

Acupuncture treatment for low back pain and lower limb symptoms - the relationship between acupuncture or electroacupuncture stimulation and sciatic nerve blood flow

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Objective: To investigate the clinical efficacy of acupuncture treatment for lumbar spinal canal stenosis and herniated lumbar discs using acupuncture stimulation to the Ex-B2 point at the lumbar level, electroacupuncture stimulation of the pudendal nerve, and electroacupuncture stimulation of the nerve root. In addition, changes in sciatic nerve blood flow were measured in rats undergoing acupuncture, lumbar acupuncture stimulation, electrical acupuncture stimulation of the pudendal nerve and electrical acupuncture stimulation of the sciatic nerve.

Methods: (Clinical trial) After determining the lumbar level of the disorder based on symptoms and X-ray and MRI findings, acupuncture of the Ex-B2 point was performed for 10 min. Electroacupuncture stimulation of the pudendal nerve was achieved using two acupuncture needles inserted to the pudendal nerve stimulation point in the gluteal region. For electroacupuncture stimulation of the nerve root, two acupuncture needles were inserted in the portion of the nerve root that appears peripherally from the intervertebral foramen under X-ray fluoroscopy. A 10-point scale or Visual Analogue Scale (VAS) was used for evaluation of pain and dysesthesia. Continuous walking distance was confirmed with reports from the patients.

(Animal study) Acupuncture or electroacupuncture stimulation was performed to the lumbar muscle region, the pudendal nerve and the sciatic nerve of rats. Sciatic nerve blood flow was measured using laser-Doppler flowmetry.

Results: In the clinical trial, some effects were observed with each of the acupuncture treatments, but compared to acupuncture of the lumbar muscles (Ex-B2), electrical acupuncture stimulation of the pudendal nerve and electrical acupuncture stimulation of the nerve root tended to provide a more favorable effect. In the animal study, changes in sciatic nerve blood flow were observed with each of the methods of acupuncture stimulation.

Discussion: From this report it can be seen that clinically, the first choice in treating lumbar spinal canal stenosis or a herniated disc would be acupuncture stimulation at the disorder level Ex-B2, which is safe, easy, and effective to a certain degree. If acupuncture of the lumbar muscles proves to be ineffective, electroacupuncture stimulation of the pudendal nerve should be attempted. In cases where electroacupuncture stimulation of the pudendal nerve is also ineffective, treatment should be changed to electroacupuncture stimulation of the nerve root. The results suggest that in addition to the effects on the pain inhibitory system, acupuncture and electrical acupuncture stimulation may cause a transient change in blood flow at the sciatic nerve, the cauda equina, or the nerve root.

Keywords: spinal nerve root, sciatic nerve, pudendal nerve, spinal canal stenosis, disc herniation