

MEDICINE

Methotrexate Cures 30 of 63 Cancer Cases

► OF 63 PATIENTS with a highly malignant form of tumor, 30 are now free of evidence of the disease as the result of chemical treatment.

Three scientists from the National Cancer Institute reported results of the treatment with Methotrexate of choriocarcinoma which develops in the womb of pregnant women. The report was given at the American Association for Cancer Research meeting in Atlantic City.

Drs. Roy Hertz, John L. Lewis Jr. and Mortimer B. Lipsett said treatment in all cases consisted of intensive courses of this folic-acid antagonist. In 14 women treatment also included brief courses of a recently developed plant derivative called Vincalcoloblastine.

The scientists said the uniquely favorable response of this rare form of cancer may be due to the fact that it originates from the cells and therefore may be more easily expelled from the mother's body.

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MEDICINE

Hope Seen for Victims Of Strokes, Rare Cancer

► HOPE IS HELD OUT in reports on phases of the two leading causes of death, heart disease and cancer, in the *Journal of the American Medical Association*, 176:19, 1961.

Anticoagulant drugs have given protection to many persons who suffer temporary "warning" strokes, three researchers in the Mayo Clinic, Rochester, Minn., report.

In addition to the use of anticoagulant drugs, which will require further testing before any final conclusions are made, an editorial says surgical repair of the fixed atherosclerotic vessels in the neck is undergoing widespread application. However, it warns that other factors limit surgical treatment.

Drs. Robert G. Siekert, Clark H. Millikan and Jack P. Whisnant report on a study involving 230 patients with incipient stroke. Recurrent, passing attacks are due to a temporary inadequate supply of blood to a portion of the brain.

Among the treated group 83% escaped a full-blown and possibly fatal stroke, while only 50% of the untreated patients escaped.

Heart disease, including disorders of the veins, is the first cause of death. Cancer ranks second.

Malignant melanoma, a rare form of cancer, usually developing from a mole, is not a hopeless disease, two articles and an editorial say in the same journal.

Dr. Arthur G. James of University Hospital, Ohio State University Medical Center, Columbus, said the "curative possibilities" of this form of cancer are definite and the patient can also be offered "good and often long-term palliation."

In a series of 130 cases at the center, the 10-year study showed the survival rate to

be 32% for five years and 19% for 10 years. Surgery was the method of treatment in 120 of the cases.

Dr. Gordon McNeer of Memorial Hospital, New York, reports that when malignant melanoma is limited to the original site, five-year survival free of cancer is attained in 40% of the cases. Even when the disease spreads, Dr. McNeer said the outlook is not hopeless, even if less favorable.

Other articles in the AMA official magazine report that:

Palm reading may offer a clue to congenital heart disease.—Drs. Alfred R. Hale, John H. Phillips and George E. Burch, Tulane University School of Medicine, New Orleans.

A new compound for treatment of a fungus skin infection known as tinea versicolor has produced excellent results. Akrinol is the name of the new agent, 9-amino-acridinium 4-hexylresorcinolate.—Dr. Erwin H. Zimmerman of Huntington, N. Y.

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Common Table Salt Can Poison Babies

► LESS THAN A TABLESPOON of salt can severely poison a healthy infant, Dr. Laurence Finberg of Johns Hopkins University School of Medicine, Baltimore, Md., reported at the American Academy of Pediatrics meeting in Washington.

Severe brain damage or even death may result, Dr. Finberg said, pointing out that the diagnosis may be overlooked. The symptoms may be confusing to the pediatrician, especially if he does not know that the child swallowed an excessive amount of salt.

The pediatrician said it was not generally known that so small an amount can poison a baby. Although this is not a common occurrence, he presented information about two cases, one of which resulted in permanent brain injury.

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CHEMISTRY

Better Motor Oils From Thermal Diffusion

► A NEW PROCESS uses "thermal diffusion" to concentrate oil molecules whose shapes give them superior lubricating ability.

Motor oils prepared by this process give 50% longer service than ordinary lubricating oils, H. E. Alford of Standard Oil Company's research department in Cleveland reported.

Laboratory tests showed very little thinning out at high temperatures and very little thickening at low temperatures. A four-month road test showed that there was a 35% decrease in oil consumption and a 50% increase in service life of the oil.

Drs. G. R. Brown and S. M. Darling were co-authors of the report, delivered to the American Chemical Society meeting in St. Louis.

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GEOPHYSICS

Deepest Hole Drilled In Ocean Floor

► THE DEEPEST HOLE ever drilled in the ocean floor reached a final depth of 12,300 feet, nearly two and a half miles beneath the surface, the National Academy of Sciences and the National Science Foundation reported in Washington.

The drill penetrated through more than 600 feet of soft sediments and a dense rocky layer before it was retrieved by the drilling barge, CUSS I, near Guadalupe Island off the western coast of Mexico. The drilling is part of the preliminary phase of Project Mohole, whose eventual goal is to drill through the earth's crust to the underlying dense mantle.

The drill actually reached the heretofore unknown second layer of the ocean floor. Core samples taken 560 feet below the floor revealed the rock layer as basalt, a dense rock formed by the solidification of a once-molten material.

Scientists knew indirectly that the layer existed because seismic waves penetrating the soft ocean sediments bounced back when they hit the layer. Another hole that may reach even greater depths is now being drilled nearby.

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GENERAL SCIENCE

Top International Event For Teenaged Scientists

► THE TOP international event for teenaged scientists will be held in Kansas City, Mo., when the 12th National Science Fair-International opens on May 10.

The official party is expected to total more than 1,000 persons. Some 380 finalists from more than 200 regional and area science fairs affiliated with the international program, conducted annually by SCIENCE SERVICE, will arrive May 8 and 9, accompanied by science fair directors, teachers and press representatives.

Science fairs being held this spring in this country, Puerto Rico, Canada, Japan, Thailand and the Army Dependents Schools in Germany, France and Italy will select their outstanding exhibitors for all-expense trips to compete at the 12th annual fair.

Cooperating with the National Science Fair-International, leading industries and organizations of the Kansas City area are making extensive preparations for the event.

Leo Roedl, executive secretary of Science Pioneers, is chairman of the committee at Kansas City. Dr. Max H. Thornton, vice president and technical director of Midwest Research Institute, is chairman of the executive committee for the fair.

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CE FIELDS

DENTISTRY

Mayflower Genealogy Shows Poor Teeth Legacy

► AT LEAST TWO FAMILIES with Mayflower ancestry are not proud of their dental inheritance.

The defect they have inherited causes a brown opalescent appearance of the teeth. The disorder, called dentinogenesis imperfecta, softens the dentin, the substance immediately under tooth enamel. It is an inherited disease.

The two families with the dental disease were both descended from persons who came over on the Mayflower. Dr. Sidney B. Finn of the University of Alabama School of Dentistry, Birmingham, reported to a symposium on genetics related to dental health at the National Institute of Dental Research, Bethesda, Md.

It is entirely plausible, he said, that the families are related, since it would not be likely that two families with this defect would be on the historic ship.

In a survey of 96,000 children in Michigan, Dr. Finn reported, one in every 8,000 was found to have the disorder. It has been traced back hundreds of years in various families.

Although the tooth enamel is usually of a normal thickness, it fractures easily. The crowns wear easily and are frequently seen level with the gum line.

In spite of the softness of the dentin and the fact that the teeth often have small roots, jacket crown restorations have been retained in at least one case for 16 years.

The American Dental Association sponsored the symposium, which was the first to be held on dental genetics.

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Hope Seen for Skid Row Chronic Alcoholics

► THERE IS HOPE for the skid row alcoholic.

Studies of some 40 chronic alcoholics who had been treated and then followed up by workers in the Temple University Alcoholism Project in Philadelphia were reported by Dr. Victor J. LoCicero, director of the project, sponsored by the department of psychiatry in the Temple University Medical Center.

The findings should be interpreted with caution because of the small number of patients who could be followed up, Dr. LoCicero told the National Council on Alcoholism meeting in Washington. But improvement was seen in some patients.

Patients who had been treated by group psychotherapy showed better control of drinking, and their tendency to relapse was 25% lower than among those untreated.

Some of them had left skid row and were renting on a longer-time basis. There was less use of free housing and transient quarters. Greater interest in marriage and family living, in organizations and religious affiliations were seen, and some of the treated patients were actually employed.

"One individual repaid some of the money loaned him," Dr. LoCicero said. "This was the first time in his life that he had repaid a debt. . . . Another participant remained sober and held a job for six months, after 20 years of chronic intoxication and inability to hold a job for more than a few days at a time."

Female group therapists get better responses than male therapists in attendance at meetings following discharge of prisoners, Dr. LoCicero reported.

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No Lower Limit For Radiation Damage

► THERE IS NO lower limit to the amount of radiation that will cause damage to mice.

The problem of how much radiation is harmful to humans is still being investigated, Dr. William L. Russell of Oak Ridge National Laboratory, Oak Ridge, Tenn., reported. He told a symposium on dental genetics in Washington, D. C., that the effects of radiation exposures on mice showed no difference in mutation rates when dosages were equal over varying periods of time.

In his experiments with mice, Dr. Russell found that a dosage rate of 300 roentgens at 90 hours per week caused mutation rates equal to a dosage of 10 roentgens per week during 30 weeks.

During fluoroscopic examinations of humans, the dose rate to the gonads (sex organs) is probably not higher than 48 roentgens per hour, Dr. Russell said. He said the "genetic risk from such exposure would be somewhat lower than had been estimated on the basis of high dose rates."

Dr. James V. Neel of the University of Michigan Medical School said the next advances in dental genetics would come from a study of tooth structure.

"A tooth is not a plug of ivory sitting in our mouths," he explained. "It is active metabolically."

Inherited dental abnormalities will "play the same useful role that the inborn errors of metabolism do for medicine," Dr. Neel told the symposium, sponsored by the American Dental Association and supported by a grant from the National Institute of Dental Research.

Dr. Neel said that the possible effects of the genes are completely overshadowed by the effects of poor diet and poor dental hygiene. It is extremely difficult for the geneticist to determine what role inherited factors play in dental decay because of these nongenetic factors. He included among nongenetic factors "a diet rich in sugars and refined foods." He said changing dietary patterns make long-term studies difficult.

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Use Steroids Cautiously, Pediatricians Warned

► HAZARDS as well as benefits result when corticosteroid drugs are prescribed for children's ailments, Dr. Thomas A. Good of the University of Maryland School of Medicine, Baltimore, cautioned in Washington.

Treatment with these drugs is indicated, Dr. Good told the meeting of the American Academy of Pediatrics, in such diseases as lymphatic leukemia, juvenile rheumatoid arthritis, progressive systemic sclerosis, meningeal tuberculosis, nephrosis and serious chest diseases, intractable asthma and sarcoidosis.

In most of the inflammatory diseases in which corticosteroids are used, an initial large dosage is required, but the dosage is then tapered to achieve the lowest maintenance required.

If there are side effects of major importance such as high blood pressure, inflammation of the blood vessels, mental disturbances, convulsions, peripheral neuritis, ulcers, fractures and diabetes, serious consideration should be given to stopping the steroid treatment.

Minor side effects can be controlled by simple measures such as diet, antacids, or tranquilizers, Dr. Good said.

Discontinuation of steroid therapy must be managed carefully. Rapid "weaning" should be avoided, as patients may actually appear to be addicted to a steroid.

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PHYSICS

Origin of Oceans Seen Related to Solar Wind

► THE OCEANS of the earth were formed when particles of hydrogen traveling from the sun changed to water when they reached the earth.

Hydrogen ions riding on a so-called solar wind combine with oxygen of the earth, forming droplets of water, Dr. C. M. de Turville of Bristol, England, reports in the British scientific journal *Nature*, 190:156, 1961. This process which has been occurring for billions of years, is still continuing.

Dr. de Turville says that if the total amount of hydrogen ions bombarding the earth throughout history was converted to water, the result would be an amount equivalent to the present volume of water stored by the oceans. Although some of the hydrogen particles are captured by the earth's magnetic field, the volume of water formed would still be approximately that found in the oceans.

About one and a half tons of hydrogen particles plummet to earth each second, the scientist estimates. The solar wind, which carries the particles, continually sweeps in from the sun at millions of miles an hour. The wind was measured recently for the first time when a U. S. rocket, laden with special instruments, was shot into space.

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