Switching to an Integrase Inhibitor Plus TAF Is Associated With Weight Gain

People who switched to such a regimen gained up to 10 pounds in nine months.

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Are you thinking of switching to Biktarvy or dolutegravir plus tenofovir alafenamide (TAF)? A preliminary analysis suggests that you could gain between five and 10 pounds during the first nine months, but these are early and incomplete findings.

Research shows that weight gain is common among people who start or switch to an integrase inhibitor, especially in combination with TAF. It appears that women—especially Black women—gain more weight than men. However, weight gain among people living with HIV and its link to antiretroviral (ARV) treatment is not fully understood.

Patrick Mallon, PhD, of University College Dublin in Ireland, and colleagues reviewed the medical records of 107,308 people on HIV treatment in the OPERA cohort, which draws from 84 clinics in 18 U.S. states or territories. Of these, 6,908 had switched from tenofovir disoproxil fumarate (TDF), TAF's close molecular cousin, to TAF between November 2015 and February 2019. TDF is sold alone as Viread and is a component of Truvada and several single-tablet regimens; TAF is a component of Descovy and various single-tablet regimens.

More than 80% of individuals were men. The median age was approximately 45 years, and they had been on a TDF-containing regimen for a median of two years prior to their switch to TAF. All had an undetectable viral load (defined in this study as 200 or less). About a third were of normal weight, nearly 40% were classified as overweight and nearly 30% had obesity.

Among the 5,500 of the 6,908 people who stayed on their other ARVs when they switched from TDF to TAF, 85% of those on a non-nucleoside reverse transcriptase inhibitor (NNRTI) were taking rilpivirine, 68% of those on a boosted protease inhibitor were using darunavir and 73% of those already on an integrase inhibitor were using elvitegravir/cobicistat. Among the 1,429 participants who switched to an integrase inhibitor for the first time, of those on boosted protease inhibitors, 42% were taking darunavir and 44% were taking atazanavir; 84% of those on a NNRTI were using efavirenz.

The researchers tracked weight and body mass index before and after the TDF to TAF switch as well as the presence of endocrine disorders that could affect or reflect weight, including diabetes,

high blood pressure, abnormal blood lipids, hyper- or hypogonadism, hyper- or hypothyroidism and thyroid dysfunction. They also tracked medications that could cause weight gain (for example, psychiatric medications, blood pressure medications, hormones, antihistamines or oral steroids) or weight loss (for example, cardiovascular medications, bronchodilators or anti-inflammatories).

Then they divided participants into two groups: people who kept all their other ARVs the same aside from switching from TDF to TAF and those who switched to an integrase inhibitor in addition to switching from TDF to TAF.

People who stayed on their other ARVs had been gaining about a pound a year before switching to TAF. After the switch, their weight gain sped up fivefold, to 5.4 pounds a year. But that only lasted for the first nine months. After that, weight gain stabilized at a lower rate of about 0.5 pounds a year. Altogether, the researchers saw a total median weight gain of about 4.0 pounds two years after the switch.

Weight gain differed based on their other ARVs, however: Those on boosted protease inhibitors gained the least weight, and those on integrase inhibitors gained the most. People who stayed on elvitegravir gained about 5.5 pounds a year, and those on dolutegravir gained about 5.2 pounds a year during the first nine months. But after that initial weight surge, those on elvitegravir gained less than a pound a year, and those on dolutegravir lost about 0.2 pounds a year.

People who both switched to an integrase inhibitor and TAF had not been gaining weight before their switch. Those who switched to elvitegravir saw a gain of 5.6 pounds, and those who switched to dolutegravir gained about 6.8 pounds per year during the first nine months, after which their weight stabilized. But those who switched to bictegravir (a component of Biktarvy) gained nearly 10 pounds a year during the first nine months and then lost weight.

But it’s too early to say that weight gain on Biktarvy really is the highest. Fewer people were taking Biktarvy, and there was less follow-up time because the combination was approved more recently. People had been on Biktarvy for only an average of 14 weeks, compared with 38 weeks on dolutegravir and nearly 48 weeks on elvitegravir.

But the association between TAF and weight gain was consistent. “[S]witching from TDF to TAF was associated with pronounced weight gain immediately after switch, regardless of the core class or core agent, suggesting an independent effect of TAF on weight gain,” the study authors concluded. One possible explanation: TDF, unlike TAF, has a protective effect against weight gain, so people switching from TDF to TAF would lose this benefit.

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