MEDICINE

Artery Disease Attacked

Nerve-cutting operation which relieves complications in arteriosclerosis and chemical investigation of the cause of the condition are reported.

➤ ARTERIOSCLEROSIS — hardening of the arteries to you—is now under attack by both chemistry and surgery. From the chemical front may come knowledge of what makes artery walls grow hard and lose their elasticity. Following this might come a diet to prevent the condition.

From the surgical front comes a nerve-cutting operation that relieves some of the late complications of hardened arteries, such as gangrene and amputation. Progress on both fronts was reported at the meeting in Chicago of the American Society for the Study of Arteriosclerosis.

A 70% salvage rate two years after the nerve-cutting operation was obtained for 83 patients, Drs. Alexander Blain III, Kenneth N. Campbell and Bradley M. Harris of Detroit and Ann Arbor, Mich., reported.

The operation not only spared these patients amputation with consequent physical and economic disability but had a prophylactic effect in another group with early arteriosclerosis which was causing such symptoms as night cramps, cold hands and feet and intermittent claudication. All of this group got complete relief of symptoms.

The nerves which are cut are part of the sympathetic nervous system which operates independently of the brain and controls, among other things, the contracting and dilating of blood vessels. Object of the operation is to lessen the tendency toward spasm of the small blood vessels which occurs in arteriosclerosis. These blood vessels can often then carry enough blood to the legs, hands and feet to prevent symptoms of poor circulation from coldness to gangrene.

Among 24 patients who had already developed some gangrene 17 were improved by a nerve-cutting operation, Drs. Leon Gerber, William S. McCune and William Eastman of Washington, D. C., reported. In the remaining patients the operation failed and gangrene progressed so that amputation was necessary.

A disturbance in the way the body handles fatty substances, specifically fatty acids, from food is now suspected of a fundamental part in starting artery damage, with the kidneys playing an important role in this fat-handling disturbance.

Diet experiments arousing this suspicion were reported by Dr. Russell L. Holman of Louisiana State University School of Medicine.

Dogs, he found, can eat a diet with lots of fat in it without ever getting artery damage unless the kidneys are damaged. But any time after two months of such a diet kidney damage is regularly followed by artery damage, experiments showed.

The chemical injury comes before anatomical change. Dr. Holman's studies also suggest that development of artery disease may be a matter of days rather than decades and that the effects of age may be more cumulative than causative.

Fatty substances in the blood called lipfanogen and antilipfanogen are believed to play a part in the production and control of one kind of artery hardening, atherosclerosis, Drs. Henry S. Simms, Mary S. Parshley, Ruth B. Pitt and Joan B. Fulton of Columbia University College of Physicians and Surgeons told the meeting.

Lipfanogens are taken up by living cells and converted into visible fat. Antilipfanogens prevent this conversion. Blood from patients with kidney and heart diseases and diabetes, which are frequently complicated by hardening of the arteries, has somewhat less than normal lipfanogen activity and considerably less than normal antilipfanogen activity.

Dr. Kenneth B. Turner of Presbyterian Hospital, New York, cooperated with Dr. Simms and associates in these studies.

Science News Letter, November 13, 1948

VETERINARY MEDICINE

"X" Disease Killing Cows

➤ "X" DISEASE, so called because it is still a totally unknown quantity so far as its origin is concerned, is killing cattle in at least 32 of the states of the Union, declares Dr. H. W. Schoening, U. S. Department of Agriculture veterinarian in charge of pathological studies.

No section of the country is free from it, since the states where it has been reported are distributed all over the map. It is not at all unlikely, Dr. Schoening added, that it may be occurring in other states but has not yet been reported from them because it has not been recognized.

Symptoms are described as including loss of weight and appetite, decrease in milk yield, premature dropping of calves, fever, and a thickening and inflammation of the skin. No drug treatment thus far attempted has been successful. Of animals contracting the disease, nearly 60% die. It is a long and lingering affair, with the poor beasts dragging themselves around in an emaciated state sometimes for weeks or even months before they die.

One particularly marked symptom of X disease has become the basis of a more technical name, hyperkeratosis. This combination of Greek roots means "overgrowth of horn." It does not, however, refer to the animals' horns but to the enormous thickening of the horny outer layer of the skin, which is thrown into heavy wrinkles and folds.

How hard X disease can hit cattle owners was disclosed in a survey just concluded in five states of the Southeast, conducted by four outstanding research men. In 26 herds, totaling over 4,000 head, more than 30% of the cattle were affected, and nearly 60% of these died. Losses were estimated at more than $110,000, or over $4,200 per herd. Beef cattle were much more frequently affected than dairy types.

Suggested possible causes include infection with virus, fungus or other disease germ; a poisonous mineral in the soil or water; or a nutritional imbalance. Many samples of soils, plants, and parts of diseased animals are now being intensively examined, in order to narrow down the field, for of course until the cause of X disease is known little can be done for its treatment and not much for its prevention.

Science News Letter, November 13, 1948

GENETICS

Bacteria Found Convenient For Heredity Studies

➤ BACTERIA are being found convenient organisms for the study of mutations, or sudden hereditary changes. In the number of generations they produce in a given time, as well as in the small space they occupy and the low cost of feeding them, they put rabbits and even fruit-flies completely in the shade.

Reports of two types of bacterial mutation are presented in the PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES (Sept.). The first comes from Dr. Francis J. Ryan of Columbia University. He has found in cultures of lactic-acid-producing bacteria new strains that can get along without certain of the amino acids, or protein building-blocks, which the original ancestral species always required for living. Typical is a new strain able to get along without the common amino acid, histidine.

The other report is by Dr. E. Ruth Witkus of Fordham University. Her bacterium is a species that is normally yellow, but which has several times produced white variants which are stable, never reverting to yellow no matter how long their cultures are carried on. The curious thing is that this white mutant strain can be produced only through the cooperation of four other, and quite different, bacterial species in a mixed culture.

Science News Letter, November 13, 1948