

MEDICINE

Study Cancer "Vaccine"

Evidence points to the possibility that some unknown product of the cancer cell may cause the body to produce antibody-like substances that in turn attack the cancer cell.

► AN ANTI-CANCER vaccine may eventually result from research evidence uncovered by Veterans Administration Hospital doctors at McKinney, Texas.

A natural defense mechanism of the body against cancer, resembling the reaction that makes polio and other vaccines possible, seems to be present in the body, Dr. Russell H. Wilson of the VA hospital has found.

The work has been based on findings by James W. Finney, research microbiologist, indicating that, under certain circumstances, products from cancer cells may cause the body to produce substances, perhaps antibodies, that may travel through the blood stream and attack the cancer cells.

Other workers on the project include Dr. Dale A. Clark, research biochemist, and Dr. William L. DeGinder, radiologist. They are working with both tissue cultures and volunteer patients, Dr. Wilson said.

The cancer tissue is removed by surgery and processed to obtain certain proteins. These proteins are then injected into the patient to stimulate production of the blood

substances doctors suspect might act against cancer cells.

After blood tests to determine how much the patient is reacting to these proteins, blood is taken from the patient and the blood substance that is active against cancer is separated.

Dr. Wilson reports that, when some of the anti-cancer blood substance is injected into the patient, there is sometimes a noticeable decrease in the size of the tumor mass.

He said the research group now plans to attempt to isolate, from both tumors and the blood itself, the specific substance or substances responsible for the effects.

Doctors long have been puzzled by the fact that when cancer is treated with X-ray, occasionally other cancers which have spread to different parts of the body from the parent growth tend to decrease in size even though they receive no X-rays. In addition some cancer growths spontaneously decrease in size or stop growing and cause no harm for years.

Science News Letter, March 22, 1958

Pasolina Ingenito, research associate in preventive medicine; Dr. John M. Craig, assistant professor of pathology; and Dr. Marcellow Martinelli, Lederle Research Fellow in preventive medicine from the University of Bologna, Italy.

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ARTERY CELLS—Microphotographs of tissue cultures of human aortic cells show the effects of different fatty deposits. Normal tissue appears at the top. Then, a steroid, cholesterol, is added, causing fat deposits and cell enlargement; next, an unsaturated fatty acid, linolenic acid, causes no fatty deposit when added with cholesterol; last, a saturated fatty acid, stearic acid (found in animal fats), is added along with cholesterol, causing a marked increase in fat deposition.

MEDICINE

Reverse Atherosclerosis

► ATHEROSCLEROSIS, the nation's single biggest killer, can be reversed, a team of Harvard Medical School scientists headed by Dr. David D. Rutstein has found.

The research team has also demonstrated that the deposit of fatty substances in the inner lining of arteries can either be prevented with unsaturated fatty acids or aggravated with saturated fatty acids.

Through the development of a new approach using tissue culture methods, the Harvard team has now made it possible for scientists to observe directly the point where fatty substances enter cells grown from human arteries.

Atherosclerosis is the disease in which fatty substances are deposited in the inner lining of the arteries. When this happens, the walls of the blood vessels are damaged and narrowed.

While conducting studies on rheumatic fever the scientists found that when cholesterol was used to determine the effect of a steroid hormone on human heart cells, the cells had granules that reacted as fats to chemical stains. This observation led to new studies on lipoid or fat deposition in tissue cultures of human aortic lining in a medium containing human blood serum.

From this followed the direct observations of the laying down of fatty substances in the blood vessel cells.

Some of the cultures were kept on the same food. Others, however, were fed cholesterol, either in alcohol solution or

bound to a protein as in human blood.

Within four or five days, in those cultures to which cholesterol was added, a deposit of fat was noted and the cells became enlarged. The amount of fatty substance deposited was directly proportional to the amount of cholesterol added to the medium.

It was also seen that cells containing the fatty material placed in normal cholesterol-free medium lost the fat deposits and regained their normal size. On the other hand, if the cells remained in the cholesterol medium, the fat deposit continued to increase until the cells died.

According to Dr. Rutstein and his associates, the deposit of fatty material in the cells produced by the added cholesterol could be prevented by adding linolenic acid, an unsaturated fatty acid found in corn oil, soybean oil, fish oils, peanut oil or cottonseed oil.

The deposit of fat in the cells could be markedly increased by a saturated fatty acid, such as stearic acid found in butterfat, coconut oil, animal fats and shortening, when added at the same time the cholesterol was added to the medium.

The scientists who reported their work in the current issue of the British medical journal *Lancet* believe they have opened the way to direct studies of the mechanism of atherosclerosis.

In addition to Dr. Rutstein, who heads Harvard's department of preventive medicine, the research team included Dr. Estelle