1493. Effect of HIV Status on Early Syphilis Treatment Response in the Era of Combination Antiretroviral Therapy

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Background. Rates of incident early syphilis are increasing and HIV-coinfected is common. Syphilis treatment for HIV-positive individuals does not differ from that of the general population, although data published prior to combination antiretroviral therapy (cART) suggest that HIV-infected persons may be less likely to achieve expected serologic responses to treatment (SRT).

Methods. We conducted a cohort study of early syphilis diagnosed in a large HIV clinic and a public sexually transmitted diseases (STD) clinic in San Diego. SRT was defined as a fourfold or greater decline in rapid plasma reagin (RPR) titer following therapy. We compared SRT at 6 and 12 months post-treatment between HIV-infected and HIV-uninfected persons.

Results. Of 1,239 early syphilis cases reviewed, 742 (61%) were included in the analysis. Reasons for exclusion included lack of follow-up RPR (n = 454), nonreactive RPR at syphilis diagnosis (n = 33), and incomplete data (n = 10). Of those analyzed, 533 (72%) were HIV-positive; 168 (23%) HIV-negative; HIV status was unknown for 41 (5%). Overall, 449 (60%) and 657 (89%) of analyzed cases achieved SRT 6 and 12 months after treatment, respectively. HIV-positive cases were less likely to achieve SRT at 12 months than HIV-negative cases (464/533 [87%] vs. 160/168 [95%], p = 0.003, Figure 1), as were early latent syphilis cases (285/348 [82%] vs. primary (102/117 [92%]) and secondary syphilis (264/277 [94%]) (Table 1).

Conclusion. In this cohort of early syphilis cases, most achieved SRT within 12 months of treatment, but only 60% achieved SRT within 6 months. Significantly lower 12-month SRT responses were seen in HIV-positive compared with HIV-negative persons and in early latent compared with primary and secondary syphilis.

The impact of cART use, viral suppression, and treatment choice on outcomes is being analyzed.

Table 1. Serologic Response to Treatment by Syphilis Clinical Stage

| Syphilis Stage | RPR Titer Response | Primary N = 117 | Secondary N = 277 | Early Latent N = 348 | P-Value |
|----------------|---------------------|-----------------|-------------------|--------------------|---------|
| 6 months post-treatment |                      |                 |                   |                    |         |
| ≥4-fold decline | 70 (60%)             | 177 (64%)       | 202 (58%)         |                   |         |
| <4-fold decline  | 47 (40%)             | 100 (38%)       | 146 (42%)         | 0.323              |         |
| 12 months post-treatment |                      |                 |                   |                    |         |
| ≥4-fold decline | 108 (92%)            | 264 (95%)       | 285 (82%)         |                   | <0.001  |
| <4-fold decline  | 9 (8%)               | 13 (5%)         | 63 (18%)          |                   |         |

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1494. Vaginal pH: Associations with Neisseria gonorrhoeae, Chlamydia trachomatis, and Trichomonas vaginalis

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Background. Bacterial vaginosis (BV), a low-Lactobacillus state characterized by elevated vaginal pH, has been associated with incident sexually transmitted infections (STIs). Elevated pH may also be associated with certain Lactobacillus species (L. iners). Increased pH may serve as a cheap, easily accessible biomarker for underlying STI, vaginal dysbiosis and risk of STI acquisition. In this study we examine the relationship between vaginal pH and infection with Neisseria gonorrhoeae (GC), Chlamydia trachomatis (CT) and Trichomonas vaginalis (TV).

Methods. This study used data from women attending Baltimore City STI clinics from January 2003 to 2016. Those with a vaginal pH determination and testing for GC, CT, or TV were included. Most GC and CT testing was conducted using nucleic acid amplification tests, while TV was diagnosed via microscopy. Generalized estimating equations with a logit link were utilized to explore relationships between vaginal pH and STI, accounting for confounders and repeated within patient measures.

Results. A total of 28,333 individual women contributed 63,032 visits. Mean age was 28.9 (SD 9.8), 4.5% were Caucasian and 91.5% were Black. 42.5% had BV via Amstel's criteria. Of 11,577 total STI cases 2056 (17.8%) had a pH <4.5, 22.2% of GC cases, 28.2% of CT cases, and 7.4% of TV cases had a pH <4.5. After adjustment for age, race, number of sexual partners in the past 6 months, and HIV sero-status, a pH ≥4.5 was associated an increased odds of GC (OR: 1.86 (CI 1.66–2.09)), CT (OR: 1.44 (CI 1.34–1.53)), and TV (OR: 1.60 (CI 1.58–1.71)) infection as compared with a pH of <4.5. These relationships remained significant in subjects without symptomatic BV and when each analysis was repeated separately, to the group who reported exposure to a partner with GC, CT or nongonococcal urethritis, or TV.

Conclusion. Elevated vaginal pH is associated with urogenital STI and may serve as a useful biomarker for underlying infection. This analysis was not able to assess causality, although pH remained predictive when restricted to those reporting STI exposure, perhaps suggesting that high pH increases risk of STI acquisition. Further prospective studies are required to confirm these findings and to mechanistically define relationships between vaginal pH, resident microbiota, and STI.

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1495. Incidence of Sexually Transmitted Infections (STIs) in Patients on Pre-exposure Prophylaxis (PrEP)

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Background. Pre-exposure prophylaxis (PrEP) is a highly effective method for preventing HIV transmission among at-risk patients. There is limited and conflicting data regarding the risk of other STIs following PrEP initiation. The objective of this study was to compare the incidence of STIs before and during PrEP therapy.

Methods. A retrospective observational study of patients seeking PrEP therapy at an inner-city clinic in Newark, New Jersey, between May 1, 2016 and March 30, 2018. Patients who were MSM, intravenous drug users, or heterosexual with multiple partners or those with HIV-positive partners were considered at risk for HIV and offered PrEP. Patients were initially screened and tested every 3 months for HIV, Chlamydia trachomatis, Neisseria gonorrhoeae, syphilis, hepatitis B virus (HBV), hepatitis C virus (HCV), hepatitis A virus (HAV), herpes simplex virus (HSV), medication adherence and continued high-risk behavior. Patients were also counseled on risk-reduction behaviors. STI incidence before and during PrEP was compared.

Results. Between May 1, 2016 to March 30, 2018, 125 patients were considered at risk. Fifty-one (41%) patients were lost to follow-up after the initial visit and were excluded. Seventy-four (59%) patients completed screening and were included in the study. The mean age was 35.0 ± 11.6 years. The majority of the patients were males 74% (54). 29 (40%) were MSM, and 33 (45%) had HIV-positive status. The mean duration of PrEP was 386 ± 183 days. Upon initial screening 14 (19%) patients were positive for at least one STI; 3 (21%) patients had HCV, 3 (21%) had chlamydia, 2 (14.3%) had HBV, 2 (14.3%) had gonorrhea, 2 (14.3%) had syphilis, one had HSV II and one was found to have HIV. Two patients acquired a new STI on PrEP. One tested positive for chlamydia and gonorrhea 1 month after initiating PrEP and another contracted syphilis after 6 months. No patient had recurrent STIs nor acquired HIV while on PrEP therapy.

Conclusion. The use of PrEP not only reduces the transmission of HIV but also appears to reduce the incidence of other STIs. Frequent STI screenings and behavioral counseling on risk reduction likely contributed toward lower STI incidence. Larger studies examining similar data over longer durations are needed to confirm these findings.

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1496. Anorectal Mycoplasma genitalium Is Common Among Nigerian MSM and Associated with HIV

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Background. Mycoplasma genitalium (MG) is a cause of nongonococcal, non-chlamydial urethritis and may cause subclinical infection of the anorectum, thereby potentiating HIV transmission among men who have sex with men (MSM). We describe the prevalence and incidence of MG among Nigerian MSM.

Methods. A total of 800 men were recruited in Lagos, Nigeria, and screened for HIV and bacterial sexually transmitted infections (STIs) every 3 months for up to 18 months. HIV infection was diagnosed using a parallel algorithm of rapid tests. PCR testing for Neisseria gonorrhoeae and Chlamydia trachomatis was performed on voided urine and rectal swab specimens. Nucleic acid amplification testing for qualitative detection of MG ribosomal RNA was performed on first and last available specimens. Wald and exact 95% confidence intervals (95% CIs) were calculated for prevalence and incidence, respectively, by anatomic site. Chi-squared test was used to compare proportions across groups of interest.

Results. From May 13, 2014, to July 25, 2016, 413 MSM were tested for MG with median age 23 (interquartile range 20–26) years and HIV prevalence 67.5% (278/413). Anorectal MG prevalence was 36.8% (150/408, 95% CI 32.1–41.4%) and urogenital prevalence was 12.4% (51/410, 95% CI 9.2–16.0%), including 6.0% (25/413) of participants who were infected at both sites. Among prevalent anorectal MG cases, co-infection with gonorrhea was observed in 25.3% (38/150) and chlamydia in 19.3% (29/150). Among prevalent urogenital MG cases, gonorrhea was observed in 0% and chlamydia was observed in 15.7% (8/51). There was a trend toward more MG among participants with anorectal gonorrhea (46.8% vs. 35.0%, P = 0.021). Thirty-three (33/150, 22.0%) men who were uninfected at any site were more common among HIV-infected participants compared with HIV-uninfected (55.4% vs. 38.8%, P = 0.0016).

Conclusion. MG was highly prevalent among MSM in this study, including over half of HIV-infected participants. MG should be considered among cases of urethritis that fail to respond to conventional therapies, particularly in populations with a high burden of HIV, STIs, and frequent drug exposures that promote emergence of drug-resistant MG.

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