

Taiwan researchers develop new breast cancer treatment technique



Chen Gin-shin (center). CNA photo Sept. 13, 2021

Taipei, Sept. 13 (CNA) Researchers at Taiwan's National Health Research Institutes (NHRI) have developed an innovative system of clinical treatment for breast cancer that reduces skin burns, leaves no scars and causes few side effects for patients, the institution said Monday.

According to the NHRI, the system consists of devices including a ring-shaped high-intensity focused ultrasound (HIFU) transducer, a commercial power amplifier, a mechanical positioner and graphical user-interface control software.

The HIFU ablation is a non-invasive therapeutic technique that uses non-ionizing ultrasonic waves to heat or ablate tissues, such as tumors, and requires no surgery. It has emerged in recent years as a non-invasive new treatment for breast cancer.

Chen Gin-shin (陳金新), who heads a research team at NHRI's Institute of Biomedical and Nanomedicine, said its system was developed to overcome several problems commonly seen with the current HIFU procedure, such as skin burns.

The NHRI's new system reduces treatment time and improves

high-precision ablation under imaging guidance, and the ring-shaped HIFU transducer can also minimize damage to chest tissue, the lungs or the heart, Chen said.

With this system, the ablation of a 5-centimeter tumor can take just 30 minutes, he added. According to the NHRI, the removal of a 3-5 cm cancerous tumor using a conventional HIFU technique can take up to two hours to complete.

In Taiwan, breast cancer is the most common cancer among women, the institution said, noting that clinical treatments include surgery, radiotherapy, chemotherapy, hormone therapy, targeted therapy, and combination therapy.

However, women with breast cancer suffer from a risk of complications, a high re-excision rate, an occasional need for breast reconstruction after surgery, and possible side effects from radiation and chemotherapy, it explained.

And even though the HIFU procedure has in recent years become a highly popular option among patients, the NHRI said roughly 30-40 percent of them still face the risk of musculoskeletal or heart burns.

Liang Kung-ye (梁國業), who heads the research institution, said it is seeking partners for technical transfer so that its prototype system could reach the mass market.

The NHRI's research findings have been published by the IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control.

(By Chen Chieh-ling and Ko Lin)

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