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[\[Medicine\] Chang Gung Hospital Presents Globally Innovating Nonintrusive Brain Tumor Therapy, Making Temporary Nano-Breach on Brain-Blood Barrier](#)

[Medicine] Chang Gung Hospital Presents Globally Innovating Nonintrusive Brain Tumor Therapy, Making Temporary Nano-Breach on Brain-Blood Barrier ([Chinese Version](#))

Now News, udn.com (2010/08/11), CNA, The Liberty Times & udn.com (2010/08/10) The research team of the Department of Neurosurgery, Chang Gung Hospital, combines the magnetic nano-drug therapy and the focused ultrasound therapy and makes a breakthrough in brain tumor treatment. With the focused ultrasound, the team finds a way to temporarily loosen the cerebral vascular tissue, which allows the nano-drugs to pass through; with the magnetic nano-drugs, the team can direct the drugs to the temporary breach and concentrate the drugs in the focused spot, making the drug treatment more efficient while decreasing the patient's all-over loading. The new therapy is expected to enter the clinical experiments stage in four to five years.

The therapy is divided into two parts. First, the focused ultrasound projected on the patient's head can loosen the cerebral vascular tissue for a short spell so that the drugs in nano-scale can pass through the brain-blood barrier (BBB). According to Hao-Li LIU, Associate Professor, Department of Electrical Engineering, Chang Gung University, with a specific frequency, the focused ultrasound can penetrate the skull, stimulating and shrinking the vascular epithelial cells, so that a temporary breach on the brain-blood barrier can be made. The breach can stay for from half an hour to two hours after each stimulation, which allows the chemicals to enter the brain tissue.

Then, the magnetic nano-antineoplastics will be injected and directed to the tumor location with powerful magnets. Opposite to the traditional treatment which makes the chemicals spread all over the body, the innovating therapy increases the drugs density in the tumor area twenty times than the former. The animal experiments also indicate a survival rate 1.66 times than the former. Besides, the magnetic drugs can be imaged with MRI so that their status in human tissues can be observed easily.

The brain-blood barrier would be activated to prevent the external substances into the brain, including the drugs, indicated Kuo-Chen WEI, Chairperson of the Brain Tumor Division of Neurosurgery, Chang Gung Hospital. Now, with the new therapy innovated by the research team of Chang Gung Hospital, brain tumor can be treated nonintrusively. It is estimated that in four to five years the therapy will enter the clinical experiments stage.

Further Information:

[Udn.com 2010/08/11](#) (Chinese)

[Now News 2010/08/11](#) (Chinese)

[CNA 2010/08/10](#) (Chinese)

[The Liberty Times 2010/08/10](#) (Chines)

[Udn.com 2010/08/10](#) (Chinese)

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