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CLEVELAND CLINIC AND LEWIS RESEARCH CENTER JOIN IN EXPERIMENTAL CANCER TREATMENT PROGRAM

CLEVELAND, OH -- Cancer researchers have joined hands with space technologists here.

The Cleveland Clinic Foundation and the National Aeronautics and Space Administration's Lewis Research Center said an agreement had been signed between the two institutions by which the latter's 50 million-volt cyclotron will be used in clinical trials of neutron therapy in the treatment of tumors.

The first patient has received treatment.

Dr. William S. Kiser, chairman of the Clinic's board of governors, said the program will be funded for three years by a $519,000 grant from the National Cancer Institute. The $200,000 cost of necessary modifications of the cyclotron facilities, to make them suitable for patient care, was paid by the Clinic.

Patients, who will receive the treatments at the campus-like NASA

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complex at 21000 Brookpark Road, will be selected by physicians throughout the Great Lakes area in coordination with the staff of the radiation therapy department of the Cleveland Clinic. Clinic physicians will administer the treatments in coordination with each patient's referring physician. These activities are integrated in the program of the Cancer Center of Northeast Ohio, Inc., of which Cleveland Clinic is a member.

Cleveland is the fourth area of the country where such trials are underway. Other "fast neutron" treatment centers are at M. D. Anderson Hospital and Tumor Institute, Houston, Texas; U. S. Naval Research Laboratory, Washington, D.C., and Fermi National Accelerator Laboratory, Batavia, Illinois.

The Cleveland Clinic Foundation is one of the world's largest privately-funded medical centers. Its group practice staff of 300 physicians and scientists provides specialty care for nearly 3,000 patients each day. The institution has a 1008-bed hospital, extensive outpatient facilities, a division of research and an institute for postgraduate and continuing medical education that serves approximately 2,500 physicians annually.

"Neutron therapy has shown beneficial results in the treatment of certain tumors, but it is still largely an investigative technique. We view the program as a challenging opportunity to evaluate this relatively new approach to radiation treatment," said Dr. Antonio R. Antunez, head of radiation therapy for Cleveland Clinic and medical director of the cyclotron program.

Of NASA's involvement, Dr. Bernard Lubarsky, acting director of Lewis, said: "It is always gratifying to be able to transfer space technology to the health field, and we at Lewis are particularly pleased in this case to be able to contribute to new studies of a public health problem of worldwide concern. Whatever progress we make in this team approach will be

well worth the effort."

Basic steps in adapting the Lewis cyclotron to its new role included rerouting of the neturon beam, calibrating the instrument so as to provide exact prescribed dosage levels, and construction of a properly shielded patient treatment room together with associated facilities. The Lewis facility will allow for treatment of the patient in either a vertical or horizontal position. The unique aspect--vertical neutron beam treatment--doctors believe will make it possible to more readily treat tumors located in the thoracic or pelvic regions.

Why is neutron therapy used only in the case of carefully selected patients, and how does it differ from conventional radiation therapy?

"To be a suitable candidate for neutron therapy a patient must have a tumor that has not spread and which cannot be effectively treated by conventional procedures such as surgery, cobalt, x-ray or chemotherapy," said Dr. Antunez.

In the "fast neutron" procedure at Lewis, the physician will determine the amount of radiation the patient is to receive and enter this and other information on a keyboard terminal connected to a computer located in the cyclotron control room. The patient's exposure will be continuously monitored and automatically terminated by the computer when the proper dosage has been given. Independent circuitry will also monitor the exposure so that dosage levels can be maintained in the unlikely event of computer failure during treatment.

Early attempts at a neutron therapy took place prior to World War II in Berkeley, California. But wartime demands limited use of available cyclotrons to atomic weapons research so that clinical trials were not resumed until 1968 in England. In 1972 encouraging results from neutron

therapy experimentation at Hammersmith Hospital in London spawned similar programs in this country at Houston and Washington, D.C.

The earliest cyclotron at Lewis dates from 1956. Its principal use then was to perform radiation studies related to nuclear propulsion systems for aircraft and spacecraft. In 1972 this cyclotron was modified to produce the present computer-operated system. In addition to being used in nuclear propulsion studies at the Center in recent years, the cyclotron has also been involved in the production of radioisotopes for diagnosis of heart disease.

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