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Ear acupuncture and fMRI: a pilot study for assessing the specificity of auricular points.

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Abstract

In recent years research explored different acupuncture stimulation techniques but interest has focused primarily on somatic acupuncture and on a limited number of acupoints. As regards ear Acupuncture (EA) there is still some criticism about the clinical specificity of auricular points/areas representing organs or structures of the body. The aim of this study was to verify through (**Functional magnetic resonance** imaging) fMRI the hypothesis of EA point specificity using two auricular points having different topographical locations and clinical significance. Six healthy volunteers underwent two experimental fMRI sessions: the first was dedicated to the stimulation of Thumb Auricular Acupoint (TAA) and the second to the stimulation of Brain Stem Auricular Acupoint (BSAA). The stimulation of the needle placed in the TAA of the left ear produced an increase in activation bilaterally in the parietal operculum, region of the secondary somatosensory area SII. Stimulation of the needle placed in the BSAA of the left ear showed a pattern that largely overlapped regions belonging to the pain matrix, as shown to be involved in previous somatic acupuncture studies but with local differences in the left amygdala, anterior cingulate cortex, and cerebellum. The differences in activation patterns between TAA and BSAA stimulation support the specificity of the two acupoints. Moreover, the peculiarity of the regions involved in BSAA stimulation compared to those involved in the pain matrix, is in accordance with the therapeutic indications of this acupoint that include head pain, dizziness and vertigo. Our results provide preliminary evidence on the specificity of two auricular acupoints; further research is warranted by means of fMRI both in healthy volunteers and in patients carrying neurological/psychiatric syndromes.

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