## S17.2 HPV INFECTION, GENITAL INFLAMMATION, AND HIV RISK IN THE CAPRISA 004 TRIAL

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10.1136/sextrans-2015-052270.76

There is a growing body of data demonstrating an increased risk for HIV acquisition in the presence of HPV infection, but the mechanism of this relationship is unclear. This study investigated the impact of HPV infection on both genital inflammation and HIV risk in the CAPRISA 004 1% TFV gel trial.

Baseline cervicovaginal lavage specimens collected from 737 HIV-uninfected women were analysed to determine the prevalence of HPV infection. Clinical, reproductive, demographic and behavioral data were captured. The presence of DNA from 37 HPV genotypes was assessed using Linear Array, and the concentrations of 48 relevant cytokines were quantified by multiplexed ELISA assays. The presence of HIV was measured monthly using two rapid tests and confirmed by western blot and PCR.

Of the 737 eligible participants, 74% had prevalent HPV-infection (95% CI: 71–77%). Participants with prevalent HPV infection were 2.8 times more likely to acquire HIV infection compared to those with no HPV infection (95% CI: 1.3–5.9; p = 0.007). HIV risk was independent of the oncogenicity of HPV strains at baseline [(HPV oncogenic strains HR 2.5 (95% CI 1.0–6.2) vs non-oncogenic strains HR 2.1 (95% CI 0.9–5.1)], and was also increased in the presence of multiple concurrent infections (HR 3.1; 95% CI 1.4–6.8).

No cytokine signatures were associated with prevalent HPV infection. The use of tenofovir gel did not prevent HPV infection.

These data confirm a relationship between HPV infection and increased risk for HIV acquisition, and underscores the need to define the underlying biological mechanisms to inform targeted interventions in settings that bear a high burden of both infections.

## S17.3 NOVEL THERAPIES FOR HPV-RELATED ANAL DISEASE

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10.1136/sextrans-2015-052270.77

Anal cancer is an increasing problem among patients with HIV, especially among HIV-positive men who have sex with men (MSM) with incidence rates 100 per 100,000 person-years. This is much higher than the incidence of cervical cancer in HIV-negative women before standard cytological screening was introduced. Therefore, routine screening for anal premalignant lesions is subject of discussion. As with cervical cancer, anal cancer is preceded by a precursor called anal intraepithelial neoplasia (AIN).

In this presentation I will discuss the standard therapeutic options practiced to treat AIN lesions with the goal to prevent progression towards invasive carcinoma. Electrocauterisation is the most used option to date for AIN lesions. Other ablative measures are infrared coagulation, highly concentrated trichloroacetic acid, and liquid nitrogen. Whereas ablative therapy has to be performed in an outpatient clinical setting by trained health workers, patient administered home based treatment options have been studied also, like imiquimod, and 5-fluorouracil cream. Until now most treatment modalities have been studied in open label and/or non-randomised trials, and very little comparative studies have been performed. Therefore, scarce evidence-based data on the treatment of AIN is available. It is likely that intra-anal versus perianal AIN disease requires different treatment approaches.

So far, most AIN treatment studies show high recurrency rates, irrespective of the modality used. Novel treatment options are therefore looked after. Vaccination studies, using both preventive and therapeutic vaccines are ongoing. Preventive vaccines, targeting the causative HPV virus have been tried to prevent recurrent disease in successfully treated AIN patients. In established disease, HPV preventive vaccines are not believed to be effective since HPV E6 and E7 viral genes by then are incorporated in the host genome. Therefore, therapeutic AIN vaccines will need to target the transfected cell directly. Studies with E6 and/or E7 DNA targeting vaccines are ongoing.

## S17.4 USING DATA ON PATHOGENESIS AND EPIDEMIOLOGY TO INFORM ANAL CANCER SCREENING STRATEGIES: DATA FROM THE STUDY OF PREVENTION OF ANAL CANCER (SPANC)

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10.1136/sextrans-2015-052270.78

**Background** HPV vaccination of school-aged boys will prevent anal cancer in future generations. Vaccination of gay men up to age 26 is recommended in several jurisdictions, but vaccination is generally not recommended at older ages because of a concern of possible lack of efficacy due to past or current HPV infection. Anal cancer screening, based on the model of cervical cancer screening, has also been proposed as a means to reduce morbidity.

**Methods** The Study of the Prevention of Anal Cancer (SPANC) is a three-year prospective study of the natural history of anal HPV infection and cancer precursors in HIV-negative and -positive gay men aged ≥35 years. At each visit all men receive an anal swab for cytology and HPV genotyping, followed by high resolution anoscopy-directed biopsy for histological assessment.

**Results** At the end of June 2015, 595 men had been enrolled. Median age was 49 and 35.3% were HIV-positive. Men of all ages enrolled in SPANC were likely to report multiple sexual partners in the past 6 months (overall 73.4% of 35–44 year olds decreasing to 62.1% of 65+ year olds, p trend = 0.03). The prevalence of HPV16, the genotype responsible for >90% of anal cancer, was 29.4% in 35–44, 30.8% in 45–54, 34.2% in 55–64 and 19.0% in 65+ year olds (p trend = 0.54), with no difference by HIV status. The incidence of HPV16 decreased with age from 5.6/100 person years (PY) in 35–44 year olds to 2.9/100PY in 55–64 year olds. There was no incident HPV16 in men aged 65+ (p trend = 0.059). At baseline, the prevalence of