Harvard doctors fear AIDS catastrophe

by Peter Catalano

At a special panel on AIDS for staff and students at Harvard Medical School on Jan. 31, three noted medical figures researching the disease reported that some medical progress is being made, but refused to rule out the possibility that AIDS could become an uncontrollable epidemic. Speaking before an overflow audience were Dr. Myron Essex, chairman of the Department of Cancer at the medical school; Dr. Martin Hirsch of Massachusetts General Hospital; and Herbert Sherman, an epidemiologist at the School of Public Health.

New models

Epidemiologist Herbert Sherman opened his presentation by mentioning signs displayed at a National Democratic Policy Committee rally in favor of quarantine measures to contain the disease. As those signs said, in a few years, AIDS may have claimed more victims than nuclear war. If broader assumptions are made regarding transmission of the AIDS virus, HTLV-III, and carrier mortality—at odds with the Centers for Disease Control—the long-term outlook is grim, said Sherman.

Sherman's own models of the epidemic have predicted a saturation among high-risk groups and a slower pace of new infection. The doubling rate of AIDS cases has slowed from a few months to a little over a year. But he concurred with his skeptical colleagues that there is a significant level of under-reporting of new cases. Until recently, the Harvard professor's model of AIDS proliferation in Massachusetts had been highly accurate. Now, reported cases are running behind the projections of the model. Sherman attributes this to under-reporting.

In closing, he revealed that colleagues at the School of Public Health are now developing a model based on assumptions about virus transmissibility broader than the CDC's. The report, to be released later in February, predicts "catastrophic" consequences.

Speaking next, Dr. Essex pointed out that in Belle Glade, Florida, the breakdown in sanitation may be a co-factor in the high incidence of AIDS among non-risk groups reported. And even though no conclusive evidence has been found in Belle Glade indicating the transmission route, the logical inference is that the disease is spread in ways other than exchange of blood products. In a private interview, Essex said that AIDS patients who frequently contract tuberculosis posed a tangible risk of spreading the AIDS virus without having intimate contact. Fluid byproducts of TB may effectively transmit the HTLV-III virus, especially in crowded, squalid quarters.

All three speakers reiterated that basic questions about the deadly virus remain unanswered. Just when an AIDS antibody carrier is infectious is not known, nor the precise co-factors precipitating "frank" or full-blown AIDS. Which patients will graduate to AIDS, and which will progress to terminal stages, is also unknown.

Some progress

The panel also reported some medical progress:

- Although AIDS is the most mutagenic virus produced outside the laboratory, Dr. Essex is now confident that the stable, conserved portion of the virus's protein envelope which attaches itself to the body's T-cell helpers, is quite large. This implies that new drugs will not have to be synthesized for each new mutant strain of the virus.
- Hirsh elaborated on a recent discovery by three different teams of Boston researchers—himself among them—that certain patients exposed to HTLV-III antigens developed "neutralizing" antibodies. If scientists can discover which part of the HTLV-III virus stimulates the immune system to produce these neutralizing agents, and if this segment is part of a "conserved," immutable subunit of the virus, a vaccine could be produced. Using bio-engineering techniques, only the desired "subunit" will be replicated.
- Dr. Essex proposed another vaccine strategy. He and co-workers have discovered that in West Africa, there are many human carriers of monkey AIDS—Simian or STLV-III—living without apparent deleterious effects. There is some evidence that the HTLV-III and STLV-III are cousins, spawned from a common progenitor. The discovery is promising; certain vaccines such as that of polio have been produced using a strain of the virus that is not virulent. For AIDS, the monkey virus could be that strain. From there, the search will be on to discover the piece of the virus that protects against AIDS and whether that alone may confer immunity.
- Among anti-viral agents, Dr. Hirsch expressed optimism that AZT (azidothymadine), now under joint investigation at Harvard and the Burough's Wellcome pharmaceutical firm, may be effective against the HTLV-III virus. AZT is a reverse transcriptase inhibitor, meaning that it prevents the sequence of biochemical reactions needed for the AIDS virus to insinuate itself into the genetic makeup of the body's imune system cells, the helper T-cells. Moreover, AZT can be administered orally and passes the blood-brain barrier 25% of the time. The AIDS virus readily crosses the barrier and finds refuge from the immune system in brain tissue. Over 80% of autopsied AIDS victims show neurological damage, according to Hirsch.

Despite these advances, the briefing closed on an ominous note. Speakers emphasized that progress in AIDS research can only be accomplished by the basic research now threatened by the Gramm-Rudman.