# medical sciences

CYSTIC FIBROSIS

## Diabetes ruled out

It is commonly thought that patients with cystic fibrosis also suffer from diabetes because many of them are unable to tolerate sugar. But, according to Drs. Paul di Sant' Agnese and Jesse Roty of the National Institute of Arthritis and Metabolic Diseases in Bethesda, Md., this hypothesis is not well founded.

In a comparison of patients with cystic fibrosis and those with diabetes, the NIAMD scientists found that 4 of every 10 patients with cystic fibrosis were unable to tolerate glucose, but that none of the 4 showed any abnormal tissue changes usually characterized by diabetes. Postmortem examination of 5 cases with glucose intolerance showed that although fibrous tissue had infiltrated the pancreas, there were no tissue changes apparent in the cells that produce insulin—the substance which regulates glucose.

Thus, the researchers claim, glucose intolerance observed with cystic fibrosis is not due to classical diabetes but rather to a disorganization of the insulin-producing cells as an aftermath of the fibrotic processes inherent with cystic fibrosis.

RAYNAUD'S PHENOMENON

## Reserpine brings relief

At present there is no satisfactory treatment for Raynaud's phenomenen, but scientists at the National Institute of Arthritis and Metabolic Diseases in Bethesda, Md., say that reserpine, a drug often used to control high blood pressure, has brought temporary relief to patients.

With Raynaud's phenomenon, the small arteries in the hand are constricted, disrupting the circulation. This causes the fingers to turn white, or blue if oxygen is lacking. If no primary disorder such as hypertension can explain the symptoms, then the condition is called Raynaud's disease. The condition can also affect the toes and tip of the nose.

Drs. John L. Decker and J.T. Willerson administered resperine intra-arterially to 10 patients with Raynaud's phenomenon and three with Raynaud's disease. An additional patient with Raynaud's phenomenon was treated intravenously with the drug. Reserpine, they say, by dilating the blood vessels, permits a greater supply of blood to the extremities.

Within 24 hours, seven of 13 patients treated intra-arterially and the one treated intravenously showed marked improvement, lasting up to six weeks in some instances.

HYPERTENSION

## Kidney autograft

Moving a kidney to another spot in the body offers excellent results in treating renal hypertension, a form of high blood pressure caused by obstruction of the kidney artery, according to Dr. Joseph J. Kaufman, of the University of California at Los Angeles Medical School.

The treatment was successful with a seven-year-old boy with one functioning kidney. When the artery that fed the kidney become obstructed, severe hypertension resulted.

Dr. Kaufman removed the nonfunctioning kidney and transplanted the obstructed one from its normal position to the pelvic area. The obstructed artery was repaired and the kidney was connected to other blood vessels at the new site. The boy's blood pressure and kidney function are still normal two years after surgery, the physician reports.

Normally, repairing an obstructed kidney artery is a difficult procedure because the kidney is not sufficiently exposed at its normal site. Thus, in selected cases Dr. Kaufman says, kidney transplantation may be the only means of treating hypertension caused by this type of kidney ailment.

DERMATOLOGY

## Defanging methotrexate

Methotrexate, a powerful antimetabolite effective in such skin disorders as psoriasis, blocks the abnormal spread of cells thought to cause the reddish blotches and plaques of these disorders. By halting cell growth, however, the drug also suppresses bone marrow and causes ill effects including hair loss and gastrointestinal bleeding.

Dr. Henry H. Roenigk Jr. of the Cleveland Clinic suggests overcoming this problem by changing the structure of methotrexate so that its beneficial action is focused on skin cells only. In rats, he reports, the drug has been made 52,000 times more active against certain intestinal enzymes than against liver enzymes, which proves the drug's action can be directed against certain cells.

Dr. Roenigk asserts that if structural changes could be made so that the methotrexate affects the folic acid reductase in skin and not liver, bone marrow or other organs, the drug would have more widespread use. Folic acid reductase breakdown is the conversion that starts the chain reaction that eventually produces DNA and new cell growth.

HEMATOLOGY

## Promising blood substitute

Surgeons have been seeking a substitute for blood for many years, but no substitute that would meet all the criteria has been found.

However, promise is being shown by a red liquid known as hemoglobin solution, which proves to be nontoxic, noncoagulating and capable of transporting oxygen through the body. Furthermore, the blood substitute has a long shelf life.

The red liquid, extracted from the red cells of outdated blood, was developed by a team led by Dr. S.F. Rabiner of Michael Reese Hospital and Medical Center in Chicago. After extraction, the substitute is passed twice through filters and then through an artificial kidney to free it of impurities and cell walls. Because the cell walls contain the blood type factor, the remaining solution can be used in any individual irrespective of blood type.