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Acupuncture-induced cerebral blood flow responses in dystonia

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Objective: The effect of acupuncture (ACP) on regional cerebral blood flow (rCBF) is unclear. Single-photon emission computed tomography studies on three patients with dystonia were performed before and after ACP treatment to test the contention that ACP affects rCBF. ***Methods:*** Pre-ACP and post-ACP CBF study were performed on the same day; ^{99m}Tc ethyl cysteinate dimer was injected for each study. rCBF images were analyzed using a three-dimensional stereotaxic ROI template (3DSRT) to objectively measure rCBF. We evaluated rCBF bilaterally in five segments related to the pathophysiology of dystonia (1, superior frontal; 2, middle and inferior frontal; 3, primary sensorimotor; 4, lenticular nucleus; and 5, thalamus). More than 10% left-right asymmetry in rCBF over three continuous slices was defined as significant laterality. Post-ACP rCBF and laterality were evaluated with the pre-ACP rCBF study acting as a control in each subject. ***Results:*** The clinical effect of ACP was remarkable in all patients and rCBF increased in most segments. Pre-ACP rCBF exhibited significant laterality in eight segments of the three patients. Laterality reversed in seven of these segments and resolved in the remaining segment after ACP. Pre-ACP rCBF laterality was not preserved in any segment after ACP. The remaining five segments exhibited laterality only after ACP. In total, after ACP, 13 of 15 segments demonstrated a change in CBF that was greater unilaterally. ***Conclusions:*** ACP results in an increase in CBF that is greater unilaterally. We think that unilateral change in CBF may be correlated with the action of ACP on the central nervous system in patients with dystonia.

Key words: dystonia, acupuncture, cerebral blood flow