Survival Bonus for People With AIDS

A viral infection that strikes many people with AIDS can spread like wildfire through the retina, leading to blindness if left unchecked. But a drug used to combat the eye infection may provide these patients with an unexpected, short-term survival bonus.

In a study of AIDS patients with cytomegalovirus (CMV) infection of the retina, people treated with the antiviral drug foscarnet lived an average of four months longer than those treated with a similar drug called ganciclovir, researchers announced this week at a press briefing held by the National Eye Institute in Bethesda, Md.

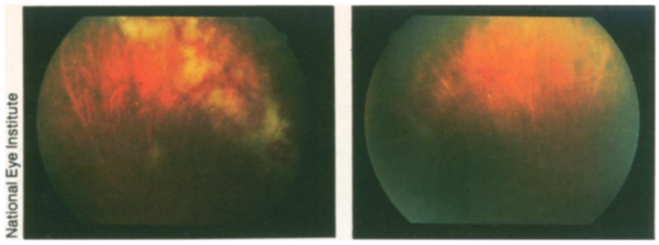
"The value of extra months of life with sight intact is immeasurable in alleviating the suffering of patients with AIDS," said Bernadine Healy, director of the National Institutes of Health, at the briefing.

In June 1989, the Food and Drug Administration approved ganciclovir to treat AIDS-related CMV retinitis; foscarnet received approval last month. While healthy people often carry CMV — a member of the herpesvirus family — without symptoms, the virus runs amok in people with damaged immune systems, especially those with AIDS. Approximately 20 percent of AIDS patients develop the progressive eye infection.

The recent trial, launched in March 1990 with funding from the National Eye Institute, was designed to compare the two drugs' safety and efficacy. On Oct. 7, an advisory panel of independent scientists cut the trial short after its review showed that AIDS patients taking foscarnet lived an average of 12 months after developing CMV retinitis, while those on ganciclovir survived for an average of eight months. Both drugs appeared equally effective in halting destruction of the retina, the panel found. On Oct. 17, the National Eye Institute sent a clinical alert to about 40,000 U.S. physicians, detailing the findings of the study.

Douglas A. Jabs of the Johns Hopkins University School of Medicine in Baltimore chaired the study, which involved investigators at 12 medical centers across the country. The researchers recruited a total of 240 AIDS patients right after their CMV retinitis diagnosis. Participants were hospitalized for two weeks of treatment with either foscarnet or ganciclovir, administered through a catheter inserted in a chest vein.

After controlling the CMV infection with this initial drug blast, the investigators discharged the volunteers from the hospital but kept them on lower intravenous doses to keep the infection in check. Throughout the study, the patients' personal physicians could prescribe other antiviral treatments, such as zidovudine (AZT), to combat the AIDS virus, HIV.



National Eye Institute

Left: AIDS-related CMV retinitis. Right: Retina looks healthy after foscarnet therapy, although infection may flare again.

In the statistical analysis, foscarnet's longevity bonus remained even when the researchers accounted for zidovudine therapy and other factors known to affect survival, notes epidemiologist Curtis Meinert of Johns Hopkins University. Although the underlying mechanism behind the survival bonus remains unknown, the researchers speculate that foscarnet may work synergistically with other antiviral drugs such as zidovudine. Another possibility: Foscarnet itself may combat HIV, Jabs says.

The new study is not the first to suggest an advantage to foscarnet. Because ganciclovir suppresses neutrophils, a type of white blood cell needed to fight infection, many AIDS patients who take it must reduce or stop zidovudine therapy, which can also deplete these cells. In contrast, foscarnet generally allows zidovudine therapy to continue at full strength.

However, not everyone with AIDS and CMV retinitis should take foscarnet, Jabs warns. Foscarnet can cause a decline in kidney function, he says, so patients who have already suffered kidney damage may do better on ganciclovir.

— K.A. Fackelmann

Galactic hot spots may signal supernovas

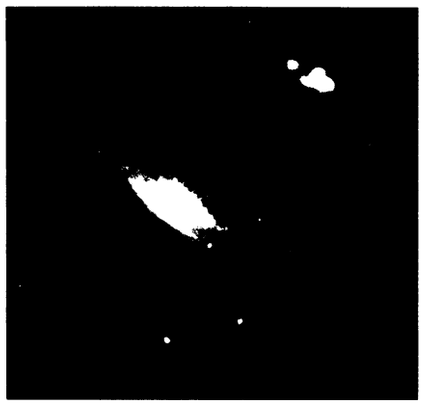
Tracking supernova remnants — the luminous matter ejected when massive stars explosively collapse — can help chart the evolution of galaxies. Astrophysicists now report a new technique for detecting these brilliant stellar objects. Using new, high-resolution infrared detectors that can home in on galactic hot spots, they scan for regions ablaze with infrared light.

Supernovas typically spew iron and other heavy elements into the surrounding space, irrevocably altering a galaxy's chemical composition. The associated shock wave can compress interstellar gas, an effect that might accelerate star formation. The shock also heats surrounding dust particles, causing them to glow brightly in the infrared.

Until recently, however, researchers lacked detectors sensitive enough to pinpoint the location of these telltale infrared emissions, notes Duncan A. Forbes of the University of Cambridge in England. Ground-based searches for supernovas in nearby, dust-shrouded galaxies, for instance, had to rely almost exclusively on radio surveys.

But with the development of more sensitive infrared detectors in the 1980s, that scenario began changing. The new detectors contain hundreds of individual light sensors, each of which possesses a resolution far exceeding previous infrared sensors.

Colin A. Norman of the Space Telescope Science Institute in Baltimore and Dave Van Buren, now at the California Institute of Technology in Pasadena, suggested in 1989 that astronomers could use the new devices to examine supernova activity in starburst galaxies. These dusty galaxies produce copious numbers of new stars — including many massive objects likely to end their life as supernovas. And although dust permits only a small amount of visible light to reach Earth, near-infrared light passes through dust unimpeded.



Forbes et al.

False-color infrared image depicts the starburst galaxy NGC 253. Inset shows the galaxy's nucleus, revealing four hot spots — one well-separated region and three that lie close together — that may indicate the location of supernovas.

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