

Antiretroviral Therapy

What is HIV Antiretroviral Treatment?

- This is the main type of treatment for HIV or AIDS. It is not a cure, but it can stop people from becoming ill for many years. The treatment consists of drugs that have to be taken every day for the rest of someone's life. To understand more about treatment you need to have some basic knowledge of HIV and AIDS
- Antiretroviral treatment for HIV infection consists of drugs which work against HIV infection itself by slowing down the replication of HIV in the body. The drugs are often referred to as:
 - antiretrovirals
 - anti-HIV drugs
 - HIV antiviral drugs

What is Combination Therapy, What is HAART?

- For antiretroviral treatment to be effective for a long time, it has been found that you need to take more than one antiretroviral drug at a time. This is what is known as Combination Therapy. The term Highly Active Antiretroviral Therapy (HAART) is used to describe a combination of three or more anti-HIV drugs.
- When HIV replicates (makes new copies of itself) it often makes mistakes. This means that within any infected person there are many different strains of virus. Occasionally, a new strain is produced that happens to be resistant to the effects of an antiretroviral drug. If the person is not taking any other type of drug then the resistant strain is able to replicate quickly and the benefits of treatment are lost.
- Taking two or more antiretrovirals at the same time vastly reduces the rate at which resistance develops.

The Groups of Antiretroviral Drugs

There are five groups of anti-HIV drugs. Each of these groups attacks HIV in a different way.

The Groups of Antiretroviral Drugs

Nucleoside/Nucleotide Reverse Transcriptase Inhibitors

- NRTIs interfere with the action of an HIV protein called reverse transcriptase, which the virus needs to make new copies of itself.

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Non-Nucleoside Reverse Transcriptase Inhibitors

- NNRTIs also stop HIV from replicating within cells by inhibiting the reverse transcriptase protein.

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Protease Inhibitors

- PIs inhibit protease, which is another protein involved in the HIV replication process.

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Fusion or Entry Inhibitors

- Fusion or entry inhibitors prevent HIV from binding to or entering human immune cells.

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- Integrase inhibitors interfere with the integrase enzyme, which HIV needs to insert its genetic material into human cells.

What Does a Combination Usually Consist of?

- Highly Active Antiretroviral Therapy consists of a combination of three or more drugs. The most common combination given to those beginning treatment consists of two NRTIs combined with either an NNRTI or a "boosted" protease inhibitor. Ritonavir (in small doses) is the drug most commonly used to boost a protease inhibitor. An example of a common combination is the two NRTIs zidovudine and lamivudine combined with the NNRTI efavirenz.

What if HAART is Unavailable?

- Although coverage has improved greatly in recent years, most people living with HIV in the developing world still have no access to antiretroviral drugs. Instead, the best they can hope to receive is treatment for the diseases that occur as a result of a weakened immune system, which are known as opportunistic infections. Such treatment has only short-term benefit because it does not address the underlying immune deficiency itself.