Do New HIV Drugs Affect HIV Prevention?

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What do the new drugs do?

Protease inhibitors are a new type of drug to treat HIV infection. They work by inhibiting the HIV protease enzyme. When this enzyme is blocked, the virus can not reproduce. When protease inhibitors are taken in combination with other anti-HIV drugs, they have been shown to reduce levels of the virus, sometimes dramatically, to raise the number of CD4 or T-cells, an index of how well the immune system is working, and to reduce mortality rates. (1,2)

Some HIV+ people who have taken combination therapies have experienced enormous improvements in their health and well-being. For example, some people who were on disability are returning to work and changing their plans for the future. (3) Unfortunately, not all HIV+ people experience these benefits.

The Centers for Disease Control and Prevention (CDC) announced that AIDS deaths in the US declined 12% during the first six months of 1996, compared to the first six months of 1995, a finding thought to be due in part to the new drugs. (4) However, even as deaths from AIDS may be declining, large numbers of HIV infections continue to occur-it is estimated that there are 41,000 new HIV infections every year in the US. (5) Over half of those new infections occur among injection drug users (IDUs), a group less likely to receive and perhaps less likely to adhere to the new treatments.

Can treatment also be prevention?

There are two ways that treatment with anti-HIV drugs may also be considered prevention: treating HIV-people with recent exposure to HIV to prevent infection (post-exposure prophylaxis or PEP), and treating HIV+ people to reduce the risk of transmitting HIV to a partner.

Post-exposure prophylaxis

A recent study of health care workers showed that treatment with AZT after needlestick exposure to HIV-infected blood reduced the odds of HIV infection by 79%. (6) Consequently, the CDC has recommended PEP for some health care workers who are accidentally exposed to HIV-infected body fluids. Since PEP is effective for health care workers, it is only ethical that PEP be considered for people exposed to HIV through sex or injection drug use as well.

The risk of HIV transmission following needlesticks among health care workers is about 0.32%. (7) Some sexual and injecting drug use exposures are similarly risky. It is believed that the risk of transmission per sexual exposure to an HIV+ partner is 0.5%-3% for anal intercourse and 0.1% for vaginal intercourse. HIV transmission due to sharing injecting equipment with an HIV+ partner is

estimated to occur in 0.4%-3% of sharing episodes. (8)

Deciding whether to prescribe PEP should be made on an individual basis since risk of infection varies according to many factors, such as frequency and type of sexual contact, infectiousness of the HIV+ partner, and health status of the exposed partner. (9) A person with isolated unprotected sexual- or needle-related exposure to an HIV+ partner may be a good candidate for PEP, which should be supplemented by comprehensive prevention and risk-reduction counseling. (10) However, a person with ongoing exposures should instead be referred to state-of-the-art HIV prevention interventions, as repeated PEP may increase resistance to the new drugs and could also be toxic. (10)

Treatment to reduce infectiousness

It has been demonstrated that combination therapies can lower the amount of HIV in the blood, sometimes to undetectable levels. (11) Assuming that infectiousness is related to the amount of virus in the blood, HIV+ IDUs using the new treatments may be less likely to transmit HIV to their injecting partners. The impact of the new treatments on HIV levels in semen, and therefore on sexual transmission, is still unknown. (12) Although it may be less likely, it is still possible that HIV could be transmitted by someone using the new drugs. If so, the strain of HIV transmitted is more likely to be drug-resistant.

What are limitations of the new drugs?

Protease inhibitors are complicated to use correctly. For example, some new drugs require refrigeration, which is nearly impossible for someone living in a shelter or temporary housing. Patients on protease inhibitors commonly take more than two dozen pills daily. If the drugs are not used correctly and consistently, strains of HIV that are resistant to the current drugs could emerge. This could pose a threat both to the patient and his/her sex or drug partners to whom the resistant strain might spread. (13)

Because protease inhibitors have not yet been studied over the long term, no one is sure how long the benefits of these new drugs will last or whether chronic use will lead to significant toxicity. Even in the short term, some people do not improve. While some protease inhibitors have been shown to interact with common prescription medicines, there may be additional, as yet undiscovered, interactions of importance.

More than 90% of all HIV infections worldwide have occurred in developing countries. (14) The tragic reality is that for most people in those countries, the new HIV treatments, which can cost up to $15,000 a year for combination therapy, are prohibitively expensive. Many developing countries with high rates of HIV infection cannot afford the most basic medical treatments, much less these expensive new treatments. (14) The majority of the HIV-infected in the US are also poor and many are drug users who might have difficulty gaining access to the new drugs.

What are the prevention implications?

Many people fear that promoting PEP or suggesting that protease inhibitors may be a "cure" for HIV will encourage people to abandon safer sex. Rates of sexually transmitted diseases (STDs) in the gay

community skyrocketed during the late 70s and early 80s, but some did not see rectal gonorrhea and other STDs as a problem because patients could simply take penicillin and be cured. Rumors of a cure for HIV might cause similarly risky sexual or needle-use behavior. (15)

In the past, HIV prevention campaigns emphasized self-protection (just say no, don't share needles). (16) With the new treatments, a greater emphasis on responsibility toward others could emerge. While continuing to promote safer sex and needle use, public health programs should also encourage the HIV+ to begin the new treatments, if indicated, in order to decrease HIV transmission to their partners. Programs should also be developed to help the HIV+ adhere more closely to complex drug regimens.

What needs to be done?

For people to benefit fully from these advances in treatment, there is a need for increased access to HIV testing and counseling as well as viral load testing. It is important to encourage people to get tested as early as possible-a survey of people with AIDS in 11 US states found that most were first tested late in the course of HIV infection, in emergency rooms, or because of HIV-related illness. (17) HIV testing should be made more widely available through as many outlets as possible, including anonymous and confidential test sites and home collection kits.

The high cost of the new drugs and viral load testing has already put a strain on public funds for HIV care, including Medicaid, the Ryan White Care Act and the AIDS Drug Assistance Program. Pharmaceutical companies and governments need to work together to ensure that all HIV-infected people have equal access to the new treatments, both in the US and internationally.

The new drugs, while more effective in treating HIV than their predecessors, are far from a cure. Behavioral prevention must remain the primary defense against HIV, as unprotected sex or needle sharing will always carry some risk of HIV transmission. Programs that emphasize behavior change to help people avoid HIV will remain the most ethical, practical and cost-effective approaches to slowing the AIDS epidemic.

Says who?

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