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Effect of Acupuncture plus Rehabilitation Training on Early-stage Shoulder-hand Syndrome due to Ischemic Stroke

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【**Abstract**】**Objective**: To observe the clinical effect of acupuncture plus rehabilitation training in treating early-stage shoulder-hand syndrome due to ischemic stroke. **Methods**: Sixty patients were randomized into an observation group and a control group, 30 in each. The observation group was intervened by acupuncture plus rehabilitation training, and the control group only received rehabilitation training. After 3 treatment courses, the scores of edema degree and visual analogous scale (VAS), and the clinical effect were compared between the two groups. **Results**: The two groups both obtained significant improvements in edema degree and VAS scores after treatment (P<0.05 or P<0.01). After treatment, it showed marked differences in comparing edema degree and VAS scores between the observation group and the control group (P<0.05). The total effective rate was 93.3% in the observation group, versus 70.0% in the control group, and the difference was statistically significant (P<0.05). **Conclusion**: The result of acupuncture plus rehabilitation training in treating early-stage shoulder-hand syndrome due to ischemic stroke is superior to rehabilitation training alone.

【**Key Words**】Reflex Sympathetic Dystrophy; Shoulder Pain; Stroke; Complications; Acupuncture Therapy; Scalp Acupuncture; Rehabilitation

As a type of reflex sympathetic dystrophy (RSD), shoulder-hand syndrome (SHS) is often present in hemiplegia patients due to cerebral stroke. Manifested by pain in shoulder, fingers, and elbow, and swelling of fingers and wrist, SHS can affect the joint function in mild cases, or even cause deformity in severe cases. The incidence rate has reached to 12.5%-74.1%[1], and it severely influences the living quality of the patients. During recent years, the author has adopted acupuncture plus rehabilitation training in treating the early-stage SHS due to ischemic stroke, and now report as follows.

1 Clinical Data

1.1 Diagnostic criteria

It was referred to the diagnostic criteria of cerebral infarction in the "Diagnostic Points of Various Cerebrovascular Diseases" stipulated in the 4th China Academic Conference for Cerebrovascular Diseases.

The diagnosis of SHS was based on the criteria made by Miao HS from ChinaRehabilitationResearchCenter[2]: the patient has neurological disease, with pain in one shoulder, reddish skin, increased skin temperature, as well as limited movement of fingers, but in absence of trauma, inflammation, and peripheral vascular diseases.

1.2 Inclusion criteria

(1) Conformed with the diagnostic criteria of cerebral infarction and SHS, and confirmed by head CT or MRI; (2) during the recovery stage of cerebral infarction, accompanied by SHS of stage

I; (3) aged 50-75; (4) with stable vital signs after stroke, normal muscle tone, and the rehabilitation training is applicable; (5) signed the informed consent form.

1.3 Exclusion criteria

(1) Patient in severe condition or at acute stage and unstable, accompanied by unconsciousness, aphasia, or severe cognition disorder; (2) with other severe diseases involved heart, brain, liver, kidney, diabetes and hematopathy; (3) SHS caused by brain tumor or trauma; (4) patient with a history of shoulder injury such as periarthritis of shoulder.

1.4 Statistical method

All data were dealt with SPSS 12.0 statistical software. The enumeration data were compared by using Chi-square test, and the measurement data were by *t*-test.

1.5 General data

The subjects were recruited from the No.2 Ward of Acupuncture-moxibustion Department, No.2 Hospital Affiliated to Heilongjiang University of Traditional Chinese Medicine from August 2010 to September 2011. Of the total 60 subjects, there were 39 males and 21 females, aged 45-75 years, with disease duration ≤3 months. They were randomized into an observation group and a control group according to the internationally recognized random alphabet table, 30 in each group. There were no statistical differences in comparing age, gender, and disease duration between the two groups (P>0.05), indicating that they were comparable (table 1).

Table 1. Comparison of the general data ($\bar{x} \pm s$)

Groups	*n*	Gender (case)		Age (year)	Duration (day)
		Male	Female		
Observation	30	18	12	61.00±7.39	45.21±9.63
Control	30	20	10	59.00±8.80	46.74±9.12

2 Treatment Methods

The two groups both received routine treatment according to the *Guideline for Prevention and Treatment of Cerebrovascular Diseases* (2005), plus scalp acupuncture at the Anterior Oblique Line of Vertex-Temporal (MS6). The scalp acupoints were located based on the *Standardized Manipulations of Acupuncture and Moxibustion-Part 2: Scalp Acupuncture* (GB/T 21709.2-2008).

Location: The line on the lateral side of the head, from Qianding (GV 21) to Xuanli (GB 6).

Operation: When the patient took a semi-reclining position, the needles were inserted into scalp by an angle of 15° or with the needle-tip heading forward. The needles were retained for 30 min after qi arrival, and the needles were manipulated every 10 min during retaining.

2.1 Observation group

2.1.1 Acupuncture

The subjects were punctured by selecting distal acupoints along meridians plus exercise. They were classified into 5 types according to the pain areas and the pathways of the meridians when moving their shoulders. The acupoints were located by the *Nomenclature and Location of Acupuncture Points* (GB/T12346-2006).

Acupoints: Patients with pain at Jianqian (Extra) were considered as the Hand-Taiyin type, and were treated by selecting Jianqian (Extra) and Yuji (LU 10); Jianyu (LI 15) and Hegu (LI 4) were selected in the patients with pain around Jianyu (LI 15), which was considered as Hand-Yangming type; Jianliao (TE 14) and Zhongzhu (TE 3) were selected in the patients with pain mainly around Jianliao (TE 14), which was the Hand-Shaoyang type; Naoshu (SI 10) and Houxi (SI 3) were selected in the patients with pain mainly around Naoshu (SI 10), which was the Hand-Taiyang type; the patients with pain in more than two of the aforementioned areas were diagnosed as the mixed type, and would be treated by selecting acupoints according to the pathways of the meridians.

Operation: After sterilization, filiform needles of 0.35 mm in diameter and 40 mm in length were inserted into the skin perpendicularly, with mild twirling manipulations for qi arrival. The needles were retained for 20 min. The patients were asked to bend, stretch, abduct, adduct,

externally rotate, and internally rotate the upper limb during needle retaining, all within their maximum endurance.

2.1.2 Rehabilitation training

Posture: The patients were asked to do wrist dorsiflexion and stretch their fingers. The shoulder should be elevated by cushion when the patient was in the supine position. When the patient was lying on the healthy side, he/she should have the affected limb stretched and supported, with the palm facing to the healthy side and the scapular in the protrusive position. When the patient was lying on his sick side, he/she should also have the affected limb stretched, with the palm facing to the healthy side and the scapular in the protrusive position.

Exercises: The patients were doing exercises under professional guidance by adopting Bobath therapy[3], which includes keeping a correct lying position, changing postures, handshake practices, and bridging, etc.

2.2 Control group

The control group received the same rehabilitation training as the observation group did, but without acupuncture by selecting the distal acupoints along meridians plus exercise.

The treatment was given once a day in the two groups, 6 times as a treatment course, with a day interval between each two courses. The results were evaluated after 3 treatment courses.

3 Observation of Therapeutic Efficacy

3.1 Indexes

3.1.1 Pain evaluation

The visual analogous scale (VAS) from the short-form of McGill pain questionnaire (SF-MPQ) was used for assessment. The VAS represents the pain feeling of the patient quantified by 0-10, 0 for painless and 10 for unbearable pain.

3.1.2 Edema degree

The edema degree was adopted in evaluating the hand function.

3.2 Criteria of therapeutic effects

The criteria of therapeutic effects were referred to the *Modern Assessment and Treatment for Hemiplegia*[4].

Marked effect: Joint pain and swelling disappeared, without obvious limited function and dystrophy of hand muscles.

Effective: Joint pain and swelling disappeared substantially, but with limited joint movement, without obvious dystrophy of hand muscles.

Invalid: There was no improvement in symptoms and signs, and the joint function was limited, without aggravated dystrophy of hand muscles.

3.3 Treatment result

3.3.1 Comparison of therapeutic effects

The total effective rate was 93.33% in the observation group, versus 70.00% in the control group. According to Chi-square test, χ^2=5.473, P<0.05, the difference of the total effective rate between the two groups was statistically significant, indicating that the effect in the observation group was better than that in the control group (table 2).

Table 2. Comparison of therapeutic effects (case)

Groups	*n*	Marked effect	Effective	Invalid	Total effective rate (%)
Observation	30	13	15	2	93.3[1)]
Control	30	8	13	9	700.0

Note: Compared with the control group, 1) P<0.05

3.3.2 Comparison of VAS and edema degree scores before and after treatment

The two groups both had improvements in the VAS and edema degree scores after treatment, and the differences were significant (P<0.05 or P<0.01). After treatment, the VAS and edema

degree scores in the observation group were markedly different from that in the control group (P<0.05).

Table 3. Comparison of VAS and edema degree scores ($\bar{x}\pm s$, point)

Groups	n	VAS		edema degree	
		Pre-treatment	Post-treatment	Pre-treatment	Post-treatment
Observation	30	7.42±2.74	4.23±1.92[2)3)]	2.07±0.52	1.03±0.61[2)3)]
Control	30	7.57±2.81	5.40±2.28[2)]	2.17±0.53	1.40±0.56[1)]

Note: Inner-group comparison with pre-treatment, 1) P<0.05, 2) P<0.01; compared with the control group, 3) P<0.05

4 Discussion

SHS is one of the most commonly encountered complications in patients with post-stroke hemiplegia, manifested by pain in shoulder and fingers, swelling of fingers and wrist, thinner skin, hyperidrosis, and cold feeling, etc. Delayed treatment or mistreatment could lead to muscle contracture or joint abnormality in shoulder and hand[5]. According to the disease development, SHS is clinically divided into three stages[6]: stage Ⅰ, the early stage, is characterized by swelling extremity, joint pain and limited movement; stage Ⅱ, the late stage, is presented by more obvious and aggravated symptoms due to failed treatment at stage Ⅰ; stage Ⅲ, the terminal stage or sequelae stage, is manifested by deformity of the affected extremity, permanent loss of joint function, and might be accompanied by muscle contracture. Currently, the pathogenesis of SHS is still not clear, yet there appear some acknowledgements, such as abnormal reaction of sympathetic nerve[7], injury of shoulder-hand pump action, local injury and inflammation, and abnormal posture of the affected limb, etc.

SHS should be covered by the scope of *Bi*- impediment syndrome in the traditional Chinese medicine, and be treated mainly by unblocking the meridians and collaterals, and regulating qi and blood. Various acupuncture methods can effectively treat SHS[8-14], but the still state during the treatment is not good for restoring the limb function. The acupuncture method adopted in this study, selecting the distal acupuncture along the meridians plus exercise, is a kind of needling method of dynamic-static integration, acting to boost the needling sensation in the punctured regions, and to improve qi and blood flow in the meridians and collaterals. With the rehabilitation training together, it can smooth the joint and regulate qi and blood. Chinese medicine holds that the head is the house of essence and spirit, as qi and blood from Zang-fu organs and meridians and collaterals all join together on the head and the Three Yang Meridians of Hand and Foot also cross on the head. Acupuncture at the acupoints on the head can unblock the meridians and collaterals, and activate the flow of qi and blood. In the scalp acupuncture invented by Jiao Shun-fa, the Anterior Oblique Line of Vertex-Temporal (MS6) is known as the Motor Area, mainly for treating hemiplegia of the contralateral side of the body. The integrated treatment methods can finally restore the smooth meridians and collaterals and the regular flow of qi and blood, and relieve the pain.

The result of the present study shows that acupuncture by selecting distal acupoints plus exercise and rehabilitation training can achieve satisfactory effect in treating post-stroke SHS at the early stage, and worth popularization and application in clinic.

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Moxibustion for correcting breech presentation: a systematic review and meta-analysis

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Abstract.

Objectives: To assess the effectiveness and safety of moxibustion for correcting breech presentation.

Methods: We searched 11 databases and 28 major Chinese traditional medicine journals from inception to February 2013. We included RCTs and QRCTs, with no language restrictions that compared moxibustion with other therapy. Cochrane risk-of-bias criteria and Physiotherapy Evidence Database scale were used to assess the methodologic quality of the trials.

Results: Twelve of 387 potentially relevant studies met our inclusion criteria. When compared moxibustion with other intervention, a meta-analysis showed a significant difference in favor of moxibustion for correcting breech presentation at delivery (RR 1.29, 95% CI 1.08 to 1.54, I^2= 0).