How Integrase Inhibitors Work

OVERVIEW

HIV attacks cells within the body's immune system. To spread, the virus needs to enter these cells and make copies of itself. The copies are then released from these cells and infect other cells. Treatment with integrase inhibitors is one way to help stop the virus from replicating and control HIV infection.

Once the virus is in the body, HIV attacks certain white blood cells, called CD4 cells or T cells. These are the cells that tell the immune system to attack harmful organisms such as viruses and bacteria. HIV inserts itself into these T cells and takes control of them. HIV does this by making an enzyme called integrase. Integrase allows the DNA of the virus to merge with the DNA of the T cells. Then, the HIV can control what the cells do. Without treatment, HIV can eventually take over too many T cells. If this happens, the T cells can no longer signal the immune system to fight infections and other diseases, including cancers.

Integrase inhibitors rely on the fact that HIV needs integrase to replicate. These drugs stop HIV from being able to make integrase. Without the help of this enzyme, HIV can't take over CD4 cells to copy itself and the HIV life cycle is interrupted.

Integrase inhibitors are one of 6 classes of antiretroviral drugs (ARVs) used to treat HIV as part of antiretroviral therapy (ART).

AVAILABLE INTEGRASE INHIBITORS

Currently, there are several integrase inhibitors that the Food and Drug Administration (FDA) has approved for HIV treatment:

- raltegravir (Isentress, Isentress HD)
- Bictegravir (Bictarvy)
- dolutegravir (Tivicay, Tivicay PD)
- elvitegravir (Vitekta)
- cabotegravir (Vocabria)

Integrase inhibitors are also available in several combination medications. Combination HIV medicines contain 2 or more HIV medicines from 1 or more drug classes.

POTENTIAL SIDE EFFECTS

Integrase inhibitors have fewer side effects than other HIV drugs because they work on the virus itself, not on the cells that HIV infects. The most common side effects with integrase inhibitors include:

- Diarrhea
- Nausea
- Fatigue
- Headache
- Insomnia
- Dizziness
- Weight gain

Rarely, some people experience more serious side effects. These can include severe skin reactions and widespread inflammation.

If you are taking an integrase inhibitor and start to have uncomfortable side effects, don't stop taking the drug without talking to your healthcare provider first. Pausing or changing ARVs can do more harm than good. The medications may become less effective or the virus may become resistant to the drugs altogether. This means the drugs won't work anymore to treat the virus.

THE BOTTOM LINE

Integrase inhibitors are medications that have made HIV management possible. It is important that the appropriate antiretroviral drug (ARV) regimen for HIV treatment is carefully selected, depending on your medical history, other illnesses, prior HIV treatment, stage of infection, and individual preferences.

If your healthcare provider has prescribed integrase inhibitors it's important to stick to your treatment plan to manage HIV. If you have side effects from antiretroviral therapy (ART), there are some tips you can try to manage them. More importantly, talk to your healthcare provider for suggestions and recommendations. Your healthcare provider may also change your treatment

plan to help relieve side effects.

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