SCIENCE NEWS of the week

Severe Depression Depresses Immunity

There appears to be something related to severe, incapacitating depression — and not to milder depression, other psychiatric disorders or being in a hospital — that weakens the body's immune system and increases susceptibility to physical illness, according to researchers at Mount Sinai School of Medicine in New York City. In their studies, sharply reduced immune responses occur only among depressed patients who are hospitalized due to the seriousness of the disorder; less-depressed individuals who are treated in an outpatient clinic have normal immune function.

Last year the same investigators reported that lymphocytes, the cells most involved in immunity, proliferate far less in severely depressed, hospitalized patients than they normally would when stimulated to reproduce (SN: 6/2/84, p. 341). In the February ARCHIVES OF GENERAL PSYCHIATRY, that prior result is compared with similar data on hospitalized schizophrenics, hospitalized surgical patients and depressed outpatients.

"The preliminary findings suggest that decreased lymphocyte function is associated with the severity of depression and is not related to hospital effects or to other psychiatric disorders," says study director Steven J. Schleifer.

Schleifer and colleagues measured responses to lymphocyte stimulation and the total number of lymphocytes for each subject. Breakdowns were obtained for T cells and B cells, important types of lymphocytes. The project included 15 depressed outpatients studied with 15 healthy controls; 16 hospitalized schizophrenics studied with 16 healthy controls; and 10 men hospitalized for surgical repair of hernias studied with 10 healthy controls. Depressed patients had not used antidepressant drugs for at least three months, and schizophrenics underwent a drug "washout" period of several weeks.

There were no statistically significant differences between these three groups of subjects and their healthy controls in the total numbers of lymphocytes and in the numbers and percentages of T and B cells. This indicates, says Schleifer, that psychiatric or surgical hospitalization does not change immune function. Several recent studies, however, report varying lymphocyte levels in schizophrenics, he adds.

What stands out from the data, say the researchers, is that severe depression, but not milder forms of the disorder, is associated with a steep drop in immune activity. This connection may be fostered by the weight loss and sleep disturbance that are characteristic of severe depression, notes Schleifer. Biological processes are probably also involved, but investigators first need to see if altered immunity persists among severe depressives, who typically enter periods of remission. The group plans to study a larger sample of patients with severe and mild depression using additional tests of immune function.

"Does the state of depression lead to changes in immunity, or is altered immunity a trait among some depressives?" asks Schleifer. "We need to explore this question." —*B. Bower*

On the AIDS trail: Work continues on test, cure, vaccine

With AIDS research pushing ahead in fits and starts, the Scientists' Institute for Public Information (a nonprofit organization funded by private foundations, corporations and the media) held a press seminar in New York City last week to highlight some of the starts. Among the topics: impediments to a vaccine; a treatment being tested in France; and a new AIDS test from England.

Several of the scientists at the meeting expressed the hope that the implicated virus doesn't easily cause the disease. "Clearly there are more infected people than sick people," said Luc Montagnier, who with his colleagues at the Institut Pasteur in Paris reported the first isolation of an AIDS-related virus (SN: 5/21/83, p. 324). But once the virus does take up residence, the important question in terms of a vaccine becomes what the body does about it.

That the body develops antibodies to this virus is well known; the key is whether any of them are capable of neutralizing the virus. In his studies, says Montagnier, he has found low levels of neutralizing antibodies in some AIDS patients. "They may confer some type of protection," he says. Robert Gallo of the National Cancer Institute in Bethesda, Md., who was scheduled to attend the meeting but pulled out at the last minute, two weeks ago described finding neutralizing antibodies. "We don't know what practical aspects will come out of it," he told SCIENCE NEWS. Lack of neutralizing antibodies would have severely dimmed the prospects of a vaccine, he says, but their presence "does not [necessarily] mean that a vaccine can be produced."

Differences from virus to virus may stall the development of a vaccine against AIDS. Montagnier described a 20 percent variation in the gene that codes for the virus's protein envelope, a likely vaccine candidate. "This raises an important question," he says — whether protection against one virus will protect against a slightly dissimilar one.

There is theoretical basis for good news in the prospect of natural immunization. "The number of hemophiliacs who have gotten AIDS is a tiny percentage of those who have antibodies," observes Robin A. Weiss of the Institute of Cancer Research in London, England. Live virus in the blood products hemophiliacs receive may have somehow been killed, and, says Weiss, "it might actually be immunizing them."

Weiss and his colleagues have developed a second-generation blood test that they hope will solve some of the problems of the first-generation test, about to be approved by the Food and Drug Administration (SN: 1/19/85, p. 36). The "old" test sometimes gives falsely positive and falsely negative results, a problem Weiss feels can be avoided with his test. In the first-generation test, blood serum is run past immobilized virus parts; antibody present will stick and can be detected with a second antibody.

In the British test, first described in the Sept. 1, 1984 LANCET, blood serum and laboratory-prepared radioactive antibodies to AIDS virus are incubated with viral pieces. If there is antibody to AIDS in the blood serum, it will compete for binding sites, and less of the easily measurable radioactive antibody will stick to the virus. "We don't think we're getting any false positives or false negatives," says Weiss.

Jean Claude Chermann of the Institut Pasteur described an antiviral drug called HPA-23, one of several treatments being evaluated for AIDS. The drug has apparently halted the syndrome in a young French hemophiliac who began receiving treatment in May 1983. The drug has side effects — it had to be temporarily halted when too many platelets were destroyed — but since treatment ended in December 1983, the French researchers haven't been able to isolate the virus from the boy's blood, and he is now back at school.

"That doesn't mean we're curing the patient," Chermann cautions. "We're inhibiting one component of the disease." He and his colleagues are now trying the treatment on 33 other AIDS victims.

But there's still a long way to go. Noted luncheon speaker Anthony Fauci, head of the National Institute of Allergy and Infectious Diseases, "Knowing all the scientific facts does not necessarily clarify the confusion." —*J. Silberner*