

Medical Sciences Notes

VIROLOGY

Virus Watched in Test Tube

The long-studied question of whether a virus causes human cancer may be answered soon.

A herpes-type virus, which resembles a group of viruses known to cause human disease, has been "caught in the act" of infecting and killing human cells grown in test tubes, Dr. James T. Grace Jr., director of Roswell Park Memorial Institute, Buffalo, N.Y., reports.

This virus has been found in more than two-thirds of some 150 test-tube cultures of human leukemia and lymphoma cells in laboratories throughout the world. It is "strikingly similar" from one cell line to another, Dr. Grace told the third International Symposium on Comparative Leukemia Research in Paris last week.

"We now have a 'tool' for growing the virus and watching its infectious progress on cells outside the body," Dr. Grace said. "This will permit a number of other studies. The tool is similar to that used in polio-virus research in which the viruses were propagated on monkey kidney cells."

The same virus also has been found to occasionally produce sleeping sickness (encephalitis) when injected into the brains of newborn rabbits.

"The fact that it produced a disease other than leukemia is not surprising, since it is well known that the same virus produces different diseases in different species," Dr. Grace said.

RADIATION EXPOSURE

Risks to Astronauts Weighed

An astronaut's performance could be impaired by space radiation effects during flights lasting two or three years even before his health is endangered, a report issued July 18 by the Space Science Board of the National Research Council points out.

The 291-page report of the Board's Space Radiation Study Panel advises that space radiation risks be considered in these three stages: (1) immediate performance impairment; (2) serious loss of performance over longer flight periods resulting from accumulated radiation exposure; and (3) probability of late radiation responses which may interrupt a planned series of flights or limit an astronaut's career.

Late or delayed effects, which probably would not endanger the astronaut's performance during flight, could include cataract formation, permanent skin damage, general life-shortening, increased occurrence of leukemia and other malignant diseases and genetic changes.

The report is titled Radiobiological Factors in Manned Space Flight, and is available at \$7.50 from the NAS-NRC, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

OBESITY

Work Loss in Fat People

Excessive body fat radically reduces the capacity for physical work, according to University of Wisconsin medical researchers.

People with 50 percent of their weight in fat (the men examined weighed 300 pounds) have less than half the maximum work capacity of people with 12 percent fat

(normal 165-pound men), report Drs. Jerry Dempsey, William Reddan, Bruno Balke and John Rankin.

One source of difficulty appears in the oxygen pressure maintained between blood vessels and lungs. In normal sized men, oxygen pressures between capillaries and alveoli (lung air sacs) are equal. In fat men, they are markedly different, which means oxygen isn't getting across the lung membrane very well and the added oxygen needed by exercising muscles is harder to come by.

Excess fat layers apparently burden the diaphragm, making it work harder to inflate lungs.

The result is that available oxygen decreases as the energy required for a job increases.

The doctors' conclusion: fat people have a narrow "cost-capacity margin."

GYNECOLOGY

Birth-Control Study Financed

An important prospective study of long-term effects of oral contraceptives on 10,000 to 15,000 women will soon be underway as a result of a \$585,000 contract let by the National Institutes of Health.

More than 15,000 women between the ages of 20 and 54 who have been members of the Kaiser-Permanente Medical Care Program for two or more years, and who live in the Walnut Creek, Calif., service area, will be eligible for the study. Doctors expect that about 75 percent of them will volunteer to take part in the project.

An 18-month initial phase will be concerned with organizing and characterizing the study population, collecting and analyzing preliminary data, the Public Health Service says.

The study will, hopefully, resolve the controversy among scientists as to dangers of long-term use of the pills. Blood clotting and cancer are among the reported threats, as well as alteration of genetic potential. Earlier studies looked back on women who have been taking the hormones. The prospective study looks ahead, to women who will.

DIAGNOSIS

Malignancy Predicted

Various types of cancer can be spotted many months before they become visible, a Philadelphia radiologist has discovered.

An abnormal secretion within the body's glands is formed as a result of the incipient cancer, Dr. Robert P. Barden of Chestnut Hill Hospital, Philadelphia, says in the July issue of THE AMERICAN JOURNAL OF ROENTGENOLOGY, RADIUM THERAPY AND NUCLEAR MEDICINE.

For example, in one case an abnormal endocrine activity of a lung cancer caused an acute muscle inflammation called dermatomyositis 15 months before the appearance of the malignant tumor. A skin eruption accompanied the muscle weakness.

Other body changes that may serve as a signal for cancer include thromboses, or formation of blood clots, and nerve changes.

An eruption of warty growths or dermatomyositis heralds a hidden malignancy in 50 percent of persons over 40 years of age, Dr. Barden says.