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Toshiba Energy Systems & Solutions Corporation

Commencement of Treatment Using Toshiba Heavy Ion Therapy System at the Yonsei University Health System ~First heavy ion treatment in Korea ~.

Toshiba Energy Systems & Solutions Corporation (hereinafter "Toshiba ESS") is pleased to announce today the commencement of treatment using a heavy ion therapy*1 system supplied by Toshiba ESS in collaboration as a consortium with DK Medical Solutions, for the Yonsei University Health System (hereinafter "YUHS"), one of the leading providers of medical services in Korea.

Toshiba ESS has supplied two rotating gantry-type treatment rooms and a horizontally fixed beam treatment room, the latter of which have now begun providing treatment. The treatment in the rotating gantry*2 treatment rooms is scheduled to start later in 2023.

This system has several features, including saving energy and space, providing easy operation, and creating less waste*3, similar to the model delivered to the East Japan Heavy Ion Center at the Faculty of Medicine, Yamagata University by incorporating state-of-the-art technology provided by Toshiba ESS, this system is capable of three-dimensional, high-speed scanning irradiation and respiratory-gated irradiation. The company began installing the system in 2021, and after obtaining approval from the Ministry of Food and Drug Safety, treatment has now started.

Toshiba ESS developed this heavy ion therapy system through collaboration with the National Institute for Quantum Science and Technology (hereinafter "QST"). In 2016, the world's first rotating gantry-type heavy ion therapy system, in which its compactness was achieved by using superconducting magnets in beam lines, was installed at QST Hospital. With the company's proven experience and technologies, this system was put forth in the international market, leading to orders from YUHS and Seoul National University Hospital in South Korea. The company also actively promoting order activities in U.S and China, where there is high demand.

Shinya Fujitsuka, Director and Senior Vice President at Toshiba ESS, said, "Toshiba ESS is highly honored to announce the commencement of treatment using our heavy ion

therapy system at YUHS. Toshiba ESS will continue to contribute to the expansion of heavy ion therapy worldwide and to the realization of high-quality cancer treatment."

*1A type of external radiation therapy that accelerates carbon ions to about 70% of the speed of light to form carbon ion beams (heavy particle beams) and irradiates cancer tumors from outside the body. Heavy ion beams are less likely to spread in the body and can be pinpointed to focus on cancer tumors, and are thus less likely to damage normal surrounding cells. In addition, this therapy has the advantage of having a greater capability to destroy cancer cell genes than other types of radiation, and is said to be a treatment method that enables early rehabilitation while putting less of a physical burden on the patient.

*2 Since the irradiation angle can be freely set at 360 degrees, cancer tumors can be irradiated from an optimum angle while the patient maintains a comfortable position. In addition, by combining the low scattering characteristics of heavy ion beams with scanning irradiation technology, it is possible to avoid healthy tissues and protect organs, further enhancing the dose concentration to the cancer tumors.

*3 Since the compensation filter and patient collimator required in the conventional method are not required here, the treatment period can be shortened and the amount of radioactive waste can be reduced.

Related Photos

Heavy-ion therapy building

horizontally fixed beam treatment room

Accelerator