HYDROXYUREA (Hydrea)

WHAT IS HYDROXYUREA?

Hydroxyurea (Hydrea) is a drug that was tested as part of antiretroviral therapy (ART). It is manufactured by Bristol-Myers Squibb. Hydroxyurea is sometimes referred to as HU.

Hydroxyurea was approved for use against cancer. It also works against sickle cell anemia. Hydroxyurea has not been approved by the FDA for use against HIV.

Hydroxyurea blocks an enzyme produced by human cells. This enzyme makes building blocks used by cells that are multiplying. Cancer cells multiply very quickly, so when hydroxyurea blocks this enzyme, the cancer grows more slowly.

Hydroxyurea reduces the activation of the immune system. It is still being studied as part of HIV treatment.

These building blocks are also used by HIV when it multiplies. Some of the drugs used against HIV (the nucleoside analog reverse transcriptase inhibitors) are "fake" versions of these same building blocks. When HIV uses the fake materials, it can't multiply. Hydroxyurea intensifies the effects of the drugs ddI (see Fact Sheet 413) and d4T (see Fact Sheet 414).

WHO SHOULD TAKE HYDROXYUREA?

Hydroxyurea has been studied in combination with the drugs ddI and d4T. ***Hydroxyurea is not recommended as part of ART against HIV.*** It reduces gains in CD4 cells, increases ddI's side effects, and can cause serious birth defects. It was studied due to its ability to intensify the effects of other medications. However, its side effects appear to outweigh its benefits for people with HIV.

There are no absolute rules about when to start ART. You and your health care provider should consider your CD4 cell count, your viral load, any symptoms you are having, and your attitude about taking HIV medications. Fact Sheet 404 has more information about guidelines for the use of ART.

WHAT ABOUT DRUG RESISTANCE?

The HIV virus is sloppy when it makes copies of its genetic code (RNA). This means that many new copies of HIV are slightly different from the original (mutations). Some mutations can resist an ARV and continue to multiply. When this happens, the drug will stop working. This is called "developing resistance" to the drug.

Hydroxyurea blocks an enzyme produced by our own cells, not by HIV. This means that HIV cannot develop resistance to Hydroxyurea. Taking hydroxyurea can slow down HIV mutations so that it takes much longer for resistance to develop to the other ARVs you are taking.

HOW IS HYDROXYUREA TAKEN?

Hydroxyurea is available in 500 mg tablets. The most common doses originally studied were 1 gram taken once a day, or 500 mg taken twice a day.

WHAT ARE THE SIDE EFFECTS?

With the start of any ART there may be temporary side effects such as headaches, hypertension, or a general sense of feeling ill. These side effects are likely to get better or even disappear over time.

The most serious side effects seen with hydroxyurea are pancreatitis and lactic acidosis that caused some deaths. Hydroxyurea may cause nausea, vomiting, and diarrhea. It can also lead to weight gain, hair loss, and changes in skin coloring. It may cause birth defects, so pregnant women should not take hydroxyurea. It can also damage the bone marrow. This can result in anemia (a drop in the number of red blood cells) or neutropenia (a drop in the number of white blood cells).

Scientists reported in early 2000 that hydroxyurea appears to increase the risk of peripheral neuropathy. See Fact Sheet 555 for more information on neuropathy.

HOW DOES HYDROXYUREA REACT WITH OTHER DRUGS?

Hydroxyurea is most effective if taken with reverse transcriptase inhibitors such as ddI or d4T. However, hydroxyurea intensifies the side effects of ddI.

Hydroxyurea's side effects may be worse if taken with AZT, because both drugs can damage the bone marrow.

THE BOTTOM LINE

Hydroxyurea is used to reduce the activation of the immune system. It slows the growth of cancer.

It was studied as a way to intensify the effects of ddI and d4T. This was not successful.

Hydroxyurea is currently being studied to reduce immune activation in HIV.

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