

BIOCHEMISTRY

Fatty Substances Increase

Amount of both fatty protein molecules and cholesterol increases in blood when weight is gained. Fatty degeneration of blood vessels produced in rats.

► WHEN a person gains weight a fatty chemical called cholesterol and certain molecules of a fatty protein increase in amount in the blood.

Both the fatty protein molecules and cholesterol in the blood have previously been implicated as causing artery damage of a kind found in a serious form of high blood pressure.

The finding that these substances increase as body weight increases was reported by Drs. Joseph T. Andersen, Adrian Lawler, Max Lowen and Ancel Keys of the University of Minnesota at Minneapolis, and the Minnesota Mental Health Research Laboratory at Hastings, Minn., at the meeting of the Federation of American Societies for Experimental Biology in New York.

The study was made with 20 middle-aged men who had the mental sickness, schizophrenia. These patients were encouraged to eat as much as they would of a well balanced high calorie diet for 20 weeks. They gained from almost two to almost 50 pounds. Three men gained more than 44 pounds during the 20 weeks.

If too much cholesterol is proved to be a cause of artery damage, a chemical method of keeping it out of the blood may have been found through researches reported at the same meeting by Drs. Gustav J. Martin and J. M. Beiler of the National Drug Company Research Laboratories in Philadelphia. Rabbits fed a high cholesterol diet did not get above normal amounts of cholesterol in their blood when given a chemical called phosphorylated hesperidine.

This chemical counteracts the effects of an enzyme chemical, hyaluronidase. Its ability to counteract this enzyme has led to its showing promise as a birth control chemical, according to earlier research by Drs. Martin and Beiler. (See SNL, April 19.)

Hyaluronidase plays a role in making substances more permeable to other chemicals. In the cholesterol studies, Drs. Martin and Beiler reasoned that it might make the walls of the intestines more permeable to cholesterol from food. So they tried the hyaluronidase - counteracting hesperidine. Their results show that the theory is apparently correct.

Fatty degeneration of the blood vessels of the heart have been produced for the first time in rats by feeding them diets modeled after those eaten by human patients who had developed the heart disease, coronary thrombosis, before the age of 45. This was reported by Dr. Robert M. Wisler of the University of Chicago.

The rats in his experiments were middle-aged and very fat, corresponding to the type of human likely to develop heart disease. In addition to various human type diets, substances conducive to producing high blood pressure were given one-third the rats. More than half of these showed degenerative changes in their heart arteries. But the heart condition developed in about one-fifth of the rats on the diets only. Chief substance in the various diets correlated with heart damage was choline.

Science News Letter, April 26, 1952

MEDICINE

Transfusions of Platelets

► VICTIMS OF future atomic bomb attacks and of some kinds of bleeding diseases may be helped by a new kind of blood transfusion, it appears from research reported to the Federation of American Societies for Experimental Biology meeting in New York.

This kind of transfusion consists in giving platelets, which are colorless, disk-shaped bodies found in the blood of all mammals.

Dogs and other animals have been saved from killing doses of X-rays by transfusions of platelets, Dr. E. P. Cronkite of the Naval Medical Research Institute and Dr. George Brecher of the National Institute of

Arthritis and Metabolic Diseases reported. The platelet transfusion helps to correct the defect in blood clotting which follows killing doses of radiation, whether from X-rays or atomic bombs. The blood clotting defect leads to fatal bleeding.

It is not necessary to correct all such clotting defects in order to prevent bleeding, these scientists pointed out.

Use of platelet transfusions in certain blood disorders that develop without radiation, and a new method of getting large numbers of functioning platelets from normal blood were announced by Drs. Allen H. Minor and Lee Burnett of Lenox Hill Hospital, New York.

These doctors have given 25 platelet transfusions to patients with thrombocytopenic purpura, aplastic anemia and acute leukemia. In nine of the 11 patients, the active bleeding was either stopped or markedly lessened for a period of one to five days after the platelet transfusion. In the other two patients, bleeding was stopped after more platelet transfusions. In six patients bleeding from the nose or gums, the bleeding could be seen to stop within a few hours after the transfusion. Four of these patients were able to undergo major surgical operations, three for removal of the spleen and one for removal of a kidney. Only one patient, a chronic asthmatic, had any reaction to the platelet transfusion.

While the platelet transfusions in these patients controlled the bleeding which is one severe symptom of the diseases, they are not cures for the underlying disease processes.

The method of obtaining active platelets developed by the Lenox Hill doctors has the advantage of being applicable to blood collected in ACD preservative solution. Blood collected in the routine way for blood banks may thus be used. The method also has the advantage of recovering about 80% of the platelets present in the blood when taken from the donor. They are concentrated by the process eight or 10 times. The volume of the platelet transfusion from four pints of blood is about six ounces.

Science News Letter, April 26, 1952

Biologists agree that the *elephant* is the longest lived mammal, excluding man.

In four years Israel has more than doubled its *population*, from 700,000 at the time of the Proclamation of Independence, May 14, 1948, to 1,600,000 today, of whom 690,000 are new immigrants from some 60 countries.

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