Still searching for a cure

Emerging early in the 1980s, a new virus called HIV would be linked to the development of weakened immunity and the appearance, at least until that time, of uncommon infections and cancers. One of the striking features of this new syndrome was that it affected previously healthy people, mostly men, in the prime of their lives, without any obvious risk factors for life-threatening complications. This collection of symptoms, infections and cancers—together with lab tests indicative of immune deficiency—would later be called AIDS.

In the early days of the AIDS epidemic, hopes were high that a cure would soon be found. Doctors and people with HIV/AIDS (PHAs) held great expectations for the first drug licensed against HIV—AZT (Retrovir, zidovudine). Unfortunately, AZT, when used by itself (monotherapy), wasn't strong enough to destroy HIV-infected cells and had limited effects suppressing the symptoms of HIV disease.

Some researchers thought that HIV would be effectively suppressed only by intensifying therapy with AZT—using doses that are much higher than those used today. Although high doses might damage the bone marrow, a transplant of bone marrow tissue after high-dose AZT would help this organ regenerate, perhaps free of HIV. However, experiments with high doses proved to have very little benefit—HIV infection was never cured and this therapy was associated with a great deal of toxicity. AZT belongs to a class of drugs called nucleoside analogues (nukes) and as more nukes became available, combination therapy with this class of drugs also did not fully suppress HIV.

It was only in the mid-1990s, as more researchers gained experience with a new, more potent class of drugs called protease inhibitors (PIs), that thoughts of curing HIV infection returned. When PIs were used as part of combination therapy with other anti-HIV drugs, for the first time since the appearance of the AIDS epidemic doctors were able to return many PHAs to a better state of health. Because some virologists found that triple-drug therapy with PIs was able to strongly suppress the production of new viruses, they hoped that if this suppression could be sustained for several years, then perhaps the body might rid itself of HIV. Unfortunately, this has not been the case.

Faced with a history of setbacks, it is not surprising that more recent attempts at curing (or eradicating) HIV infection have been announced or carried out with little fanfare.

New class, new hope

What makes the slowly growing enthusiasm for studying HIV eradication different now than from previous efforts is that this time researchers have the following:

- at least one easily available drug—valproic acid—that can help tease HIV out of hiding from resting T-cells
- four classes of licensed anti-HIV drugs, including the fusion inhibitor T-20 (enfuvirtide, Fuzeon)
- one new class of anti-HIV drugs called CCR5 receptor blockers. One drug from this class, maraviroc has entered the final stage of clinical trials before approval is sought.

A tall barrier

There are formidable barriers, both biological and personal, that could affect the ability of eradication protocols to work successfully. Because of these barriers—details of which appear in the next story—it will be several years before researchers can be sure that eradication efforts planned or underway will be effective.

REFERENCES:


Disclaimer

Decisions about particular medical treatments should always be made in consultation with a qualified medical practitioner knowledgeable about HIV- and hepatitis C-related illness and the treatments in question.

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