

MEDICINE

New Weapons Against Cancer

U.S. and Russian scientists use radioactive phosphorus to diagnose stomach cancer but in different ways, Faye Marley reports from the International Cancer Congress at Moscow.

► **WHETHER** a patient has stomach cancer or some benign gastric condition can now be determined by new effective use of radioactive phosphorus, researchers from Minneapolis, U.S.A., and Moscow, USSR, reported in Moscow.

Stomach cancer is one of the most difficult kinds to diagnose because it rarely shows up in X-ray pictures. Although it has been known for 20 years that radioactive phosphorus P-32 is taken up by malignant tumors, its use has been ineffective because of the relative inaccessibility of stomach cancer to the Geiger counter or Geiger-Mueller tube.

Dr. Norman B. Ackerman of the University of Minnesota Medical School told the Eighth International Cancer Congress that a one-hour test with a thin-walled rubber balloon coated with a latex-base photosensitive emulsion is successful when the balloon is passed inside the patient's stomach after he has received a tracer dose of P-32. The balloon is inflated with air and left in place for the duration of the test. This is called radioautography. It is now being adapted for use in diagnosis of other cancers, including breast, cervix and bladder. Four hundred patients were tested in Minnesota.

Dr. E. I. Voznyuk of Moscow reported work with P-32 involving stomach washing of 52 patients. He used a beta-counter to examine water radioactivity received with stomach washing. Organic stomach diseases without malignancy showed no local rise of radioactivity and insignificant quantity of P-32 in lavage water. The presence of more than one percent of the P-32 injected dose may indicate malignancy. The test is not effective when tumors have spread, however.

Electrons Fight Breast Cancer

A super-voltage electron treatment for breast cancer that spares the healthy tissue and can be used both before and after operation was announced to the International Cancer Congress by two West German doctors.

Another breast cancer treatment also reported was the use of a radioactive "hot" wire to destroy spreading wild cells, performed successfully on 70 patients at the Sloan-Kettering Cancer Center, New York.

The new German irradiation method uses fast electrons (electricity particles) generated by a super-voltage betatron. Drs. Friedhelm Oberheuser and Gerhard Schubert of the University Hospital of Hamburg found that it is effective before operations and on inoperable cases. Non-cancerous portions are little damaged.

To reach the wild cells of the breast

cancer that remain in 30% of the patients after operation, radioactive iridium-192 and cobalt-60 in the form of wire is inserted into a breast artery to bombard up to a week the dangerous malignant bodies. Drs. Richard D. Brasfield and Ulrich K. Henschke of New York reported this is much more effective than X-radiation from the outside and does not damage the surrounding tissues so severely.

Postoperative Radiotherapy

Norwegian women have breast cancer more frequently than any other type, with cancer of the stomach and uterine cancer second and third, Dr. Selmer Rennes of the Norwegian Radium Hospital, Oslo, reported. Postoperative radiotherapy has been used in follow-up treatment of all patients that survived initial surgery. Some have lived as long as 30 years as a result of this thorough procedure.

Uterus Preservation Advised

Preservation of the female uterus among young women who wish to have children was advised by several speakers, including Dr. Gunther Uhlmann of Hamburg University. A few years ago a total hysterectomy (removal of uterus and ovaries) was regularly performed on women with cervical cancer. Now the neck of the uterus alone is treated among women under 40.

Dr. E. Bahrmann of East Berlin reported on more than 2,000 biopsies to determine whether the cervix was actually cancerous or only "pre-cancerous." After a five-year observation of 165 cases, he said only one patient turned out to have cancer. He believes the least surgical interference should be used in cases of this kind.

Throat and Mouth Cancers

Heavy tobacco habit in any form accounted for almost all male upper throat and mouth cancers in South India, Drs. V. Shanta and S. Krishnamurthi of Madras reported. Dr. J. C. Paymaster of Bombay said a detailed study of more than 100,000 proved cancer cases collected from 14 hospitals in different parts of the country showed 39% of the cancers were oral and pharyngeal.

But there is a high percentage of stomach cancer in Bangalore. Skin cancer is rare except in Kerala.

Short-focused X-raying was reported as the "method of choice" in treating more than 1,000 cases of skin and lower lip cancer in the USSR State of Georgia, where both forms of cancer are common among

villagers, most often among women. Dr. K. K. Madich and his co-workers in Tbilisi pointed out that good cosmetic and functional effect had been observed over a period of 10-year follow-up of patients treated by X-ray.

Geographical Pathology

At a symposium on the geographical pathology of cancer, representatives of the People's Republic of China told of a mass survey of carcinoma of the esophagus predominant in North China. Vietnamese Democratic Republic scientists said the most frequent cancers in North Viet-nam were of the stomach, penis (16% of male cancer types), liver and oral cavities.

Geological Causes

Drs. J. Barany and Lajos Galacz of Veszprem, Hungary, suggested that radioactive stones in rock formations from the Permian age they had studied in a hilly district near a lake implied a relationship between geological formation and cancer.



DISJOINTED NOSE—An inspector's shadow diffuses in a ghost-like shape as light shines inside an airplane nose section. The radome, constructed of strips of fiber glass honeycomb covered with a resin-impregnated glass fiber skin, is being constructed by Goodyear Aircraft Corporation to house antenna equipment for a modified version of the KC-135 jet tanker. The structure which is nine feet long and seven feet wide at the base is designed to withstand speeds approaching that of sound.

New Drug for Leukemia

West Berlin researchers reported use of a new drug, also used at the National Institutes of Health, Bethesda, Md., and in Hungary for treatment of humans suffering from leukemia. The drug is vincalcalbin, an alkaloid obtained from an extract of *vinca rosea* linn.

Antitumor Power

Dr. E. M. Vermel of the Institute of Medicinal Plants, Moscow, told about 500 plant species that had been studied with the result that some of them are believed to possess antitumor power.

The theory of the treatment is that tumor growth is related to food, which for animals consists primarily of plant products. Growth-stimulating substances called auxins, as well as substances that retard growth (anti-auxins), play an important part in the life of plants.

Cancer Control Discussed

Cancer control was discussed by Dr. Murray Copeland of the University of Texas M. D. Anderson Hospital and Tumor Institute, Houston, who told of the need for a uniform standard of cancer appraisal. Dr. M. V. Danilenko and his co-workers in Vinnitsa, USSR, said seminars to increase the knowledge of all medical staff concerning cancer are attended by 250 doctors and 1,000 workers with secondary medical education annually. One of the leading aims in the USSR is to achieve annual surveys and check-ups for cancer.

New treatment for cancer and long-term results of treatment by surgery, radiation and drugs showed improved survival rates almost universally. Occupational cancers and other environmental causes were discussed, and Dr. W. C. Hueper of the National Cancer Institute, Bethesda, Md., recommended an international clearing-house within the framework of the World Health Organization.

The International Union Against Cancer, which sponsors the cancer congresses, is composed of 87 organizations in 62 countries and collaborates with the World Health Organization. It is non-governmental but receives its largest support from the National Institutes of Health of the United States.

The new president inaugurated at the close of the conference is Dr. Alexander Haddow of the Chester Beatty Institute for Cancer Research, London, England.

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AUTOMATION

Electronic Automation For Cancer Drug Tested

► ELECTRONIC automation is increasing the accuracy and speed of analyzing cancer-combating drugs at the University of Colorado, Boulder. Crystal analysis diffraction equipment is hitched to punched tape that can be fed into a computer for processing.

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MEDICINE

Older Persons Suffer More From Heart Disease

► MORE older men and women are hospitalized for heart disease than for any other nonsurgical condition, the statisticians of Metropolitan Life Insurance Company report.

A study of the company's retired personnel shows also that the hospital admission rate for heart disease rises with advance in age. In 1959-60, the rate for retired men increased from 18 per 1,000 under age 65 to 36 per 1,000 at ages 75 and over. The relative frequency of the disease was considerably greater for the men than for the retired women at every age group. Coronary artery disease accounted for about half of all the heart disease cases among both men and women.

Diseases of the digestive system ranked second as a cause of hospitalization for nonsurgical conditions among the retired personnel in both sexes. Other relatively common illnesses were respiratory diseases and cerebral hemorrhage.

Mental disease accounted for a very small proportion of the cases in this experience but was responsible for long periods of hospitalization. Among the retired men, for example, the average hospital stay for psychoneuroses and psychoses increased from 40 days per case at ages 65-74 to 130 days at ages 75 and over.

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MEDICINE

More Premature Births Among Smoking Mothers

► PREMATURE BIRTHS—an important cause of brain damage and death—occur more frequently among mothers who smoke than among non-smokers, a study by the Public Health Service has confirmed.

Birth weight is reduced with increased smoking, the nationwide study of 23,000 expectant mothers and their babies showed.

The study also showed that prematurity, stillbirths and brain damage are linked with some previously unsuspected events of pregnancy, such as Asian flu and vaginal infection. More than 40% of a group of study infants diagnosed as abnormal at the eight-month psychological examination had suffered breathing difficulties at or soon after birth.

When a mother has Asian flu early in pregnancy, the infection may affect the unborn child. No flu symptoms were present in 40% of the cases and diagnosis could be made by blood test only.

High rates of prematurity and infant death were found to be associated with diagnosis suggesting inflammation of the placenta, fetal membranes, and umbilical cord.

The findings are the first results of a long-range project, according to Dr. Richard L. Masland, director of the National Institute of Neurological Diseases and Blindness.

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Do You Know?

Current findings tend to challenge a long held assumption that there are basic and absolute differences in the vital *chemistry* of normal and tumor cells.

Trachoma is one of the most widespread infections in the world today affecting an estimated 15% of the population of the earth, and is a major cause of blindness in Asia, the Middle East and Africa.

Euclid's "*Elements*," written in 300 B.C., was used as a textbook in essentially its original form until about 75 or 100 years ago.

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