STI Diagnoses Rise Among PrEP Users in a Northern California Health System

The cohort study also found that older individuals on PrEP were at greater risk of reduced kidney function.

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Among a large group of people accessing Truvada (tenofovir/emtricitabine) as pre-exposure prophylaxis (PrEP) from a Northern California health system, the quarterly rates of rectal gonorrhea and urethral chlamydia increased steadily and about doubled after one year.

These rising rates may be a result of various factors, including differences in sexually transmitted infection testing rates and retention in the PrEP program between those at greater and lesser risk of STIs. The increased STI rates may also be a function of increased sexual risk taking as a result of starting PrEP.

The study saw no new HIV infections among those who remained on PrEP. There were, however, two people who contracted the virus during periods when their insurance lapsed.

Publishing their findings in the Journal of Acquired Immune Deficiency Syndromes, researchers analyzed data from July 2012 through June 2015 regarding 972 members of Kaiser Permanente Northern California (KPNC). The study included all those who started PrEP through KPNC from July 2, 2012 through December 31, 2014.

KPNC includes clinics throughout Nothern California. The largest single-site PrEP provider in the system is in San Francisco, and there are also substantial populations of people accessing Truvada for HIV prevention through KPNC clinics in Oakland and Sacramento.

In a September 2015 analysis of Kaiser Permanente's San Francisco clinic's population of 600 men who have sex with men (MSM) on PrEP, researchers found that many of them were using condoms less since starting PrEP and that during their first year or partial year on PrEP half of them had contracted at least one STI.

The researchers in the new study of the larger KPNC PrEP population assessed adherence to Truvada through pharmacy refill data, defining low adherence as taking less than 80 percent of the daily tablets, as presumed by the spacing between refills.

The study population spent a cumulative 850 years taking PrEP, or an average of 0.9 years per person during the follow-up period.

By and large, the study population was affluent, white, well educated, did not have a history of substance abuse and was presumed to consist almost entirely of men who have sex with men (MSM). A total of 97.9 percent were men. Their ages ranged from 18 to 68; the average age was 37. A total of 69.6 percent of them were white, 12.2 were Latino, 10.3 percent were Asian/Pacific Islander and 4.3 percent were Black. A total of 11.5 percent lacked a high school diploma. The median household income was $74,094.

Upon starting PrEP, 32 percent of the study cohort had an eGFR test result of less than 90, indicating at least mildly compromised kidney function. (A result below 70 is more concerning.)

A total of 15.9 percent had an STI when beginning PrEP, and 34.2 percent had one during the previous two years: 13 percent had gonorrhea, 14.6 percent had chlamydia and 13.2 percent had syphilis. A total of 6.3 percent reported drug or alcohol abuse during the previous two years.

There were no new HIV infections while people received PrEP from KPNC. However, two people tested positive for HIV after discontinuing PrEP, including one Black and one Latino MSM who were each younger than 30 and whose insurance had lapsed.

For every year the participants spent in follow-up, the median number of STI tests they took was 4.5 for urethral gonorrhea and chlamydia, 3.6 for rectal gonorrhea and chlamydia, 3.8 for gonorrhea and chlamydia in the throat and 4.9 for syphilis.

Out of the 972 PrEP users, 342 (35.2 percent) were diagnosed with at least one STI during the study follow-up. A total of 173 of them had multiple STI diagnoses, ranging between two and 19 diagnoses, for a total of 771 STIs diagnosed and a rate of 0.91 per year spent in follow-up. The average days between a repeat STI diagnosis was 123, with 80 percent of repeat diagnoses occurring less than six months apart.

After 12 months spent on PrEP, a cumulative 41.9 percent of participants had been diagnosed with an STI. A cumulative 26.7 percent tested positive for a rectal STI, 26.3 percent for chlamydia, 22.9 percent for gonorrhea and 7.3 percent for syphilis.

Based on these high STI rates, the study authors suggested, as many others in the PrEP research community have, that the current Centers for Disease Control and Prevention (CDC) guideline that recommends conducting STI tests only every six months for those on PrEP is insufficient.

Looking at the quarterly STI diagnosis rate between the study population's entry into the PrEP program through one year on PrEP, the researchers found there was a steady, statistically significant rise (meaning it is unlikely to have occurred by chance) in the rates of urethral gonorrhea and rectal chlamydia. Urethral gonorrhea rose from 0.9 percent at the study's baseline to 2.5 percent after a year; rectal chlamydia rose from 7.7 percent to 14.1 percent. All other types of STI diagnoses remained stable over time.

The researchers speculate that these increases in STI rates may reflect that those having lower-risk sex dropped out of the PrEP program over time, leaving a higher concentration of people having higher-risk sex. The increases may also reflect that individuals at lower risk get tested for STIs less frequently, that those on PrEP were taking greater sexual risks as a result of starting Truvada (a phenomenon known as risk compensation), and other trends in the community at large.

Among the 915 people who filled their Truvada prescription at least once, the average rate of adherence to the daily drug regimen was 92 percent. The PrEP program includes telemedicine-based adherence support, which may in part account for such a high adherence rate.

After adjusting the data for various factors, the researchers found that compared with whites, Blacks were three times more likely to have an adherence rate below 80 percent. Compared with those who had a monthly copayment less than $50, those who had more expensive copays were twice as likely to have low adherence. Compared with nonsmokers, smokers were 1.6 times more likely to have low adherence.

Compared with men, women were 2.6 times more likely to stop taking PrEP.

Among the 909 people with follow-up eGFR test results, 141 (15.5 percent) had a result below 70. Five people (0.6 percent) stopped taking PrEP because of a low eGFR test result. After adjusting the data for various factors, the researchers found that those who had an eGFR of less than 90 when starting PrEP were 7.1 times more likely to develop an eGFR below 70 while on PrEP. Among those 50 and older who started PrEP with an eGFR below 90, 46.6 percent had an eGFR below 70 after six months on PrEP. Compared with those 50 and older, those who were younger than 30 were 80 percent less likely to develop an eGFR below 70 while on PrEP; those in their 30s were half as likely, and those in their 40s were 40 percent less likely.

These findings that older individuals are at greater risk of developing reduced kidney function while on PrEP correspond with those from a recent paper in The Lancet.

To read the study abstract, click here.

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