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The association between the prevalence of human papillomavirus, male circumcision and the foreskin

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ABSTRACT

Genital human papillomavirus is one of the most common sexually transmitted infections and a significant cause of morbidity and mortality worldwide, including South Africa. Adult medical male circumcision (MMC) trials in Africa have shown decrease in acquisition of Human Immunodeficiency virus and other sexually transmitted infections.

In this follow-up study, swabs that were collected 21 months post-circumcision were tested for the presence of 13 high risk HPV and 24 low risk HPV, genotypes. Results show that 17.5% and 14.3% participants were infected with at least one low risk or high risk strain of HPV respectively. The most common types of high-risk HPV were type 16 (3.5%) and 18 (3.1%). These results suggest that there is an inverse association between MMC and HPV acquisition.

Participants with at least one high risk strain of HPV were 4.6 times more likely to acquire HIV than participants without high-risk HPV. This was associated exclusively with high-risk HPV infection. HIV acquisition increased dramatically in men with multiple subtypes of HPV.

In a second study, more HPV genotypes were detected on the inner foreskin tissue than on the outer foreskin tissue, highlighting its vulnerability to HPV. Washing of the penis, thus removing possible contaminants reduces the number of detectable HPV genotypes.

This study confirmed that the uncircumcized foreskin, in particular the inner foreskin mucosa, offers a rich environment for HPV infections. This data will allow more insight into the HPV prevalence of young men in South Africa and the multi-factorial mechanisms in play with the association between medical male circumcision and decreased genital HPV prevalence.