Poster PE-14

Acupuncture stimulation for motor cortex activities: Evidence from 3T functional MRI study

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Purpose : To investigate whether or not acupuncture of GB34 produces a significant response of the modulation of somatomotor areas by functional magnetic resonance imaging (fMRI) study.

Materials and methods : The acupoint, GB34, located in the back of the knee, is known to be effective in recovering motor function after stroke.Using 3T MRI scanner, functional MR imaging of the whole brain was performed in 12 normal healthy subjects during two stimulation paradigms; acupuncture manipulation on GB34 and sham points.This study investigates the activation of the mortor cortex elicited by a soft and an intensified stimulation of GB 34.Three different paradigms were carried out to detect any possible modulation of the Blood Oxygenation Level Dependent (BOLD) response in the somatomortor area to motor stimulation through acupuncture.

Results : Group analysis from seven individuals showed that bilateral sensorimotor areas (BA 3,4,6 and 7) showed stimulation related BOLD signal contrast of approximately 6% whereas very few areas were activated when sham stimulation is given.

Conclusion : The present study shows that acupuncture fMRI study can be safely conducted in 3T MRI environment, and acupuncture stimulation in GB34 modulates the cortical activities of the somatomotor area in human.The present findings may shed light on the CNS mechanism of motor function by acupuncture and form a basis for future investigations of motor modulation circuits in the stroke patients.

Acknowledgement : This study was supported by a grant of the Mid and Long Term Nuclear R/D Plan Program, Ministry of Science and Technology, Republic of Korea.