

High-Efficiency Pharmacokinetic Modeling of Antiviral Abacavir Drug used in HIV Infected Patients

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DESCRIPTION

HIV is the virus that causes Acquired Immunodeficiency Syndrome (AIDS). Abacavir is a Nucleoside Reverse Transcriptase Inhibitor (NRTI) with activity against Human Immunodeficiency Virus Type 1 (HIV-1). Abacavir is phosphorylated to an active metabolite that competes for incorporation into viral DNA. Abacavir is recommended as part of first-line antiretroviral therapy for infants, children, and adolescents living with HIV. It works by reducing the amount of HIV in the blood. They competitively inhibit the HIV enzyme reverse transcriptase and act as chain terminators for DNA synthesis. Abacavir showed synergy in cell culture in combination with the Nucleoside Reverse Transcriptase Inhibitor (NRTI) zidovudine, the Non-Nucleoside Reverse Transcriptase Inhibitor (NNRTI) nevirapine and the Protease Inhibitor (PI) amprenavir. Abacavir (brand name: Ziagen) is a prescription drug licensed in the United States. The Food and Drug Administration (FDA) has approved treatments for HIV infection in adults, children, and infants.

Abacavir is always used in combination with other HIV drugs. Abacavir does not cure or prevent symptoms of HIV infection or AIDS. It seems to prevent the HIV virus from multiplying and slows down the destruction of the immune system. This helps delay the onset of serious health problems usually associated with AIDS and HIV infection. Abacavir will not stop a patient from passing HIV to others. People taking this drug may have AIDS or other problems related to HIV infection.

Clinical trials have shown that when taken in combination with at least two other anti-HIV drugs, abacavir can reduce HIV viral load and improve immune function in most people. Abacavir is effective against HIV-1 and HIV-2. Abacavir and lamivudine are drugs used to treat HIV. These are antiretroviral drugs in one tablet. This tablet contains 600 mg of abacavir and 300 mg of lamivudine. Generally, adults take dosage of 1 tablet once daily in combination with other antiretroviral drugs. For children, 3 months and older, dosage is based on weight and should be determined by the child's physician. The usual dosage is 8 milligrams

(mg) per kilogram (kg) of body weight twice daily or 16 mg per kg of body weight once daily. The doctor may increase the dose if necessary.

This drug is used with other HIV drugs to control HIV infection. It helps reduce the amount of HIV in the body and allows the immune system to function better. This reduces the chance of HIV complications (new infections, cancer, etc.) and improves the quality of life. Abacavir is not a treatment for HIV infection. To reduce the risk of passing HIV infection to others, continue to take all HIV medications as directed by the doctor. During sexual activity, use an effective barrier method (latex or polyurethane condoms/dental dams) as directed by the doctor. Do not share personal items (needles/syringes, toothbrushes, razors, etc.) that may have come in contact with blood or other bodily fluids.

The most common side effects of abacavir/lamivudine are hypersensitivity reactions, headache, nausea and vomiting, diarrhea, abdominal pain, loss of appetite, fatigue, lack of energy, fever, general malaise, sleep disturbance, muscle aches and discomfort, joints pain, cough, inflammation or runny nose, skin rash, and hair loss. In general, this medicine was taken orally 1 to 2 times a day, with or without food, or as directed by the doctor. If a patient is using the liquid form of this medicine, measure the dose carefully with a special measuring device/spoon. Do not use a household spoon as it may not get the correct dose. The dosage depends on the medical condition and response to treatment. For children, the dosage also depends on their weight. Each tablet contains 600 mg of abacavir.

CONCLUSION

The main toxicity associated with abacavir treatment is a potentially life-threatening hypersensitivity reaction, commonly referred to as Abacavir Hypersensitivity Reaction (ABC), which occurs in approximately 5%-8% of patients treated with ABC. Abacavir may cause side effects. As noted above, some abacavir side effects can be serious. Many side effects of HIV drugs are manageable, such as nausea and occasional dizziness.

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