Background A frequently used HIV risk reduction method among men who have sex with men (MSM) is sero-sorting, which can be defined as a restriction of sexual partnerships to those who are of the same HIV serostatus. This partner selection strategy has been shown to reduce HIV transmission in epidemiological studies and mathematical models, but may lead to acquisition of other sexually transmitted infections (STI) including syphilis. We sought to evaluate the impact of HIV sero-sorting on syphilis prevalence, and to assess whether sero-sorting could account for an observed rise in syphilis incidence among MSM in San Francisco.

Methods A deterministic SIRS (susceptible-infectious-resistant-susceptible) model of syphilis transmission among HIV-negative and HIV-positive MSM was developed; model input parameters were based on epidemiological data from San Francisco between 1998 and 2004. The primary outcome was the impact of HIV sero-sorting on syphilis prevalence; we further evaluated the influence of HIV prevalence and average number of sexual partnerships on this sero-sorting effect.

Results Simulations showed that for base-case conditions, HIV sero-sorting increases syphilis transmission among HIV-positive and also among HIV-negative MSM so that syphilis could become endemic like in San Francisco. Only under very specific circumstances with high levels of sero-sorting among HIV-negative men can sero-sorting decrease syphilis prevalence. The size of the impact of sero-sorting on syphilis prevalence depends on HIV prevalence and partnership number.

Conclusions Our mathematical model adds evidence to the conclusion from an earlier ecological study suggesting that sero-sorting of HIV-negative and HIV-positive MSM may explain the increased syphilis incidence observed in San Francisco between 1998 and 2004. Our model results may have important implications for MSM not only in the US. Public health recommendations on HIV sero-sorting as an HIV harm reduction strategy should take into account the potential unintended consequence of increasing the prevalence of other STIs.
Background

Homosexual men have high rates of anal cancer but an understanding of the epidemiology of HSIL, the presumed precursor, is lacking. We aimed to describe the epidemiology of anal HSIL, and association with human papillomavirus (HPV), in a community-recruited cohort of homosexual men.

Methods

The Study of the Prevention of Anal Cancer is a three-year prospective study of anal HPV infection and cancer precursors in homosexual men aged ≥35. At each visit all men receive an anal swab for cytology and HPV genotyping (Roche Linear Array), and high resolution anoscopy with biopsy of suspected lesions. Anal HSIL was defined as having either intraepithelial neoplasia grade 2/3 on histology and/or HSIL on cytology.

Results

295 men were recruited by December 2012. Median age was 49 and 28.3% were HIV-positive. The baseline prevalence of anal HSIL was 44.6% and 34.8% in the HIV-positive and -negative respectively (p = 0.0119). Among those without HSIL at baseline, HSIL incidence was 30.0 and 20.0 per 100 person-years in the HIV-positive and -negative (p = 0.467). Among those with HSIL at baseline, the clearance rate was 57.0 and 44.1 per 100 person-years in the HIV-positive and -negative (p = 0.771). Men who tested HIV positive on their anal swab at baseline were more likely to develop incident HSIL (58.1 vs 16.1 per 100 person-years, p = 0.002), and less likely to clear prevalent HSIL (15.9 vs. 65.9 per 100 person-years, p = 0.006).

Conclusion

Anal HSIL were highly prevalent. Incidence and clearance were common and closely associated with HPV16 status. The high rate of clearance is consistent with the observation that anal HSIL progress to cancer less commonly than do cervical HSIL. The close association of persistence with HPV16 status suggests that HPV testing should be investigated as a means of identifying those with HSIL who are at highest risk of developing cancer.

P3.137 RECTAL LUBRICANT USE & INCIDENT STI INFECTIONS AT 9 US STD CLINICS


Background

Lubricants (lube) used during receptive anal intercourse (RAI) may affect the acquisition of rectally transmitted infections (rSTIs). We assessed the association between lube use during RAI and rSTI among men who have sex with men (MSM).

Methods

In Project Aware, a randomised controlled trial of HIV testing and counselling at 9 US Sexually Transmitted Disease clinics, in 2010 at a 6 month visit 951 MSM completed a web survey on lube use and testing for syphilis and rectal chlamydia and gonorrhea (rSTIs/syphilis). We used multivariable logistic regression (MVLR) to assess the association of proportion of RAI using lube and rSTIs/syphilis.

Results

589 (61.9%) of 951 men reported having receptive anal intercourse, of whom 12.9% (n = 76) were diagnosed with rSTI/syphilis. In the prior month, men reported using lube during a mean of 82% of RAI acts (median 1.0) and condoms during 54% (median 67%). The mean/median number of unprotected sex partners in the last 6 months (Upartners) was 2.64/1.0. Lube use was not directly associated with rSTI/syphilis. In MVLR adjusting for education, Upartners and condom use, the association between rSTI/syphilis and lube use increased with age and proportion of RAI with lube (interaction p = 0.02); among men age 32, the lube use during 50% and 75% of RAI acts was associated with odds ratios of 3.98 (95% CI 1.07, 14.81) and 5.03 (95% CI 1.01, 25.07), respectively and risk increased at ages greater than 32.

Conclusions

Although these findings provide further evidence that frequent lubricant use during RAI can facilitate the acquisition of rectal STIs/syphilis among MSM it suggests the risk is only for older MSM. Further research is needed to assess differential risk by types of lubricants across age groups and provide rapid advice to the community who practise RAI on use of safe products.