MPRI treats first patient using robotic gantry system(图)

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March 28, 2007,BLOOMINGTON, Ind. -- A team of medical professionals at the Midwest Proton Radiotherapy Institute (MPRI) and Indiana University Cyclotron Facility (IUCF) have treated the first patient in the world using an industrial robotic patient positioning system with a rotating gantry.

The gantry is used to rotate the entire apparatus for beam delivery, so that protons aimed at the tumor can enter the patient's body from multiple directions. The combination of the gantry and positioning system allows MPRI to utilize additional beam angles to treat spinal cord, head and neck, and brain tumor patients in such a way as to increase the sparing of healthy tissue.

The first patient underwent the treatment procedure for prostate cancer on March 21. Although the proton gantry system is only treating deep-seated tumors at this time, MPRI will be able to begin treating patients with tumors at shallower locations in the body in the next few months.

This rotating gantry Proton Therapy System (PTS) was designed, installed and tested by IUCF from 2003 to 2006, and has been cleared by the U.S. Food and Drug Administration.

The novel PTS builds on IUCF's experience with the first MPRI treatment room, which has treated more than 240 patients in the last three years. The system in the first treatment room uses the robotic patient positioning system coupled with a fixed horizontal beam line. The robotic arm allows more flexibility in positioning the patient than traditional couch designs used in conventional X-ray therapy or other proton centers in the nation.

"Proton therapy has long been regarded as a preeminent form of delivery of irradiation for tumors, both benign and malignant. However, the traditional delivery methods have been laborious, allowing only a handful of patients per day to be treated with the 1mm exactitude, taking advantage of the significant savings from proton radiation to 'normal', non-targeted tissue," said MPRI Medical Director Allan Thornton, M.D.

Fundamental to the design of this new treatment delivery system is the electronic integration of full control of the system under a single-user interface. This software helps the radiation therapists check for errors and reduces the time needed to deliver the beam.

"With the opening of this new treatment room, and the help of additional physicians from Clarian Health Partners and the IU School of Medicine the institute expects to boost its patient treatment capacity, both in quantity and complexity," Thornton said.

"MPRI is a joint venture of Clarian and the IU Research and Technology Corporation and also works very closely with the School of Medicine," said Jim Buher, MPRI's president and chief executive officer

The proton beam delivered to MPRI by IUCF utilizes cyclotrons and other equipment that were previously used for a national program of basic research in nuclear forces.

Although many patients have been referred to MPRI from other physicians for the treatment of tumors and benign diseases best suited for proton therapy, many patients are self-referrals, having discovered the benefits of proton therapy at MPRI through the internet, presentations by MPRI physicians and friends.

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