Study Sheds Light on Weight Gain After Switching to New Tenofovir

This may reflect loss of the weight-suppressing effect of the older version of the drug.

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People who switched to tenofovir alafenamide (TAF) from tenofovir disoproxil fumarate (TDF) gained significantly more weight than those who switched from abacavir, according to a study presented at the recent virtual IDWeek conference.

Weight gain among people with HIV on antiretroviral treatment has become an increasing concern in recent years. A growing body of evidence shows that people who start or switch to integrase inhibitors, especially dolutegravir (Tivicay, also in the Triumeq, Juluca and Dovato combination pills), are more likely to gain weight. This also appears to be the case for those who use TAF (a component of Descovy and other coformulations), a new version of tenofovir that is easier on the kidneys and bones than the old TDF (Viread, also in Truvada and other coformulations).

Grace McComsey, MD, of Case Western Reserve University in Cleveland, presented results from a study of weight changes among people taking integrase inhibitor–based regimens who changed their nucleoside/nucleotide reverse transcriptase inhibitors (NRTIs).

Many studies have looked at people who switch from a regimen containing TDF to one containing TAF, focusing on improvements in kidney function and bone biomarkers. Those studies have also found that switching to TAF is associated with weight gain and unfavorable changes in blood lipid levels. But fewer studies have looked at people who switch to TAF from other NRTIs.

This retrospective study analyzed electronic health records from 10 HIV treatment centers that together managed the care of more than 42,000 people on antiretroviral treatment.

The analysis focused on adults who had suppressed HIV on an integrase inhibitor regimen, switched at least one NRTI and maintained viral suppression a year later. About 80% were men, about 60% were white and 28% were Black. Roughly a third were of normal weight, a third were overweight and 30% had obesity at baseline.

Within this group, 828 people (85%) switched from TDF to TAF while 142 (15%) switched from abacavir (Ziagen, also in the Epzicom and Triumeq combination pills) to TAF. None were using non-nucleoside reverse transcriptase inhibitors or protease inhibitors before or after the switch.

Participants were not randomized, and there were some differences between the groups. Those who switched from abacavir to TAF were older, on average, than those who switched from abacavir to TAF, with 61% and 39%, respectively, being age 50 or older.

Most people in the abacavir-to-TAF group (84%) changed their integrase inhibitors at the same time as the NRTI switch. Almost all were on dolutegravir at the outset; 16% stayed on that drug, 52% switched to bictegravir (in the Biktarvy combo pill) and 32% switched to elvitegravir (in the Genvoya coformulation). In contrast, just 14% of people in the TDF-to-TAF group changed their integrase inhibitors simultaneously. At the outset, 11% were on dolutegravir, 10% were on raltegravir (Isentress) and 79% were on elvitegravir (likely using the Stribild combo pill); after the switch, 79% were using elvitegravir, 12% were using dolutegravir and 6% were using bictegravir.

One year after the switch, people in the TDF-to-TAF group gained an average of about 3 pounds, compared with less than half a pound in the abacavir-to-TAF group. In the TDF-to-TAF group, 40% experienced a gain of at least 3% of their body weight, 26% gained at least 5% and 10% gained at least 10%. In the abacavir-to-TAF group, the corresponding proportions were lower, at 27%, 22% and 6% respectively. People in the abacavir-to-TAF group were also more likely to lose weight.

Factors significantly associated with at least a 3% weight gain included switching from TDF rather than abacavir, female sex, underweight or normal weight (as opposed to overweight of obesity) prior to the switch and having a pre-switch CD4 count under 200. Switching to a regimen containing dolutegravir was not a significant risk factor.

TDF is known to have a protective effect against weight gain and blood lipid abnormalities, while TAF lacks this property. Thus, people switching away from TDF would lose this protective effect, while those switching from abacavir never would have benefited from it.

“These data suggest that differences in weight gain between TAF and TDF are likely driven by removal of TDF-associated weight suppression,” the researchers concluded.

As a limitation, they noted that African Americans were underrepresented in this study (28%) relative to their proportion of the HIV population (41%). Prior research has shown that women and Black people with HIV are more likely to gain weight, with Black women especially at risk.

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