SCIENCE NEWS of the week

No Survival Bonus From Early AZT

Magic Johnson's performance in the National Basketball Association's All-Star game proved that people infected with the AIDS-causing virus, HIV, can compete – and compete spectacularly. This week, however, a new scientific study lessens some of the magic associated with zidovudine (AZT), the mainstay antiviral drug used to fight HIV.

Back in 1989, a study revealed that early zidovudine treatment slowed progression to AIDS in outwardly healthy people infected with HIV (SN: 8/26/89, p.135). That report and others held out the promise that HIV-infected people would live longer if they took the drug at the start of the disease process, well before the devastating symptoms of AIDS emerged.

A report in the Feb. 13 NEW ENGLAND JOURNAL OF MEDICINE confirms that AZT can slow progression to AIDS but dashes the hope that such early treatment can prolong life. "While AZT is clearly a benefit, it's not the ultimate answer," says principal investigator Michael S. Simberkoff of the Veterans Affairs Medical Center in New York City.

Simberkoff and his colleagues at VA Medical Centers across the country set out to study the benefits of early zidovudine therapy in 338 people who did not suffer full-blown AIDS but who did exhibit mild signs of HIV infection, such as night sweats, diarrhea and unexplained weight loss. The recruits also showed immune system damage by HIV: All had CD4-lymphocyte counts of between 200 and 500 cells per cubic millimeter of blood. Healthy people have CD4 counts of 800 to 1,200.

The VA team randomly assigned 170 people to a group that received zidovudine right away. The remaining 168 participants got placebo pills at the study's start but received the drug when AIDS developed or their CD4 counts dropped below 200.

After approximately two years of observation, the VA researchers discovered that early zidovudine therapy slowed the rate of development of AIDS by nearly half. Once AIDS appeared, however, the early therapy group developed multiple opportunistic infections and died quickly: The team reports 23 deaths in the early therapy group compared with 20 deaths in the later treatment group. Thus, the study revealed no survival bonus for those who got early treatment.

The VA researchers admit they don't know why zidovudine failed the long-term survival test. Simberkoff speculates that some people who take the drug early may develop resistance to it.

Many studies have shown that zidovudine gives people with full-blown AIDS a survival edge, but up until now research has not focused on the question of whether zidovudine would prolong life if taken early in the disease process. The VA study provides desperately needed data on early zidovudine treatment.

For generally healthy HIV-infected people, a decision to hold off on zidovudine therapy can make sense, asserts John D. Hamilton of the VA Medical Center in Durham, N.C. Hamilton, also a principal investigator of the VA study, notes that early zidovudine provides no survival benefit, remains costly and can trigger severe side effects such as nausea and vomiting.

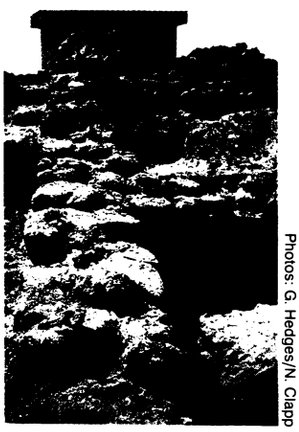
On the other hand, Lawrence Corey of the University of Washington in Seattle notes that early zidovudine therapy delays progression to AIDS – a benefit that outweighs any later ill-effects of early treatment, he believes. Corey wrote an editorial accompanying the research report.

Simberkoff is also in favor of early treatment. "Our first job is to prevent the onset of illness," he says. Patients who show signs of resistance to zidovudine can switch to another antiviral drug such as dideoxyinosine, he adds. In his editorial, Corey adds that researchers need more information on whether this strategy actually will prolong life.

In February 1991, FDA heard preliminary results of the VA study and decided against any change in zidovudine availability, which is now approved for people with AIDS and for those with early HIV infection. *– K.A. Fackelmann*

Desert sands yield ancient trading center

An unlikely combination of ancient maps and space-borne images has led to the discovery of a nearly 5,000-year-old city buried in the sands of the Arabian desert. Considerable evidence indicates that archaeologists have uncovered Ubar, a major hub of the frankincense trade that vanished beneath shifting desert dunes around two millennia ago, expedition leaders announced last week.



A map from A.D. 150 (above) helped researchers find the Oman site where they unearthed ancient structures (right and next page).

Photos: G. Hedges/N. Clapp

"Circumstantial evidence converges on the notion that this site is Ubar," says geologist Ronald Blom of NASA's Jet Propulsion Laboratory in Pasadena, Calif. "Even if it's not Ubar, we still have a very significant archaeological find."

Blom and his NASA colleagues initiated the search by examining sand-penetrating radar images of the Arabian desert – taken by the space shuttle Challenger in 1984 and by U.S. and French satellites more recently – to locate ancient, largely obscured tracks of caravan routes leading to the oasis city. Image analysis, as well as second century A.D. maps of the region, guided ground reconnaissance in 1990 and 1991.

Discovery of the city's ruins at a well site in southern Oman last year led to an excavation that started on Dec. 26. Since then, a research team directed by archaeologist Juris Zarins of Southwest Missouri State University in Springfield has uncovered the remnants of eight mud-brick towers, numerous rooms, thousands of pieces of pottery and other artifacts, including frankincense burners.

Pottery styles at the site indicate it was inhabited from around 2800 B.C. to A.D. 100, according to Zarins.

The nature of the settlement and its great variety of artifacts suggest it served as an important trading center linked by a network of caravan routes to Mesopotamia (in modern-day Iraq) and the Mediterranean, Blom asserts.