# HIV-Linked Mental Loss Takes Job Toll

Several studies conducted since 1987 indicate that perhaps one in three HIV-infected individuals who display no medical symptoms of disease nonetheless experiences mild loss of attention, memory, and reaction times on laboratory tests. Data now suggest, for the first time, that in some cases these subtle neuropsychological lapses impede day-to-day functioning, at least at work.

Symptom-free HIV-infected men more often report either unemployment or a recent drop in job performance if they also exhibit mild neuropsychological problems, assert Robert K. Heaton, a psychologist at the University of California, San Diego, School of Medicine, and his colleagues.

"It seems that the mild neuropsychological impairment often seen in HIV disease may be clinically significant," Heaton's group concludes in the January/February PSYCHOSOMATIC MEDICINE.

The findings apply to "a small subgroup of a subgroup" of currently healthy people infected with HIV, the virus that can lead to AIDS, notes Alex Martin, a psychologist at the National Institute of Mental Health in Bethesda, Md., in an accompanying comment.

Even if further studies confirm the San Diego report, Martin issues a "resounding no" to any suggestion that employers institute mandatory HIV testing to root out those whose job performance might plunge. Instead, the findings suggest that clinicians should carefully check into complaints about attention loss or other thinking problems expressed by HIV-infected people who seem otherwise healthy, he argues.

Heaton and his coworkers studied 378 men ranging in age from 18 to 50. That group consisted of 252 HIV-positive men who displayed no significant medical symptoms, 37 HIV-positive men who had immune cell irregularities and other signs of progression toward AIDS, and 89 HIV-negative controls.

Each participant completed a neuropsychological evaluation that included tests of attention, memory, language skills, spatial perception, and intelligence.

At least a mild degree of impairment on these measures emerged for half of the symptomatic HIV group, one-third of the symptom-free HIV group, and 16 percent of the controls. Neuropsychological problems of asymptomatic HIV-infected men generally peaked at mild levels.

Unemployment in that group reached 22 percent, compared to 10 percent among neuropsychologically healthy HIV-positive men, according to Heaton's team.

Similarly, 28 percent of employed, HIV-positive men evidencing mild neuropsychological deficits cited a marked drop in their ability to perform job duties since the detection of HIV infection; 6 percent of their unimpaired counterparts made the same complaint.

Future research must consider objective measures of job performance, such as supervisor and coworker ratings, the researchers acknowledge. Still, most men were relatively young and in the early stages of HIV infection, both of which reduce the likelihood of job difficulties. Moreover, about half the volunteers served in the military on active duty and remained employed despite their medical status.

Depression and other psychiatric disorders did not account for unemployment or job difficulties in mildly impaired HIV-positive men, the scientists note.

The initial findings of the San Diego investigation raise a number of questions, Martin contends. For instance, do work-related abilities decline most sharply in mildly impaired HIV-infected people who hold demanding jobs? Or do those who hold demanding jobs prove most capable of devising mental strategies to compensate for mild impairment?

In addition, Martin says, researchers do not know if mild neuropsychological deficits in symptom-free cases of HIV infection herald a widespread loss of thinking abilities later on. *—B. Bower*

# High iron stores may increase cancer risk

Radiation, genes, some chemicals: All are known to cause cancer. But who'd suspect the iron in a bowl of fortified cereal?

Epidemiologist Richard G. Stevens might. The greater the iron concentration in a person's blood, the greater the risk of developing cancer, says Stevens of the Pacific Northwest Laboratory in Richmond, Wash. He and his coworkers came to that conclusion after studying more than 8,000 participants in the 1971 National Health and Nutrition Education Survey.

"Although we aren't testing for specific cancers," Stevens says, "those of the esophagus and bladder appear most strongly linked with body iron." The link between excess iron and cancer held true even when the researchers controlled for factors known to increase the risk of cancer, such as age and smoking.

Cancer cells may need more iron to grow and replicate than normal cells, Stevens speculates. Or iron may boost the production of biologically damaging free radicals, which snatch electrons belonging to other molecules.

Iron binds with DNA in the cell's nucleus, says Lawrence A. Loeb of the University of Washington in Seattle. "If that [DNA-iron] complex is exposed to hydrogen peroxide, which we know is in cells, free radicals could be produced close enough to damage the DNA," he says.

Iron-generated free radicals may also increase the risk of heart disease (SN: 9/19/92, p.180). "The biologic rationale implicating iron and free radicals [in disease] is pretty strong," Loeb adds.

"If iron is really a carcinogen, we're facing a lot of debate," he said, noting that a Food and Drug Administration regulation prohibits manufacturers from adding known carcinogens to food.

Right now, there's no proof of ill effects from iron. On the contrary, manufacturers are encouraged to add iron to food in order to prevent iron-deficiency anemia. "Iron deficiency remains a significant problem in this country in school-age children and women of reproductive years," says hematologist James D. Cook of the University of Kansas in Kansas City.

Stevens' team indirectly measured transferrin, a protein that stores and transports iron in the blood and other parts of the body. The researchers calculated transferrin saturation from two measurements: the amount of iron found in blood serum and the additional iron the blood could store.

People with more than 60 percent of their transferrin containing iron proved most likely to develop cancer, the researchers report in the February INTERNATIONAL JOURNAL OF CANCER. The normal saturation is about 30 percent.

In the same journal, Paul Knekt of the Social Insurance Institution in Helsinki and his coauthors also report that people with transferrin saturations above 60 percent appear more likely to develop cancer. Unlike Stevens, the Finnish group saw no link at 40 to 60 percent saturation.

Stevens is confident enough of his results to question the wisdom of wholesale addition of iron to food and to suggest that periodic blood donation by those who are not anemic may benefit the donor as well as society. At least one 1990 study found a significantly reduced risk of cancer in Swedish blood donors.

"There are 50 years of work that have gone into fighting iron-deficiency anemia, and we're not at odds with them," says Stevens. "But the effects of excess iron are also darned important, and [they're] being almost entirely overlooked." *—D. Christensen*