Clinical Research

Observation on efficacy of acupuncture combined with rehabilitation training for post-stroke balance disorders

针刺配合康复训练治疗脑卒中后平衡障碍的疗效观察

ZHANG Hong-yan (张红岩)[1], **LI Pei-fang** (李佩芳)[2]✉

1. *Physiotherapy Department, General Staff Hospital of Henan Shenhuo Group, Yongcheng 476600, Henan Province, China;* 2. *Affiliated Acupuncture Hospital of Anhui University of TCM, Hefei 230031, China*
（1. 河南神火集团职工总医院理疗科，永城 476600，中国；2. 安徽中医学院附属针灸医院，合肥 230031，中国）

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First author: ZHANG Hong-yan (1976-), female, attending physician.
Research field: clinical research of post-stroke spastic paralysis.
E-mail:zhanghy722@163.com

✉ Corresponding author: LI Pei-fang (1966-), male, chief physician.
Research field: clinical research of pain in neck and back and encephalopathy.
E-mail: lipf67@163.com

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ABSTRACT

Objective To comparatively analyze clinical efficacy of treating post-stroke balance disorders with trunk muscles acupuncture combined with rehabilitation training and rehabilitation training alone. **Methods** In a randomized control study, 59 patients were randomly divided into two groups in sequence of admission. Both groups were given conventional medical treatment; the acupuncture combined with rehabilitation training group (group A, 30 cases) was treated with trunk muscles acupuncture combined with rehabilitation training, and the rehabilitation training group (group B, 29 cases) was treated with rehabilitation training alone. Both groups were treated six times per week with four weeks as a course of treatment, and a total of four courses were given. Before and after treatment, efficacy of balance function and integral of activities of daily living (ADL) of patients were evaluated. **Results** The score of balance function of patients in group A and in group B after treatment (38.47 ± 11.34, 32.55 ± 10.02) was higher than that in the two groups before treatment (14.56 ± 6.00, 13.51 ± 6.28), and the differences were statistically significant (both $P<0.05$). After treatment, the score of balance function of patients in group A was higher than that in group B ($P<0.05$). The score of ADL of patients in group A and in group B after treatment (61.33 ± 18.47, 51.72 ± 17.28) was higher than that in the two groups before treatment (22.50 ± 6.79, 24.48 ± 7.23), and the differences were statistically significant (both $P<0.05$). After treatment, the score of ADL of patients in group A was higher than that in group B ($P<0.05$). **Conclusion** The balance function and ADL of patients with post-stroke balance disorders could be improved with trunk muscles acupuncture combined with rehabilitation training, and its efficacy was superior to rehabilitation training alone.

KEY WORDS: acupuncture; stroke; trunk muscles; balance disorders; randomized controlled trial

Balance dysfunction is a staged characterization of central nervous system injury, mainly involving shift of the center of body weight to the normal side and decline in load capacity and stability of the affected sides. As a result, the patients are unable to maintain control of normal posture and rational distribution of the center of body weight, and the recovery and improvement of patients' balance function and activities of daily living are affected[1]. Therefore, more and more attention is being paid to how to explore effective treatment for post-stroke balance disorders from the medical community. The

authors treated 30 patients with post-stroke balance disorders via trunk muscles acupuncture combined with rehabilitation training. Here's the report.

CLINICAL DATA

General data

Fifty-nine cases of apoplectic hemiplegia accompanied by balance disorders were collected from Physiotherapy Department, General Staff Hospital of Henan Shenhuo Group from June 2011 to December 2012. They were randomly divided into two groups in sequence of admission: the acupuncture combined with rehabilitation training group (group A, 30 cases with trunk muscles acupuncture combined with rehabilitation training) and the rehabilitation training group (group B, 29 cases with rehabilitation training). See Table 1 for gender, age, types of disease, course of disease of patients in both groups.

It was revealed by χ^2 test that the age, course of disease, gender and types of disease of patients in the two groups were not significantly difference (all $P>0.05$) and were comparable. The trial was approved by the Ethics Committee.

Diagnostic criteria

TCM diagnostic criteria: *Standards of Diagnosis and Efficacy Evaluation of Stroke (Trial)* (1996) [2] drafted by Group of Encephalopathy Emergency of State Administration of Traditional Chinese Medicine in 1996. Main symptoms: apoplectic hemiplegia, mental confusion, obscures utterance or silence, partial body paresthesia, skew mouth and tongue. Secondary symptoms: headache, dizziness, changes in pupil spirit, inhaled water, squinting without blinking, ataxia. Types of onset: acute, with incentives before onset, often accompanied by aura symptoms. Age: more than 40 years old. Patients with more than two main symptoms or one main symptom and two secondary symptoms in addition to onset, incentives, aura symptoms and age can be diagnosed as stroke. Without any conditions above, patients can be diagnosed by MRI findings.

Western diagnostic criteria: the diagnostic criteria revised at the 4th National Conference on Cerebrovascular Disease in 1995 [3] was referred to. ① Diagnostic points of cerebral hemorrhage: cerebral hemorrhage occurred while patients did physical activities or became agitated; often accompanied by repeated vomiting, headache and high blood pressure; disease progressed rapidly, often accompanied by unconsciousness, paralysis and other focal neurological symptoms; mostly with a history of hypertension; if applicable, CT or MRI could be used for examination; blood was found in lumbar puncture CSF with increased pressure, and no blood was found in lumbar puncture CSF for 20% patients. ② Diagnostic points of cerebral infarction: Atherosclerotic thrombotic infarction (ATCI) occurred when patients were in rest state, mostly without headache or vomiting; the disease progressed slowly in phases, mostly associated with cerebral atherosclerosis, and it could be found in arterial inflammation or blood diseases as well; within 1 to 2 days following the onset, patients remained conscious or mildly dysfunctional; symptoms and signs of carotid arterial system and/or vertebral-basilar artery system could be found; if applicable, CT or MRI could be used for examination; no blood was found in lumbar puncture CSF.

Inclusive criteria

① Complaint with western diagnostic criteria of stroke, and diagnosed as stroke by CT or MRI; ② hospitalized patients from the Acupuncture Dept. and the Neurology Dept. ranging from 30 to 75 years old; ③ compliant with diagnostic criteria with less than one year of course of disease; ④ with disorders of balance function (Berg score < 40); ⑤ without critical diseases such as severe infection, cancer, organ failure and so on; ⑥ those who got stroke firstly; ⑦ those who volunteered to participate in this research and signed the *Informed Consent Form*.

Exclusive criteria

① With concurrent myocardial infarction or combined severe liver and kidney dysfunction, severe infection, and severe diabetes, vestibular or cerebellar dysfunction and orthopedic diseases; ② below 30 or above 75 years old, pregnant or lactating women, allergic constitution; ③ with at least one year of

Table 1 Comparison of general information of patients with apoplectic hemiplegia accompanied by balance disorders between two groups

Cases

Groups	Patients	Age (years)		Duration of disease (months)		Gender		Types of disease	
		32–52	>52–72	3–7	>7–11	Male	Female	cerebral hemorrhage	cerebral infarction
A	30	12	18	17	13	14	16	11	19
B	29	13	16	15	14	17	12	12	17