Stiff-arming immunity's balancing act

Rare in number and dramatic in their symptoms, the adult patients who develop stiff-man syndrome suffer chronically rigid muscles, which make movement difficult and cause deformed joints. The powerful muscle spasms that later appear can rip muscles and break bones, and are usually treated with anxiety-reducing drugs. Although scientists know the syndrome is a central nervous system disease frequently associated with diabetes and epilepsy, they have failed to find autopsy evidence of nervous-system abnormalities. Now researchers from the Milan University Medical School in Italy report in the April 21 NEW ENGLAND JOURNAL OF MEDICINE that the disease may be caused by a deranged immune system.

The group has found antibodies against the enzyme glutamic acid decarboxylase in the spinal fluid and blood of a woman with the disease. The enzyme is essential for proper functioning of a subset of nerve cells. The authors say antibodies against it may not themselves be the primary cause of stiff-man syndrome, but rather a result of earlier autoimmune attacks directed against other components of nerves. According to an accompanying editorial, if subsequent studies confirm these findings, stiff-man syndrome would be the first known example of a nervous-system disease related to a specific anti-enzyme autoantibody.

Listen to the heartbeat . . . er, hemopump

Sometimes the best things come in small packages, and the Nimbus Hemopump may become a tiny-but-cherished technological gift for those fighting life-threatening heart disease. Threaded into the top of the heart through an artery in the groin, the newly developed miniature pump pulls blood through an attached tube that hangs into the left ventricle. With a turbine blade that rotates 25,000 times a minute, the pump then pushes the ventricle's blood out through the aorta and into the rest of the body.

Developed by Nimbus Medical Inc. of Rancho Cordova, Calif., the pencil-eraser-sized device is designed to temporarily take over all of the heart's blood-pumping responsibilities, thus allowing a damaged heart to begin healing. Researchers recently used the pump in a human patient whose body was rejecting his transplanted heart, and have begun larger studies necessary for Food and Drug Administration approval.

A scientific smorgasbord for AIDS

Reaffirmation from federal officials that they will mail controversially explicit AIDS brochures to all U.S. households was only part of last week's news about the disease. Researchers here and abroad released more new scientific data on AIDS, including the following:

• Many people have wondered whether kissing can transmit the AIDS virus (HIV). With no documented cases of mouth-to-mouth transmission, current scientific thought says there is no danger, despite the fact some studies have found HIV in saliva. Now researchers at the National Institute of Dental Research in Bethesda, Md., report saliva from three healthy men stopped HIV from infecting blood cells *in vitro*. Writing in the May JOURNAL OF THE AMERICAN DENTAL ASSOCIATION, the scientists say they hope to identify which saliva substances inhibit the virus, and to test saliva from AIDS patients and others.

• Direct sunlight may be one of the factors that reactivate HIV and cause its proliferation inside cells, suggest scientists from Pennsylvania and Belgium. Their report in the May 5 NATURE concludes that ultraviolet light — a component of sunlight — enhances HIV replication up to 150-fold when T lymphocytes are irradiated prior to infection. When they exposed cells directly to the sun for 30 minutes, HIV activity increased about 12-fold. The scientists, however, do not suggest that HIV-infected individuals avoid the sun because of these preliminary laboratory results.

• Based on a prospective study of 15 HIV-infected patients, scientists at the Centers for Disease Control in Atlanta say a patient's number of infected blood-lymphocyte cells increases dramatically during the year prior to appearance of AIDS symptoms. (Cell counts drop with the onset of AIDS.) In the six patients who subsequently developed AIDS, a 25-fold increase in infected cells occurred during the previous year — a finding that may help physicians decide which infected-but-without-AIDS individuals to treat and when to begin therapy.

Anorexic bone: Lost but not found

Stooped shoulders and brittle bones are the hallmarks of osteoporosis, a gradual loss of bone that affects about 20 million people in the United States. Recently, researchers have increased their efforts to find its causes, as well as ways to prevent or reverse it (SN: 11/28/87, p.347). Although most of those affected are postmenopausal women, those suffering from anorexia nervosa — with its self-starvation and subsequent drop in estrogen levels — also show reduced bone densities. This so-called osteopenia may not be reversible, even if a young patient recovers from the underlying anorexia, said researchers from Boston's Massachusetts General Hospital last week during a meeting of the American Federation for Clinical Research in Washington, D.C.

In a prospective study, Nancy A. Rigotti and her co-workers followed 27 women with the eating disorder for 12 to 52 months. At the beginning of the study, the women's weights averaged 69 percent of the medically accepted ideal weight, and menstruation had been absent at least one year. The researchers measured bone density, weight gain and hormone levels during treatment, and gave either calcium or estrogen to some of the women. Eight women gained weight, but while bone loss halted in those women, it did not reverse itself. Amount of physical exercise, calcium and estrogen treatments, and return of menstruation also did not affect bone restoration. The scientists conclude that "a period of severe weight loss in young women may be a risk factor for premature osteoporosis."

Shooting down those postop clots

Blood clot formation in the legs during and after surgery is a relatively common side effect of decreased mobility, and one that usually resolves itself without unfortunate results. But for the few whose clots break loose and travel to the lungs, the outcome can be deadly. Called a pulmonary embolism, a clot in the lungs can kill, particularly when it occurs in the elderly. Although drugs exist to dissolve clots, physicians may not diagnose these emboli before death occurs, say researchers from Radcliffe Infirmary and John Radcliffe Hospital in Oxford, England, and from the National Heart, Lung and Blood Institute in Bethesda, Md. They report in the May 5 NEW ENGLAND JOURNAL OF MEDICINE that injection of the clot-preventing drug heparin during surgery can substantially reduce the risk of such emboli.

By reviewing data from more than 70 clinical trials with 16,000 patients, the authors found that heparin shots given before and several days after surgery "can prevent about half of all pulmonary emboli and about two-thirds of all deep-vein [clots in the leg]." Previous studies suggested leg clots are prevented by such therapy, but because pulmonary emboli are rare, those studies did not involve enough patients to assess the preventive affects of heparin or other anticoagulants against clots in lungs. Noting that many surgeons currently do not use anticlotting drugs as a preventive, the researchers suggested reconsideration of this non-use policy.