rural areas, respectively.[6] Mixed claims have been made regarding the association of HPV infection with the development of both cervical and oral cancers in different regions of India.[7,8] In addition, limited information is available on the distribution of HPV types in the country. This makes it important to further explore the association between HPV types, and cervical and oral cancers.

Based on the existing literature from the Indian context, we conducted a meta-analysis on the association of HPV and high-risk HPV types on head and neck, and cervical cancer

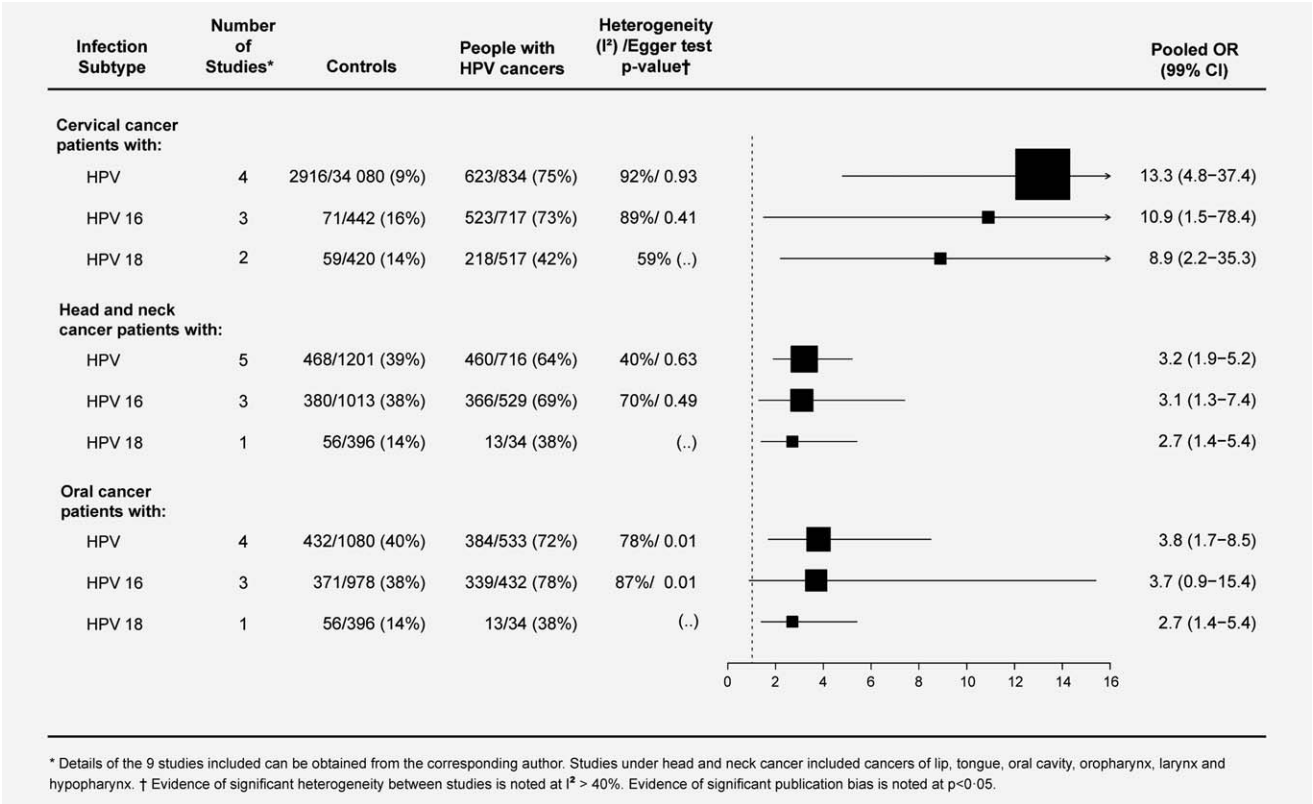

Figure 1. Meta-analysis of the association between HPV subtypes and cervical and head and neck cancers in India.

risk to validate the present findings by the authors. We pooled the odds ratios using a random-effects model for nonfatal head and neck cancers and cervical cancers from patients with HPV infection in nine published studies in the region (Figure 1). Of 1,184 adult males and females with head and neck cancer and 3,750 adult females with cervical cancer, the association with any HPV infection was notable for both head and neck cancer (OR: 3.2, 99% CI: 1.9–5.2) and cervical cancer (OR: 13.3, 99% CI: 4.8–37.4). The association between HPV infection and head and neck cancer in specific sites suggests that the strongest and most consistent association is with oral cancer (OR: 3.8, 99% CI: 1.7–8.5), followed by oropharyngeal cancer (OR: 3.2, 99% CI: 1.5–6.4) and the magnitude of this association is consistent with an infectious etiology. Stratification by high-risk infection subtypes also showed higher risks with HPV16 as well as HPV18 in all head and neck cancer sites.

Our results for nonfatal HPV-avertable cancers along with evidence from previous work[3] on cervical cancer, all suggest the necessity of including HPV-based therapeutic vaccines before marriage, which are being developed for cervical cancer. Regular screening through visual inspection with acetic acid, and further referral for treatment[9,10] after marriage may also benefit in the management of head and neck cancer, particularly in cases with oral cancer.

Aside from cancer control, HPV surveillance, through HPV vaccination programs, might be beneficial in HIV infection control. There is evidence[11] showing the association between HPV and HIV. Some studies have indicated that the risk of contracting HIV is twice as large in both men and women with HPV genotype.[11] This suggests a possibility of common factors involved in the development of both HPV and HIV. Therefore, further exploration of HPV incidence and its control via vaccination programs might allow an avenue for monitoring HIV infection as well, and subsequently enhance HIV control.

Yours sincerely,

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