Effects of GV20 acupuncture on cerebral blood flow velocity of middle cerebral artery and anterior cerebral artery territories, and CO2 reactivity during hypocapnia in normal subjects.

Abstract

OBJECTIVES:
Acupuncture has been gaining popularity among practitioners of modern medicine as an alternative and complementary treatment. However, the mechanism of its therapeutic effect still remains uncertain. The present study chose the GV20 acupoint to evaluate acupoint effectiveness, hypothesizing that its stimulation induces cerebrovascular responses.

DESIGN AND SETTING:
The effects of GV20 acupuncture treatment on middle cerebral artery (MCA) and anterior cerebral artery (ACA) blood flow velocities, and CO(2) reactivity during hypocapnia were evaluated in 10 healthy male subjects (mean age 25.6 ± 0.8 years). Measurements were done at rest and during hypocapnia, and were repeated four times each at different cerebral artery territories with an interval of 1 week. MCA and ACA blood flow velocities were measured with a transcranial Doppler flowmeter. Blood flow velocity was corrected to 40 mm Hg of end-tidal CO(2) partial pressure (P(ETCO2)), and was expressed as CV40. CO(2) reactivity was measured as percent change in mean blood flow velocity/mm Hg P(ETCO2).

RESULTS:
Mean MCA and ACA blood flow velocities at rest, CV40, and CO(2) reactivity during hypocapnia increased significantly after GV20 acupuncture treatment, whereas mean arterial blood pressure and pulse rate at rest did not change significantly. The increases in MCA and ACA blood flow velocity were associated with improved CO(2) reactivity after GV20 acupuncture treatment.

CONCLUSIONS:
The data suggest that GV20 acupuncture treatment increases cerebral blood flow. The results of this small-scale study provide preliminary evidence for acupuncture effectiveness.