EFFICACY OF ACUPUNCTURE TREATMENT ON DYSPHAGIA STAGING AFTER ACUTE ISCHEMIC STROKE

HAN-YAN XIAO[1*], LI-PING HAN[2], JING XU[3]
[1]Department of Neurology2, Second Affiliated Hospital of Mudanjiang Medical College - [2]Department of Pediatric, Second Affiliated Hospital of Mudanjiang Medical College - [3]Department of Clinic, Second Affiliated Hospital of Mudanjiang Medical College

ABSTRACT

Introduction*: This study aimed to compare staging acupuncture with ordinary acupuncture for treating dysphagia after acute ischemic stroke, and explore its clinical efficacy.*

Materials and methods*: A total of 120 patients with dysphagia after acute ischemic stroke were included into this study. These patients were randomly divided into two groups: acupuncture treatment group and conventional treatment group. Patients in these two groups were treated with staging acupuncture and conventional acupuncture, respectively. At the fourth week and the third month, the Watian drinking water test scale and the Standardized Swallowing Assessment (SSA) was applied to evaluate for efficacy.*

Results*: Cure rate in the four-week staging acupuncture treatment group was 20%, and the effective rate was 65%. In the three-month stage acupuncture treatment group, cure rate was 33.33% and the effective rate was 95%. This was significantly higher than in the conventional treatment group, and the difference was statistically significant.*

Conclusion*: The stage acupuncture treatment of dysphagia after ischemic stroke is an effective, simple and safe method that can be recommended for clinical use.*

Keywords*: acupuncture, stroke, dysphagia, clinical efficacy.*

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Introduction

With the aging population, and changes in the ecological environment and diet, the incidence of ischemic stroke has increased year by year[(1)]. Furthermore, early age onset of acute dysphagia is a common complication[(2)], as well as disorder in the delivery process that food (or liquid) travels from the mouth, through the pharynx into the stomach[(3)]. In this study, the effects of staging acupuncture on dysphagia after acute ischemic stroke were studied.

Materials and methods

General Information

Subjects were collected from the Mudanjiang Medical Second Affiliated Hospital of Neurology between July 2014 and July 2015, who were admitted at <3 days from onset of ischemic stroke. Among the 120 patients with swallowing dysfunction, 67 patients were male and 53 patients were female; and the age of these patients was within 50-82 years, with a mean age of 65.43 ± 3.81 years. Before treatment, through fluoroscopic swallowing function tests (video fluoroscopic swallowing study, VFSS)[(4)], the patients were divided into two groups: mouth, and swallowing and esophageal period. Sixty patients were assigned to each group (acupuncture treatment group and conventional treatment group). This study is a randomized controlled trial.

Patients who met the criteria according to the length of stay and stage were divided into two groups: acupuncture treatment group and conven-

tional treatment group. Patients in these two groups were comparable.

Diagnostic criteria

TCM diagnostic criteria refers to "Stroke Diagnostic Criteria" (State Administration of Traditional acute encephalopathy Collaborative Group). Western diagnostic criteria refer to the "China Cerebrovascular Disease Prevention Guide" (Neurology Branch of Chinese Medical Association, Department of Disease Control, Ministry of Health).

Inclusion criteria

Patients meet the following criteria can undergo acupuncture therapy: diagnosed with acute ischemic stroke by Computed Tomography (CT) or Magnetic Resonance Imaging(MRI)+Diffusion Weighted Imaging (DWI) and other related examinations, have clear consciousness and can cooperate on the VFSS inspection, can complete the SSA evaluation. Critically ill patients with cognitive dysfunction, other severe organ dysfunctions, and a variety of complications were excluded.

Basic treatment

In all patients, underwent anti-platelet aggregation, blood circulation, stabilize atherosclerotic plaque stabilization therapy, regulated blood pressure, blood sugar, stabilized heart lung and kidney functions, controlled smoking, alcohol consumption, high salt, and high fat diet and other related risk factors.

Rehabilitation involves swallowing with functional training, neuromuscular electrical stimulation[5], and dietary adjustments.

Acupuncture group staging

Acupoints for oral: Lianquan, Dicang, Jiache, Chengjiang, heart, kidney and spleen acupoints, Jinjin Yuye.

Operating method: Patients were placed in the sitting position, routine disinfection was performed on the puncture site, the needle was pricked into the acupoints by 15 mm, when local tingling, irritating and expanding senses appear the pricking was appropriate, and the needle was left for 30 minutes. Spontaneous or assistant tongue extended extraoral tongue was fixed to the estuary, local disinfection, the Jinjin, Yuye, and heart, spleen and kidney acupoints were pricked for 3-5 times.

Acupoints for swallowing: Fengchi, Yamen, Tiantu, Yifeng, Renying, Futu, posterior pharyngeal wall.

Operating method: Patients were placed in the sitting position, and routine disinfection was performed on the puncture site. The wind pool, Yifeng needle was approximately 15 mm. The bilateral acupuncture points were used to greet people when finger is cut by the needle, the throat is obliquely to the direction of depth of approximately 15 mm. Bilateral acupuncture Futu puncture to the throat obliquely placed at adepth of approximately 30 mm. Gas with high frequency twisting fill method was applied for one minute. The prick method was employed using the posterior pharyngeal wall, and clearly exposed the posterior pharyngeal wall; and the long needle was used to prick the posterior pharyngeal wall.

Auriculo-acupuncture acupoints: esophagus acupoint, cardia acupoint, Zusanli, Zhongwan, Shangwan, Neiguan.

The patient was placed in the supine. After the puncture site disinfection, routine acupuncture was performed; and a local tingling sense of expansion occurred at a certain degree. The needle was left for 30 minutes.

Routine acupuncture group

Referring to university standardized materials of "acupuncture" (People's Health Publishing House)[6], taking of the wind pool, Yifeng, Lian Quan, Kim Jin, and Yu Ye are common practice. Operating method: Patients were placed in the sitting position, and routine disinfection of the puncture site was performed. For the wind pool, the Yifeng needle piercing direction was towards the throat, with a depth of 30 mm. When pricking the Lianquan, the needle was obliquely pricked towards the base of the tongue by 30 mm. When pricking the outer JinJin and outer Yuye, the needle was obliquely pricked towards the base of the tongue by 15 mm. The Guannei acupoint was routinely pricked. After brought about the desired sensation, the needle was left for 30 minutes.

In the two groups of patients, acupuncture treatment was performed once daily, with weekly day of rest. Swallowing at four weeks and three months, respectively, after treatment, were evaluated.

Treatment

Outcome measures

Watian drinking water test[7]: Patients were

asked to sit and drink 30 mL of warm water, and the required time and the choking situation was observed during.

The rating criteria were as follows:

Level of performance

Level 1: can successfully swallow the water.

Level 2: can swallow the water two times or more without choking;

Level 3 can swallow the water one time, but there is choking;

Level 4 can swallow the water more than two times, but there is choking;

Level 5 frequent choking and cannot swallow.

SSA: Preliminary evaluation includes awareness, head and trunk control, breathing patterns, movement of the soft palate, larynx, pharynx and self-reflection cough. The scores of each item ranged between 1-4 points, and the total scores ranged between 7-21 points.

The patient was allowed to swallow 5 mL of water, which was repeated three times, in order to observe the motion of the water from the mouth to the larynx, repeated swallowing, swallowing, wheezing, and throat function after swallowing. Each was scored 1-3 points of 5- 11 points, as described above, without exception. Patients were instructed to swallow 60 mL of water, and observed whether the patient can finish the drink with or without coughing, wheezing, and if any aspiration occurred. Each was scored 1-3 points for 6-14 minutes. The lowest scale score was 18 points and the highest score was 46 points. A higher score indicate a more severe degree of difficulty in swallowing.

The two groups of patients before and after treatment were evaluated using the Watian drinking water test and SSA. Swallowing evaluation criteria: markedly effective, drinking water test assessment level 1; effective, drinking water test assessment level 2; ineffective, dysphagia had no obvious improvement or dysphagia worsened. The cure rate was the proportion of patients who presented markedly curative effect in their own group. The effective rate was the total proportion of patients who presented markedly curative effect or curative effect in their group. The SSA score differences before and after treatment were recorded.

Statistical analysis

SPSS 19.0, X^2-test, and t-test were employed. Measurement data was presented as x ± SD, which indicated significant differences in the two groups of measurement data using t-test. Count data rates were compared by chi-square test in the statistical analysis.

Results

Four weeks and three months after, cure rate in these two groups of patients after treatment were compared in terms of efficacy. For differences in effective rate in the two groups of patients, the cure rate and the affectivity of the staging acupuncture group were significantly higher than the conventional treatment group; and the difference was statistically significance (*P<0.05*). After three months of treatment, the cure rate and the effective staging acupuncture group were significantly higher than the conventional treatment group, and the difference was statistically significant (P<0.05; Tables 1 and 2).

Group		Markedly	effective	invalid
Conventional treatment group	The mouth of	1	7	12
	Of swallowing	4	9	7
	Of the esophagus	1	8	11
total		6•	24	30□
Acupuncture points	The mouth of	2	9	9
	Of swallowing	8	10	2
	Of the esophagus	2	8	10
total		12•	27	21□

Table 1: Evaluation of the efficacy of treatment in patients after 4 weeks.

Cure rate after treatment, P• <0.05; after treatment, effective rate P□ <0.05.

Group		Markedly	effective	invalid
Conventional treatment group	The mouth of	3	15	2
	Of swallowing	8	11	1
	Of the esophagus	2	15	3
total		13•	41	6□
Acupuncture points	The mouth of	5	14	1
	Of swallowing	11	8	1
	Of the esophagus	4	15	1
total		20•	37	3□

Table 2: Evaluation of the efficacy of treatment in patients 3 months after treatment.

Cure rate after treatment, P• <0.05; after treatment, effective rate P□ <0.05.

At the fourth week and the third month of treatment, difference in the SSA scores between the two groups of patients were statistically significant. ($P<0.05$). Furthermore, SSA staging in the acupuncture group scored lower than the conventional treatment group ($P<0.05$). This shows that subjects in the staging acupuncture group were superior to subjects in the conventional treatment group, especially with the significant improvement in swallowing (Table 3).

Group	Before treatment	4W	3 months
Conventional treatment group	30.53±0.85	29.53±0.85•▲	28.63±0.85@★
Acupuncture points	30.83±0.85	29.83±0.93•	26.53±0.85•

Table 3: SSA scores for 4 weeks and 3 months (x ± s, n = 60).

4 weeks of treatment with the same group before treatment P• <0.05, P• <0.05; with the conventional acupuncture group P▲ <0.05; 3 months of treatment with the same group before treatment P @ <0.05, P■ <0.05; with the conventional acupuncture group P□ <0.05

Discussion

Dysphagia is a common problem in patients with acute stroke, and more than half of patients had dysphagia[8]. Post-stroke dysphagia is an independent risk factor for poor prognosis in the diagnosis three months after the onset of the disease[9]. Post-stroke dysphagia emphasizes the early detection of patients who have difficulty swallowing, in order to undergo comprehensive rehabilitation training and promote the recovery of swallowing function[10]. This basic training comprises of neuromuscular electrical stimulation, as well as feeding and other direct functional training; which is an important means of rehabilitation through acupuncture.

Dysphagia after acute ischemic stroke is attributable to the "stroke" category of Chinese medicine. The key is context closed resistance and air-barrier. Acupuncture can smooth the meridian closed resistance, in order to restore normal physiological function; which is the role of meridians. Acupoints have a therapeutic effect at the site and its adjacent parts, organ disorder, or "the site of Acupoint is the predominant treatment place"[11]. For swallowing staging of acupuncture therapy, according to recent government action, in acupoints combined with the characteristics of each dysphagia, the dysphagia lesion was selected corresponding to the acupoint needling treatment, through the meridians, in which air conductivity benefits poor power; thereby improving and easing the brain of dysphagia after stroke symptoms.

Modern research confirms that acupuncture can restore nerve function that promotes the recovery of the pharyngeal nervous system. This role has the following aspects: first, acupuncture can excite the deep receptors, upload it to the main center to bring about the desired sensation[12]; second, acupuncture can excite local muscles, small ligament receptors, sustained stimulation of central nervous swallowing, and swallowing reflex arc; in order to promote its restoration and reconstruction[13].

The present study revealed that the dominant swallowing nucleus underwent the bilateral corticobulbar tract dominated by swallowing. The center contralateral stimulation can be compensated on the lesion side of the central swallowing function, which restore the patient's swallowing rehabilitation method through acupuncture; which help after stroke theoretical basis functions[14].

The Gui Tian water test reveals that the two evaluation time point of the experiment on the swallowing staging acupuncture for dysphagia. The response was superior to conventional acupuncture. SSA integral evaluation shows that the latter two methods of acupuncture treatment may improve swallowing function in patients with acute ischemic stroke[15], and swallowing staging acupuncture in four weeks and three months, with a more significant effect.

To summarize, swallowing staging acupuncture in improving acute ischemic stroke patients with swallowing impediments were effective compared to ordinary acupuncture. The follow-up time for this study was short, the selected records were less, and the study only included patients with acute dysphagia improvement. Hence, future research will be included in the recovery and sequelae of patients, as well as in comparing the efficacy of acupuncture combined with other rehabilitation methods.

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Corresponding author
HAN-YAN XIAO
Department of Neurology, The Second Affiliated Hospital of Mudanjiang Medical, No. 3 of Xiaoyun Street, Aimin District, Mudanjiang 157000, China
E-mail: xiaohanyan_cn@163.com
(China)