

Genital infection with HPV in men: research into practice



In *The Lancet*, Anna Giuliano and colleagues¹ present a prospective study (HPV in Men [HIM]) of the incidence and clearance of human papillomavirus (HPV) infections in men. They also report on male sexual behaviour, which determines HPV incidence and clearance. The epidemiology of HPV infections in men is not well understood and thus the results are of substantial interest.

The results bring to light important new information, and draw attention to differences between the natural histories of male and female HPV infections, and the need for further studies to better define HPV transmission, progression to disease, and epithelial sites in men. Because HPV infection in men greatly affects disease risk in women,² transmission and protection are important topics. However, circumcision and condom use have not been clearly shown to fully protect against either HPV acquisition or clearance in male genital sites,^{3,4} which questions their value in preventing infection in men and transmission to female partners.

Understanding male HPV infection is important to minimise anxiety and the health-care costs associated with genital warts, penile cancer treatment, and morbidity in men, in addition to addressing the acknowledged public health concern created by HPV infection in women. The HIM data on HPV incidence and clearance should be exploited to elaborate prevention guidance, and to minimise transmission and to aid management and associated concerns for couples. Because most HPV infections in men are asymptomatic, men are not aware of the need to use condoms, which underlines the importance of male HPV vaccination.

Apart from genital warts, which are induced in more than 90% of cases by HPV types 6 and 11 (with an estimated prevalence of about 1% before age 30 years, and which are equally common in men and women), other HPV-linked genital neoplasia in men are rare. Penile intraepithelial neoplasia is 10–20 times less frequent than is cervical intraepithelial neoplasia (CIN), and HPV-induced cancers of the penis are extremely rare (incidence of less than one in 100 000).⁵ Extrapolation from the HIM data strongly suggests that the natural history of HPV is different in men and women, with high infection and low disease rates in men and low infection and high disease rates in women. The natural history

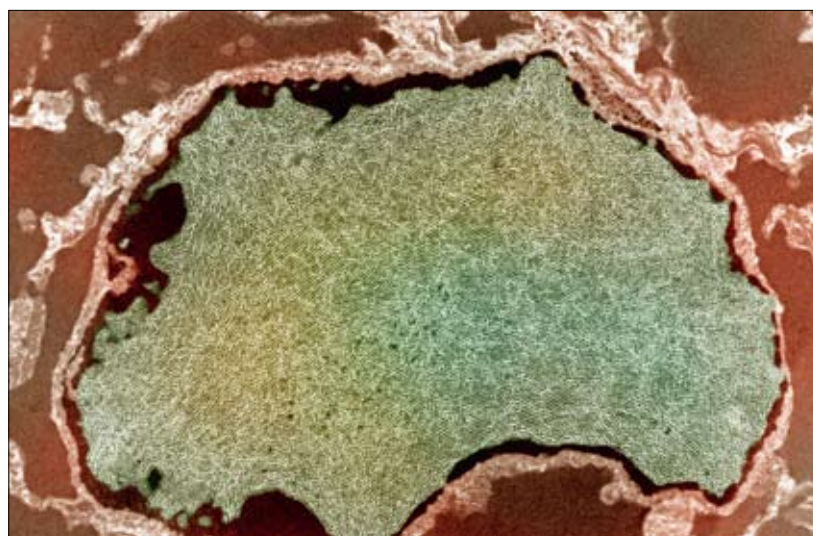
of oncogenic HPV infections in men should not be extrapolated to that seen in the cervical transformation zone. This highly attenuated susceptibility to HPV in men is probably due to local (mucosa vs skin) and immunological causes. Nonetheless, these diseases can also emerge in men because of immunosuppression.⁶

Controversy remains over the use of condoms to protect against HPV transmission. Cross-sectional studies suggest that condoms offer little protection against HPV infection,^{3,4} whereas consistent and high-frequency use of condoms can reduce the risk of HPV infection⁷ and CIN, with protection estimated in one prospective study at 70% for new infections.⁸

Discrepancies could be explained by the fact that genital HPV transmission can occur by contact other than vaginal intercourse, full condom coverage is not constant, and condoms reduce the risk of major HPV transmission from genital warts, in which viral replication is high (in our experience, similar lesions were seen in the partners of 50% of cases). By contrast, CIN in women is not associated with penile lesions in their male partners in more than 95% of cases.⁹ Also, treatment of genital HPV diseases in men does not affect the natural history or recurrence of CIN in female partners.¹⁰ Because the typical duration of CIN is 2–4 years and because the HIM data showed that male clearance occurs within a shorter time, the use of condoms as a protective measure or penile examination

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Transmission electron micrograph of HPV packed in nucleus of human cell

at the time of an abnormal cervical smear add little value in this context.

Existing limitations for the prevention of HPV transmission from men to women by use of condoms or circumcision have yet to be resolved. Vaccination is an effective means to protect men against lesions associated with the vaccineable HPV types, particularly genital warts and anal intraepithelial neoplasia.^{11,12} Genital warts are common, debilitating to young couples, difficult to treat, and costly to manage.¹³ The cost-benefit ratio of vaccinating men to protect women from cervical neoplasia has yet to be definitively established. However, as more diseases are prevented through male vaccination, notably anal cancer, the greater the cost-effectiveness of routine vaccination of both sexes.¹⁴

Although we will continue to encourage protective measures, condom use and safe sex practices are of little value in clinical practice—prevention of HPV transmission and its consequences remain unconfirmed. HPV vaccination of men will protect not only them but will also have implications for their sexual partners.

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