

MEDICINE

Arterial Problems Helped

► **SUCCESSFUL REMOVAL** of obstructions and reconstruction of diseased portions of arteries leading to the kidneys, the brain and the limbs were reported at the American College of Surgeons' sectional meeting in Washington, D. C.

Dr. Eugene F. Poutasse of the department of urology, Cleveland Clinic Foundation, told *SCIENCE SERVICE* that three-fourths of the patients undergoing surgery for kidney artery disease causing high blood pressure had obtained relief.

"Drugs also can be used to treat this type of hypertension medically," Dr. Poutasse said, "but if left untreated, 50% of such patients will die."

Technical improvements in diagnosis, pathology and surgery in the past five years have saved many lives, Dr. Poutasse explained, pointing out that "occlusive disease of the renal artery may account for 10% to 15% of cases of hypertension." Dr. Poutasse said that of 617 hypertensive patients examined at the Cleveland Clinic, 173 had occlusive disease of renal arteries.

Dr. Charles A. Hufnagel of Georgetown University Medical Center, who presided at

the occlusive arterial disease symposium, also spoke on the management of problems involving the circulation of arms and legs.

"By reconstruction of arteries to restore blood supply," he said, "many patients can be restored to long, comfortable lives."

Dr. Hufnagel said that he had found an obstruction in a crane operator's abdominal artery leading to his legs, which had become so cramped from poor circulation that he could not press the lever on his crane.

After surgery, in which artificial plastic (Dacron) was used to reconstruct the troublesome section of artery, the worker was able to return to his job without further difficulty.

Cerebral arteries also have responded to surgery after blocking of the blood supply to the brain has caused disability, but Col. George J. Hayes of Walter Reed Army Medical Center, who spoke on this phase of arterial occlusion, believes the problem can be better treated systemically, or medically, than by surgery.

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BIOLOGY

Enzyme May Clot Blood

► **THE CLOTTING OF** blood flow in hemophiliacs, or human "bleeders," and safe intravenous injection of gamma globulin with live measles vaccine are only two of the medical advances seen from studies on a tiny enzyme.

Fibrinolysin, a natural substance found in human blood, breaks down gamma globulin, the fraction of blood that carries disease-fighting antibodies. The clot-dissolving enzyme separates out another fraction which clots ruptures during surgical operations or in internal bleeding, a special problem with hemophiliacs.

The substance may eventually be used in painless shots for preventing diphtheria and tetanus, and for the treatment of agammaglobulinemia (a disease in which there is lack of natural antibody production), Dr. J. T. Sgouris, Michigan Department of Health in Lansing, reported to the Federation of American Societies for Experimental Biology in Atlantic City, N. J.

Dr. Sgouris found that minute traces of fibrinolysin in blood caused the eventual separation of disease-fighting gamma globulin fraction in blood stored for several years. Separating the enzyme from "old" blood samples, he injected large doses into fresh samples and the gamma globulin almost immediately broke down.

Since most researchers believe large molecules of gamma globulin cause pain and dangerous reactions if given intravenously in measles and infectious hepatitis vaccines, the reduction of these molecules by

fibrinolysin could probably relieve these difficulties, Dr. Sgouris said. Both vaccines are presently given subcutaneously or intramuscularly.

Fibrinolysin can be extracted economically from unusable or "old" blood and placentas gathered from hospital maternity wards, Dr. Sgouris said. Several fractions are separated in the Michigan Department of Health Laboratories for distribution to hospitals and research laboratories across the country.

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Age Lowers Immunity

► **THE DECREASE** in resistance to disease that occurs in the aged may be linked to the increased rate of cancer among old animals, five scientists reported.

They studied the effects of human tumor transplants in laboratory mice. Ordinarily, tumors from another strain or species will grow only if the recipient animals have been previously treated to lower the resistance to transplanting.

In untreated female mice, however, 57% of those aged 16 to 18 months were susceptible to human tumor transplants. The average lifetime of mice of the strain used is about two years.

Drs. M. N. Teller, W. Curlett, B. Rose, M. P. Lardis and G. Stohr of the Sloan-Kettering Institute for Cancer Research, New York, found that untreated male mice were less susceptible to human tumor implants than female mice. The tumors

included those of mammary tissue, skin and lung tissues, and fibrosarcomas, they reported at the American Association for Cancer Research meeting in Atlantic City, N. J.

From another study, Dr. June L. Biedler, also of Sloan-Kettering, told the meeting that she had found evidence for abnormalities of chromosomes in cancer cells. Chromosomes are the genetic controlling structure of the cell.

In 66 tumors induced in mice by cancer-causing chemicals, all were found to consist principally of cells with chromosomes of irregular number and structure. These observations confirm the idea that cancer involves a permanent change in the hereditary mechanism of the cell—a change that results in abnormal cell growth and is transmitted from one cell to another cell as the tumor tissue grows.

Each of the tumors was found to be different with respect to the changes in the number or structure of chromosomes, even though both the cancer-causing chemical and the host animal were often identical.

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Immunity to Insulin

► **DIABETICS APPEAR** to build an immunity against natural and injected insulin, the substance supposed to help them.

Mrs. Aline W. Berns and Dr. Herman T. Blumenthal of the Jewish Hospital of St. Louis presented findings to the Federation of American Societies for Experimental Biology in Atlantic City, N. J., which indicate that insulin may cause as many problems to diabetics as the lack of it.

The two researchers reported their work on the islets of Langerhans of the pancreas, the cells in that organ which produce the sugar-balancing insulin.

The scientists found that these islets are damaged in the diabetic when a bond is formed with the larger molecules of the immunizing antibodies. A year ago, they proved that areas in the kidney were also damaged by the same reaction.

Surmising that the patient might become hypersensitive to insulin, they studied the relationship between closure of blood vessels, blockage of vital organs, and several other blood maladies and diabetes.

Studies showed that diabetic patients have a much higher susceptibility to gangrene, heart ailments and strokes than victims of other ailments or "normal" persons.

Hypersensitivity to injected insulin might be the cause of these problems. Since these complications often precede the occurrence of high blood sugar, or occur in patients with only mild symptoms, they believe many of the individuals develop a hypersensitivity to their own insulin, causing extreme cases of diabetes.

Since other blood problems occur, such as blood vessel blockage and heart ailments, either natural or injected insulin may be causing drastic problems to the diabetic which have not previously been considered.

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