

MEDICINE

Artery Hardening Clue

Findings support the theory that the primary cause of atherosclerosis may not be fats, but a change within or on the blood vessel walls, Faye Marley reports.

► **CHOLESTEROL** may not be the chief cause of hardening of the arteries, atherosclerosis.

Support for the "non-fat" position is being offered in preliminary work on animals that points toward chemical changes similar to those taking place in the collagen, or fibrous tissue, of aging tissue. Collagen holds together the connective tissue around joints, supporting also the structure of the skin, cartilage, bone, tendon and the walls of blood vessels.

Working with adult but not aging dogs at Johns Hopkins University School of Medicine, scientists produced atherosclerosis by exposing the aorta to the substance glyceraldehyde, essential to body chemistry.

Dr. James R. Jude of the University's department of surgery told *SCIENCE SERVICE* that normally glyceraldehyde is broken down in the body, but accumulation might cause atherosclerosis in young persons.

"Atherosclerosis seems to be occurring more often than previously in younger people," Dr. Jude said. "We do not know yet, but it might be that failure to break down glyceraldehyde may be due to certain diseased conditions such as diabetes."

Dr. Robert A. Milch, also of the Johns

Hopkins department of surgery, said atherosclerosis probably is a complication of normal aging. He said that this work is aimed not only at better understanding of how and why atherosclerosis affects various age groups, but at whether changes of collagen in old age may have any relationship to the many degenerative diseases that affect the elderly.

Medical science is divided on explanations for the cause of hardening of the arteries. The larger group believes the direct cause is due to high concentrations of cholesterol and fats in the blood. The other group, whose position is supported by the Johns Hopkins researchers, believes certain chemical, physical or mechanical changes must occur within or on the vessel wall before fats can be deposited.

The Johns Hopkins group says their results do not rule out the significance of cholesterol in atherosclerosis, but they shift emphasis away from this fatty substance as primary cause.

Dr. Juergen Knaack of the University's department of pathology also collaborated on the research.

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MEDICINE

"Instant Exercise" Drug Usable in Heart Studies

► **ISOPROTERENOL**, a drug used for many years to bring relief from asthmatic attacks and as a heart stimulant, has been effectively substituted for exercise tests in heart diagnostic studies.

Drs. Arthur J. Moss and Edward Duffie of the University of California, Los Angeles, Medical School found the drug reproduces the essential physiological responses of the heart, lung and blood vessels to exercise.

It was found that this "instant exercise" drug increases the heart rate by an average of 55% and the respiratory rate by 23%. Blood vessels in the lungs and throughout the body are dilated by the drug somewhat more than by exercise.

These are the essential responses sought in exercise tests used in diagnosis of heart disorders, the investigators pointed out. The drug may be especially useful for this purpose in infants or others who are not able to perform effectively on a treadmill or walk up and down steps.

The UCLA doctors studied 90 heart patients using the drug. Two-thirds of the group was studied to support or confirm diagnosis of heart disorders. The others were examined to evaluate their condition following heart surgery.

The drug appears to have its greatest application in appraisal of obstructed heart valves, the doctors said.

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MEDICINE

Mental Disorder Test

► A **SEVERE** mental illness due in part to a hereditary defect in copper metabolism can be treated with drugs and diet, as well as psychotherapy, if caught in time, scientists at the Albert Einstein College of Medicine, New York, have found.

But if not diagnosed and treated promptly, this condition, known as Wilson's disease, generally leads to physical as well as mental crippling because of piling up of copper in vital organs such as the brain, liver and kidneys. Ultimately the disease proves fatal if the patient remains untreated.

A simple rapid blood test for detecting the condition has been developed by Drs. Philip Aisen and Julian B. Schorr and Prof. Anatol G. Morell.

At present, there are no accurate figures on just how many persons in mental institutions throughout the country may actually be suffering from brain injury due to Wilson's disease rather than from any basic personality disorder. However, estimates run as high as one per 1,000.

Wilson's disease may be readily mistaken for other diseases, particularly Parkinson's disease, since both conditions are associated with tremors and rigidity. It may also be confused with certain forms of cirrhosis of the liver.

These findings by the Einstein team emphasize the need for prompt diagnosis of Wilson's disease particularly because there is now a relatively simple treatment that may well prevent the damaging effects of the disorder. Even in certain cases where the disease has already gained a foothold, treatment may help undo some of the damage and restore the patients to more useful activity, the Einstein group reports.

They therefore urge that the blood test be used to screen all patients now in mental hospitals to determine which ones may have the disease so that treatment can be started and further deterioration prevented.

It is now known that Wilson's disease is due to a recessive gene. This means that a baby will have the life-threatening disease only if he inherits one such gene from each of his parents.

While infants unless they receive treatment usually die early in life, those who develop the disease during adulthood may linger on for 10 years or more.

Since it costs the United States about \$2,000 a year to care for each mental patient, it probably costs more than \$1,500,000 annually to take care of just the victims of Wilson's disease.

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Albert Einstein College of Medicine

EARLY DIAGNOSIS—Drs. Julian B. Schorr and Philip Aisen of Albert Einstein College of Medicine, New York, draw blood from baby's foot for checking in a new test they helped develop for Wilson's disease, a hereditary condition that leads to mental retardation and death unless treated promptly.