Cervical lesions were significantly associated with both detection and amount of HPV infection risk.† The potential of HPV vaccination as an HIV prevention strategy is debatable.‡ While the precise mechanism of how HPV and HIV interact is unclear, the evidence suggests that both infections may have overlapping effects, with potential synergistic interactions.

Purpose:
To inform current discourse pertaining to HPV vaccination and HIV prevention, we evaluated how HPV shedding in anogenital fluid was associated with HPV and associated lesions in two diverse populations:
- Women with HPV 16/18, including other types
- Women without HPV

The otherwise null results may suggest that magnitude of association greater for HSIL than LSIL, suggestive of a dose-response relationship.‡

Kovacs et al.,† Presence of HPV DNA detected by generic probe; positive samples evaluated with type specific probes.

Or conversely, uncontrolled HIV fosters the development of cervical lesions.

Outcomes (2): detection of HIV RNA (dichotomous) and HIV viral load (continuous) in anogenital fluids.

We postulate that the significant results observed for HPV Types 16/18 is driven by:➁

Among MSM, neither

Nonetheless, the potential of HPV vaccination to prevent HIV infection is debated.

The potential of HPV vaccination as an HIV prevention strategy is debated.

The generalizability of our results to other populations remains unclear and might warrant further investigation.

The null results may suggest that HPV infection would not significantly affect HIV acquisition.

While prevention of cervical lesions through HPV vaccination could affect local HIV shedding in HIV-positive women, the modest effect size observed in these studies suggests that intervening upon this causal pathway would yield minimal impact on HIV transmission at the population level.

The potential of HPV vaccination to prevent HIV acquisition remains unclear and might warrant further investigation.

Limitations:

The results were conducted in the 1990s, an era of limited ART availability and high morbidity and mortality. The generalizability of our results to healthier, ART-treated HIV-infected persons might be limited.

Table 1. Baseline Characteristics of Study Participants

Table 2. The Relationship between HPV and Associated Lesions and Detection and Quantification of HIV RNA in Cervicovaginal Fluids among Senegalese Women and Anorectal mucosa among American Men Who Have Sex with Men

Table 3. Baseline Characteristics of Study Participants

Table 4. The Relationship between HPV and Associated Lesions and Detection and Quantification of HIV RNA in Anorectal Fluids among American MSM

Discussion:

Summary:
HIV-associated cervical lesions were significantly associated with both detection and amount of HPV RNA in CVF. Magnitude of association greater for HSIL than LSIL, suggestive of a dose-response relationship.

Relative to women without HPV, women with HPV Types 16/18 were more likely to have detectable HIV in CVF. Both studies were conducted in the 1990s, an era of limited ART availability and high morbidity and mortality. The generalizability of our results to healthier, ART-treated HIV-infected persons might be limited.

Limitations:

The results were conducted in the 1990s, an era of limited ART availability and high morbidity and mortality. The generalizability of our results to healthier, ART-treated HIV-infected persons might be limited.

Data Collection:

Methods:

Laboratory Testing:

Similar laboratory procedures were followed in both studies:

- HIV RNA quantification: reverse transcription polymerase chain reaction (PCR) +
- Assay and cervical paps: classified by pathologists according to Bethesda System.
- CD4 counts: FACSCount
- HPV DNA testing: PCR + dot blot hybridization
- Presence of HPV DNA detected by generic probe, positive samples evaluated with type specific probes.

Analyses:

- Multivariable generalized estimating equation (GEE) model for detection of HPV among plasma and anogenetric fluid sample counts, including factors for age, smoking status, ART use (MSM only).
- Multivariable linear regression equation (GRee) model to test for independent risk factors for HIV shedding in anogenital fluids.

CONCLUSIONS

- HPV vaccination has the potential to reduce HIV acquisition rates.
- However, the potential of HPV vaccination to prevent HIV acquisition remains unclear and might warrant further investigation.

REFERENCES:

- Kovacs IF, et al. Presence of HPV DNA detected by generic probe; positive samples evaluated with type specific probes.