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-coinfection 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 response to treatment (SRT).

METHODS
We conducted a cohort study of early syphilis cases diagnosed in a large HIV clinic and a publicly funded sexually transmitted diseases (STD) clinic in San Diego between 2010 and 2015. An appropriate Serologic Response to Treatment (SRT) was defined as 4-fold decline in rapid plasma reagin (RPR) titer following syphilis treatment. We compared SRT 6 and 12 months post-treatment between HIV+ and HIV- persons using Fisher’s Exact Test and differences in time to achieving SRT by Log Rank Test.

RESULTS
Of 1,239 early syphilis cases reviewed, 742 (60%) were included in the analysis. Reasons for exclusion included lack of follow-up RPR (n=454), non-reactive 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 significantly less likely to achieve SRT at 12 months compared to HIV-negative cases (464/533 [87%] vs. 160/168 [95%], p<0.001, Figure 1), as were asymptomatic early latent syphilis cases (285/348 [82%]) compared to symptomatic primary and secondary syphilis cases combined (372/394 [94%], p<0.001, Figure 2). Significant differences in time to achieving SRT were also seen between stages and HIV status (Figures 3a and 3b).

CONCLUSIONS
In this cohort of early syphilis cases, most treated patients (89%) achieved SRT within 12 months of treatment, but only 60% achieved SRT within 6 months. A significantly lower proportion of HIV+ persons achieved 12-month SRT responses compared to HIV- persons. Treatment response rates in HIV+ patients were significantly prolonged compared to HIV- patients. In addition, persons with asymptomatic (latent) early syphilis had significantly lower rates of SRT compared to persons with symptomatic (primary and secondary) early syphilis. Strictly defining treatment failure based on syphilis serology overestimates true treatment failure. The impact of HIV treatment, viral suppression, and other variables on outcome is being analyzed.