Only Subnormal Kidney Function May Get Boost From Switch to New Tenofovir

Swiss researchers analyzed shifts in kidney function among those switching from the old form of the HIV medication to the new one.

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The much-touted kidney-related benefits of Gilead Sciences' updated take on its vital antiretroviral (ARV) tenofovir disoproxil fumarate (TDF) may be limited to those who had compromised kidney function when they switched from TDF to the new tenofovir alafenamide (TAF), the National AIDS Treatment Advocacy Project reports.

Since TAF hit the market, Gilead has swapped in the new tenofovir for TDF in all of its tenofovir-containing combination tablets, with the exception of Atripla (efavirenz/TDF/emtricitabine), which is no longer a recommended first-line treatment. The updated tablets include Genvoya (elvitegravir/cobicistat/TAF/emtricitabine), which is an update of Stribild (elvitegravir/cobicistat/TDF/emtricitabine); Odefsey (emtricitabine/rilpivirine/TAF), an update of Complera (rilpivirine/TDF/emtricitabine); and Descovy (TAF/emtricitabine), an update of Truvada (TDF/emtricitabine).

TAF is also included in Gilead's Biktarvy (bictegravir/TAF/emtricitabine) and Janssen's Symtuza (darunavir/cobicistat/TAF). It is also sold as an individual tablet under the name Vemlidy for the treatment of hepatitis B virus (HBV).

TDF is sold as an individual tablet from Gilead under the name Viread for the treatment of both HIV and hep B. TDF is also contained in Merck's Delstrigo (doravirine/TDF/lamivudine) and Mylan's Symfi (efavirenz 600 mg/TDF/lamivudine), Symfi Lo, (efavirenz 400 mg/TDF/lamivudine) and Cimduo (TDF/lamivudine).

Clinical trials have indicated that TAF is associated with lowered kidney and bone toxicity compared with TDF.

Presenting their findings at the 10th International AIDS Society Conference on HIV Science (IAS 2019) in Mexico City, researchers from the Swiss HIV Cohort Study (SHCS), led by Bernard Surial, MD, of Bern University Hospital in Switzerland, selected a study cohort from 8,399 HIV-positive

members of SHCS who had ever taken TDF.

The individuals included in the ultimate analysis needed to have taken TDF through March 2019 or to have switched from TDF to TAF and remained on the latter drug. There also needed to be records of at least two creatinine levels from before and after the study's baseline point, characterized as either the day that individuals switched to TAF or October 1, 2016 among those who did not switch. Creatinine is a biomarker of kidney function used to calculate the estimated glomerular filtration rate, or eGFR.

A total of 3,520 people met these criteria, including 1,113 (32%) who remained on TDF and 2,407 (68%) who switched to TAF. Between the TAF and TDF groups, the median age was 51 and 48 years old, respectively, and the median CD4 count was 646 and 628, respectively. Rates of other health conditions were similar between the two groups, including diabetes (8% versus 6%), cardiovascular disease (9% versus 7%), hepatitis C virus (HCV) (7% versus 8%) and hepatitis B (7% versus 8%). However, a significantly higher proportion of those in the TAF group (7%) had osteoporosis than those in the TDF group (3%).

At the study's baseline, 7% of those in the TAF group and 2% of those in the TDF group had an eGFR below 60, indicating compromised kidney function. A respective 45% and 35% of the two groups had an eGFR between 60 and 89, indicating mildly compromised kidney function.

The remainder had an eGFR of 90 or greater, meaning they had normal kidney function. After adjusting the data to account for various differences among the study members, the investigators found that among those with normal kidney function at the study's baseline, their eGFR declined by the same amount, 1.7 points, through 18 months of follow-up in both the TAF group and the TDF group.

This analysis also found that among those with mildly compromised kidney function at the study's baseline, the eGFR increased by 1.5 points in the TAF group while it declined by 0.9 points in the TDF group through 18 months of follow-up. As for those who had compromised kidney function at the baseline point, their eGFR increased by 4.1 points in the TAF group and declined by 5.8 points in the TDF group, during the same time frame.

The investigators found that those who switched to TAF when they had an eGFR below 90 had an increasingly lower chance of seeing their kidney function rise for each 10 additional years of age and tended to have a higher chance of seeing their eGFR rise if they had HCV coinfection. Looking just at those with a baseline eGFR of lower than 60, the study authors found that factors associated with a greater chance of improved kidney function after switching to TAF included taking a boosted protease inhibitor at the baseline point and having HCV coinfection.

Among the TAF and TDF group members, their protein-to-creatinine ratio, another measure of kidney health, rose by a respective 2.6 and 5.2 points.

The researchers concluded, "Eighteen months after switch[ing] from TDF to TAF, eGFR improvedin

patients with established renal dysfunctionand remained similaramong those with a normal [kidney] function" but added that more follow-up time is needed to refine their certainty about these findings.

To read the study abstract, click here.

To read the NATAP report, click here.

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