The relationship between Circumcision and Human Papillomavirus infection: A Systematic Review and Meta-Analysis

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BACKGROUND: Human papillomavirus (HPV) infection is common and can cause genital warts, invasive cervical cancer in women, penile and anal cancer in men. Male Circumcision (MC) has been reported to reduce HPV prevalence in men. However, the efficacy remains imprecise.

HYPOTHESIS: MC can prevent genital HPV infection and genital warts in men.

METHODS: PUBMED, EMBASE and Web of Science were searched from incipient until March 22, 2015. The search was performed using the following terms: “circumcision, male,” “HPV,” “papillomaviridae,” “genital diseases, male,” “genital warts,” and “condylomata acuminata”. The Review Manager Software 5.2 was used to integrate all of the individual outcomes.

RESULTS: We identified thirty papers, including a total of 12149 circumcised and 12252 uncircumcised men who were evaluated for the association of circumcision with genital HPV or genital warts. Compared with men who were not circumcised, the circumcised may have a statistically significant reduced odds of genital HPV prevalence (odds ratio (OR): 0.68; 95% confidence interval (CI): 0.56–0.82).There was no significant association between MC and genital HPV acquisition of new infections (OR: 0.99, CI: 0.62 – 1.60), genital HPV clearance (OR: 1.38, CI: 0.96 –1.97) and prevalence of genital warts (OR: 1.17, CI: 0.63 –2.17). This meta-analysis suggests that circumcision reduces the prevalence of genital HPV infections. However, no clear evidence was found that circumcision was associated with decreased HPV acquisition, increased HPV clearance or decreased prevalent of genital warts. More studies are required to adequately evaluate the effect of MC on the acquisition and clearance of HPV infections and prevalence of genital warts.