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Mechanism of deglutition stage acupuncture for treating deglutition disorder after stroke

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Abstract: This research analyzed the efficacy of dysphagia after stroke and evaluated the clinical curative effect after treatment by the staging acupuncture method in comparison with traditional acupuncture method. We tried to study the curative effect of the staging acupuncture treatment after stroke and the possible mechanism of action. Then it could provide the basis of evidence-based medicine and lead for further research. There were 30 patients in the experimental group and the control group, including 15 patients at the middle oral stage and pharynx stage, respectively. The patients were divided into groups who met the standards according to the time sequence of hospitalization using the randomized controlled trial method. Comparing the curative effect between the experimental group control group after 12 days the therapeutic effect evaluation criteria were the water intake test score and the standard swallowing function score (SSA) score and recorded the occurrence of adverse events. There was no statistically significant difference ($P>0.05$) of oral and pharyngeal period in the baseline data between the two groups in gender, age, course of disease before treatment, and SSA scores before treatment. After treatment, there was statistically significant difference between the two groups. For dysphagia after stroke, the effect of acupuncture in deglutition stage was better than that in routine acupuncture group. Comparison of the efficacy between the oral and pharyngeal phases showed that the staged acupuncture group was superior to the traditional acupuncture group.

Keywords: Stroke, dysphagia, deglutition stage acupuncture therapy.

INTRODUCTION

Abnormal changes in the passage of food through the mouth into the stomach for a variety of reasons are called dysphagia. Performance produces obstacle for deglutition process or appear choke cough hard choke etc. Dysphagia is a common cause of stroke as one of the complications, the number of new stroke patients in China is more than 2 million each year, and swallowing occurs in the acute stage of stroke.

The rate of pharyngeal obstruction was 41% and decreased in the chronic phase, but 16% had not been treated and dried up. In addition, due to dietary disorders, patients are prone to malnutrition, metabolic disorders and inadequate water intake caused by dehydration, seriously affecting the recovery of stroke patients, or even more seriously, aspiration pneumonia caused by aspiration, Endanger the life of stroke patients. So one of the hot spots in the field of medicine at home and abroad is to search for post-stroke swallowing. Effective treatment for pharyngeal obstruction. Therefore, attention should be paid to the diagnosis and management of patients with acute dysphagia. In addition, it is important to pay attention to the influencing factors of dysphagia in patients after the acute phase, which may be associated with complicated complications conditions are related, such as malnutrition, aspiration, pneumonia, and even asphyxiation. In western medicine, post-stroke damage to the cerebral cortex, sub-cortical and brainstem can cause swallowing difficulties, usually the following characteristics: difficulty in starting saliva secretion during swallowing, resulting in insufficient saliva secretion; Incongruity of movements during oral phase adjustable; Laryngeal and pharyngeal dysfunction. During the pharyngeal phase, the time delay in the initiation of swallowing, pharyngeal muscle contraction related ability is reduced.

The delivery time is prolonged and the clearance ability of pharyngeal stage is decreased. Aspiration; The esophageal sphincter relaxes less, food causes difficulty in entering the esophagus. The rehabilitation of dysphagia after stroke mainly includes oropharyngeal activity training practice, behavioral methods, pharyngeal swallowing temperature/tactile stimulation, mechanical stimulation techniques, etc.

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In terms of traditional Chinese medicine, dysphagia after stroke belongs to the category of "stroke" of traditional Chinese medicine, which is characterized by larynx and brain. It is closely related to heart, liver, spleen and kidney. The disease is based on the imbalance of qi, blood and Yin and Yang. The key pathogenesis of this disease is the blocking of venation, the air is not working. In the aspect of TCM treatment, a large number of experimental studies and clinical studies have confirmed the effect of acupuncture on post-stroke swallowing. Pharyngeal obstruction has definite curative effect and is an important method to treat and relieve the dysphagia after cerebral apoplexy (Li *et al.,* 2016). Although acupuncture has unique advantages in the treatment of dysphagia after stroke, relevant clinical reports and articles should be read. There are the following problems: the methods are disorganized, the evaluation criteria are different and the systematic research is lacking. This study was based on swallowing different acupuncture points and acupuncture methods were selected for each stage of the disorder. The new idea of acupuncture therapy is put forward. Acting as the basis of physiological and pathological theories to guide acupuncture treatment, based on the traditional theory of acupoint transference and meridian characteristics, from physiological diseases the mechanism of acupuncture on dysphagia after cerebral apoplexy was revealed.

This study was conducted to investigate the clinical effect and possibility of acupuncture therapy on dysphagia after stroke mechanism of action, and provide evidence - based medicine basis, for further in-depth research to do basic discussion.

Patients

Hospitalized patients were selected in the rehabilitation department of Henan Hospital of Traditional Chinese Medicine from January 2017 to February 2018.

TCM diagnostic criteria

The TCM diagnostic criteria refer to the "stroke diagnostic criteria" published in January 1996 by The Acute Stroke Writing Group of the State Administration of Traditional Chinese Medicine (appendix 1).

Western medical diagnostic criteria

Diagnostic criteria of western medicine refer to the guidelines for the prevention and treatment of cerebrovascular diseases in China formulated by the Department of Disease Control of the Ministry of Health and the Neurological Branch of the Chinese Medical Association in 2005 (appendix 2).

Inclusion criteria

Patients meeting the above diagnostic criteria and confirmed by head CT or MRI; Grade 2~5 of drinking water test in depression field (appendix 3); Compliance with the inclusion criteria for oral and pharyngeal dysphagia in deglutition staging (appendix 4); Ability to understand and execute simple instructions of the treatment personnel, cognitive function, and MMSE score > 27 points (appendix 5); The patient's observation and evaluation to the researcher have good compliance, voluntary participation.

Exclusion criteria

Patients with stroke happened more than one time, transient ischemic attack, reversible neurological deficit, dysphagia caused by other reasons, and patients with serious primary diseases such as liver, kidney, hematopoietic system and endocrine system.

Knockout and shedding criteria

If the patient dies or the condition worsens, emergency treatment measures must be taken, serious complications occur during the trial and the subject is unwilling to continue the clinical trial and proposes to withdraw from the clinical trial.

MATERIALS AND METHODS

Grouping method

There were 30 patients in the experimental group and the control group and 15 patients in the oral and pharyngeal phases in respective. The patients who met the standards were divided into groups according to the time sequence of hospitalization by the randomized controlled trial method.

Blinded methods

This clinical trial cannot be conducted blindly and the data are kept by managers other than the investigator to reduce bias caused by the investigator's subjective factors.

Basic treatment

All the patients in this study were given corresponding basic treatment (including the treatment of basic diseases such as hypertension, diabetes, dyslipidemia and conventional syndrome differentiation of stroke) according to the Chinese Guidelines for the Prevention and Treatment of Cerebrovascular Diseases (2008). Both groups received rehabilitation therapy, including partial conventional acupuncture therapy (excluding acupoints in this study), Limb function training, training in dysphagia, language training, etc. Rehabilitation training content meets the actual situation of patients and training progress, the corresponding training methods.

Group

Patients in the experimental group were treated with puncture needles. The details are as follows:

Mouth period

Blood collection: lianquan point, clip lianquan point, spleen point, kidney point. Operation method: All patients

were seated with 30 nm×40nm milli needles of huatuo brand. Perform oral cleaning before tongue acupuncture (1/5000 permanganate liquid gargling). During acupuncture, patients are allowed to extend the tongue out or fix the tongue outside the mouth with the left hand pad gauze adjuvant (1-3). The needle is inserted for 1-2 minutes. Before acupuncture at zhilianquan point and nianquan acupoints, routine disinfection acupoints were inserted into 1~1.5 inches in the direction of tongue root. After gas collection, the acupoints were twisted for 10~15s at the frequency of 80~100 beats per minute. The degree of local acid-hemp distension was taken, and the needle was kept for 30min.Treatment once a day, no treatment on Sundays, treatment for 12 days.

Pharyngeal phase

The point chosen: fengchi point, yifeng point, renying point,futu point, pharynx wall

Operation method: all the patients were seated with 30mm×40mm long millineedles of huatuo brand (4-6). Routine disinfection before acupuncture. The tips of the two-sided air pool and yifeng point needle were inserted in the direction of retropharynx, with a depth of 1~1.5 inches. After the air was obtained, all the points were twisted for 10~15s with a frequency of 80~100 beats per minute. When acupuncture at the bilateral manying point avoids the common carotid artery, the needle is inserted with the finger-cut type and the needle is inclined towards the larynx, which is about 0.5 inch deep: when acupuncture at the bilateral puncture point, the needle is inclined towards the larynx, which is about 1 inch deep. The aim of this study was to perform 10~15s of twirling at the frequency of 80~100 beats per minute. The posterior pharyngeal wall was punctured with points, and the patient was asked to open the mouth, and the tongue body was pressed with the tongue plate to clear the exposed posterior pharyngeal wall. The bilateral posterior pharyngeal wall was punctured with the points of long needles over 3 inches, and the points were punctured 3-5 times. Treatment once a day, no treatment on Sundays, treatment for 12 days.

The control group

All patients in the control group received consistent acupuncture therapy, as follows:

Referring to the uniform textbook of *Higher Education on Acupuncture and Moxibustion therapy on Stroke, 6th Edition* (Shanghai Science and Technology Press).

Points chosen: fengchi point, yifeng point, lianquan point, Waijinjing point, waiyuye point, neiguan point.

Operation method: the patient was seated and chose 30mm×40mm millineedle of huatuo brand. Routine disinfection before acupuncture. The tip of the needle of the bilateral fengchi point and yifeng point was inserted in the direction of the throat, with a depth of 1~1.5 inches. The tip of the needle of lianquan point slanted to the root of the tongue 1~1.5 inch. Waijinjing point and waiyuye point incline to tongue root direction 0.5~1 inch. Routine internal acupuncture. After the gas was obtained, the needles were twisted for 10~15s at the frequency of 80~100 beats per minute, with local feeling of acid-hemp distension, the needle was retained for 30min, and the enzyme was injected once at 10min. 1 treatment at one time, no treatment on Sunday, treatment for 12 days.

Evaluation method

Potting water test

The enrolled patients were evaluated by a trained rehabilitation physician and recorded.

Standard Swallowing Function Assessment (SSA) (appendix 6)

Observation contents and methods

Contents to Observe

Observation of The Test Score and SSA Score of the Water in the Depression before and after Treatment of the two Groups

Record Adverse events

Observation Method

Develop Consistent Observation Forms

Observation Chart Written Once before Treatment and 12 Days after Treatment.

Ethical approval

The present investigation was initiated and designed by the Principal and co-investigators. The study was begin from January 2017 to February 2018. The present study complied with the Declaration of Helsinki. The animal and patients experimental operation was performed as per international guidelines.

STATISTICAL ANALYSIS

Data were analyzed using SPSS19.0 Chi-square test was used to compare the composition of count data sets. t test is used for measurement data comparison and t^2 test is used when variance is not equal.

RESULTS

Efficacy analysis of the two groups

Baseline Comparison between the Two Groups

There was no statistically significant difference (P>0.05) in the selected data (gender, age, course of disease, and the scores of potable water test before treatment and SSA scores before treatment) between the two groups, showing comparability between the two groups.

Post-treatment efficacy analysis of the two groups

After treatment, the scores of the water test and SSA scores in the depression were all decreased and the differences were statistically significant by paired t test.

Table 1: Gender baseline comparison between the two groups

Group	N	Gender	
		Male	Female
Experimental group	30	14	16
Control group	30	17	13

Note: The gender of patients in the two groups was counted data, and the difference was not statistically significant (P>0.05) after chi-square test (X^2=0.601, P=0.438).

Table 2: comparison of age and course baseline between the two groups (X ± S)

Group	N	Age(years)	Course of disease (days)
Experimental group	30	63.17±8.25	73.97±86.34
Control group	30	62.10±11.00	61.23±54.79

Note: The age of patients in the two groups was measured, and the difference was not statistically significant (P>0.05) after t test (t=0.425, P=0.637), while the course of disease of patients in the two groups was measured (t=0.682, P=0.498), and the difference was not statistically significant (P>0.05).

Table 3: Baseline comparison of water test scores and SSA scores in pre-treatment depression (X ± S)

Group	N	Water test scores in depression	SSA scores
Experimental group	30	3.17±1.05	27.73±5.15
Control group	30	3.13±1.01	27.37±5.12

Note: The potable water test score of the two groups before treatment was the measurement data, and the difference was not statistically significant (P>0.05) after the two independent samples t test (t=0.125, P=0.901). The SSA score of the two groups was the measurement data, and the difference was not statistically significant (P>0.05) after the two independent samples t test (t=0.277, P=0.783).

Table 4: comparison of scores before and after treatment between the two groups (X ± S)

Group	N	Water test scores in depression		SSA scores	
		Before treatment	After treatment	Before treatment	After treatment
Experimental group	30	3.17±1.05	2.07±0.78	27.73±5.15	22.67±3.30
Control group	30	3.13±1.01	2.50±0.82	27.37±5.12	24.83±4.34

Note: The potable water test score of patients in the experimental group decreased after treatment compared with that before treatment, and the difference was statistically significant after paired t test (t=9.919, P=0.000) (P<0.001).The potable water test score of the control group decreased after treatment compared with that before treatment, and the difference was statistically significant after paired t test (t=6.238, P=0.000) (P<0.01). After treatment, SSA scores of the patients in the experimental group decreased compared to those before treatment. After paired t test (t=13.538, p-0.000), the differences were statistically significant (P<0.01).The SSA scores of the control group decreased after treatment compared with before treatment, and the difference was statistically significant after the paired t test (t=12.208,P=0.000) (P<0.01).

Table 5: Comparison of scores before and after treatment between the two groups (X ± S)

Group	n	Water test scores in depression	SSA scores
Experimental group	30	1.10±0.61	5.06±2.05
Control group	30	0.63±0.56	2.53±1.14

Note: The difference in scores of drinking water test in the depression before and after treatment between the two groups was significantly higher in the experimental group than in the control group. After t test (t=3.104,P=0.003), the difference was statistically significant (P<0.01).SSA score difference between the two groups before and after treatment was significantly higher in the experimental group than in the control group. After t test (t=6.920, P=0.000), the difference was statistically significant (P<0.01).

Table 6: Gender baseline comparison of oral stage patients between the two groups

Group	N	Gender	
		Male	Female
Experimental group	15	7	8
Control group	15	8	7

Note: The patients gender in the two groups was count data and the difference was not statistically significant (P>0.05) after chi-square test (X^2=0.133, P=0.715).

Table 7: comparison of age and course baseline of oral patients between the two groups (X ±S)

Group	N	Age(years)	Course of disease (days)
Experimental group	15	62.73±9.70	105.87±111.63
Control group	15	61.60±10.82	71.60±56.92

Note: The age of patients in the two groups was measured, and the difference was not statistically significant (P>0.05) after t-test of two independent samples (t=0.302, P=0.765). The course of disease of patients in the two groups was measured, and the difference was not statistically significant (P>0.05) after t-test of two independent samples (t=1.059, P=0.299).

Table 8: comparison of the baseline scores of the two groups before oral treatment (X ±S)

Group	N	Water test scores in depression	SSA scores
Experimental group	15	2.20±0.41	22.80±1.01
Control group	15	2.20±0.41	22.47±1.19

Note: The potable water test score before the oral treatment of the two groups was the measurement data, and the difference was not statistically significant (P>0.05) after the two independent samples t test (t=0.000, P=1.000). The SSA score before the oral treatment of the two groups was the measurement data, and the difference was not statistically significant (P>0.05) after the two independent samples t test (t=0.827, P=0.415).

Table 9: comparison between the two groups before and after treatment (X ±S)

Group	N	Water test scores in depression		SSA scores	
		Before treatment	After treatment	Before treatment	After treatment
Experimental group	15	2.20±0.41	1.47±0.49	22.08±1.01	19.53±0.83
Control group	15	2.20±0.41	1.87±0.52	22.47±1.19	20.67±0.90

Note: The potable water test score of the oral stage patients in the experimental group was lower than that before the treatment, and the paired t test (t=6.205, P=0.000) showed statistically significant difference (P<0.01). In the control group, the scores of potable water test after the treatment were lower than before the treatment, and the paired t test (t=2.646, P=0.019) showed statistically significant difference (P<0.05). After treatment, SSA scores of the oral patients in the experimental group decreased compared to those before treatment. After paired t test (t=15.838, P=0.000), the differences were statistically significant (P<0.01). After treatment, SSA scores of patients in the control group decreased compared to those before treatment, and the difference was statistically significant after paired t test (t=6.874, P=0.000) (P<0.01).

Table 10: comparison of scores before and after oral treatment between the two groups (X ±S)

Group	Water test scores in depression	SSA scores
Experimental group	0.73±0.46	3.27±0.80
Control group	0.33±0.49	1.80±1.01

Note: The difference in scores of potable water test before and after oral treatment in the two groups was significantly higher than that in the control group. After t=2.316,P=0.028, the difference was statistically significant (P<0.05). The SSA score difference between the two groups before and after oral treatment was significantly higher in the experimental group than in the control group, and the difference was statistically significant (P<0.01) after the t-test of two independent samples (t=4.400,P=0.000).

Table 11: Sex baseline comparison of the two groups of pharyngeal period patients

Group	N	Gender	
		Male	Female
Experimental group	15	7	8
Control group	15	9	6

Note: The sex of patients in the two groups was counted data, and the difference was not statistically significant (P>0.05) after chi-square test (X^2=0.133, P=0.715).

Table 12: comparison of the age and course of pharyngeal disease between the two groups (X ±S)

Group	n	Age(years)	Course of disease (days)
Experimental group	15	63.60±6.83	42.07±28.32
Control group	15	62.60±11.54	50.87±52.42

Note: The age of patients in the two groups was measured, and the difference was not statistically significant (P>0.05) after t-test of two independent samples (t=0.289, P=0.775). The course of disease in the two groups was measured, and the difference was not statistically significant (P>0.05) after t-test of two independent samples (t=0.572,P=0.572).

Table 13: baseline comparison of the two groups before pharyngeal treatment (X ±S)

Group	N	Water test scores in depression	SSA scores
Experimental group	15	4.13±0.35	32.67±1.29
Control group	15	4.07±0.26	32.27±1.22

Note: The potable water test score before the oral treatment of the two groups was the measurement data, and the difference was not statistically significant (P>0.05) after the two independent samples t test (t=0.592,P=0.559). The SSA score before the oral treatment of the two groups was the measurement data and the difference was not statistically significant (P>0.05) after the two independent samples t test (t=0.871, P=0.391).

Table 14: comparison between the two groups before and after pharyngeal treatment (X ±S)

Group	N	Water test scores in depression		SSA scores	
		Before treatment	After treatment	Before treatment	After treatment
Experimental group	15	4.13±0.35	2.67±0.49	32.67±1.29	25.80±0.94
Control group	15	4.07±0.26	3.13±0.52	32.27±1.22	29.00±1.00

Note: The potable water test score of the pharyngeal patients in the experimental group was lower than that before the treatment, and the paired t test (t=11.00, P=0.000) showed statistically significant difference (P<0.1).In the control group, the potable water test score of the pharynx patients in the depression decreased after treatment compared with that before treatment, and the paired t test (t=7.897, P=0.019) showed statistically significant difference (P<0.05).After treatment, SSA scores of the pharyngeal patients in the experimental group decreased compared to those before treatment and the difference was statistically significant after paired t test (t=25.087,P=0.000) (P<0.01).The SSA scores of the control group of pharyngeal patients decreased after treatment compared with that before treatment, and the difference was statistically significant after paired t test (t=17.978, P=0.000) (P<0.01).

Table 15: Comparison of scores before and after pharyngeal treatment between the two groups (X ±S)

Group	N	Water test scores in depression	SSA scores
Experimental group	15	1.47±0.52	6.87±1.06
Control group	15	0.93±0.46	3.27±0.70

Note: The difference between the two groups in the drinking water test before and after oral treatment was significantly higher in the experimental group than in the control group, and the difference was statistically significant (P>0.001) after the two independent samples t test (t =2.993, P=0.006).

The difference in scores of potable water test and SSA difference between the two groups before and after treatment were all significant compared with the control group and the difference was statistically significant after independent sample t test. The experimental group is superior to the control group.

Selection basis of acupuncture points in deglutition stage group

The acupoint prescription adopted by the deglutition stage acupuncture group is based on the characteristics of each phase of deglutition disorders and the close treatment effect of the acupoint and combined with ancient literature and modern research design.

Oral curative effect analysis of the two groups

Comparison of oral baseline between the two groups

Baseline data of oral cases (gender, age, course of disease, water intake test score in the depression before treatment and SSA score before treatment) of the two groups showed no statistically significant difference (P>0.05), showing comparability between the two groups.

Efficacy analysis of the two groups after oral treatment

After treatment, the scores of the potable water test and SSA scores of the two groups were all decreased and the differences were statistically significant by paired t test. The difference between the scores of the drinking water test in the depression before and after the oral treatment of the two groups was significant and the SSA difference was significant in the experimental group compared with the control group. After the independent sample t test, the difference was statistically significant.

Analysis of the pharyngeal curative effect of the two groups

Comparison of baseline pharyngeal period between the two groups

Baseline data (gender, age, course of disease, water intake test score in the depression before treatment and SSA score before treatment) of the two groups showed no statistically significant difference (P>0.05), showing comparability between the two groups (as shown in tables 11-13).

Efficacy analysis of the two groups after pharyngeal period treatment

After the treatment of pharynx, the scores of potable water test and SSA scores decreased in both groups and the differences were statistically significant by paired t

test as shown in table 14. Before and after pharyngeal treatment, the difference in scores of potable water test and SSA scores in both groups were significantly higher than those in the control group. After independent sample t test, the difference was statistically significant. The pharyngeal period of the experimental group was better than that of the control group (as shown in table 15).

Toxicity assessment

This study has good safety. No abnormal bleeding was found in the treatment of tongue needle and posterior pharyngeal wall puncture and bloodletting during the treatment. In other acupoint acupuncture, there were 5 cases of hemorrhage after needle removal, 3 cases of subcutaneous congestion, which could be subsided after pressure, and no adverse events such as syncope and arrhythmia occurred.

DISCUSSION

Mouth period

Oral dysphagia mainly consists of oral muscle, tongue muscle movement disorder, muscle weakness, muscle spasm, difficulty in coordination and slow movement. As a result, it is impossible to form a tightly cohesive food mass, control the obstacle of food mass and effectively push back the food mass. The manifestations were dysphagia and salivation. The sensitivity of oropharyngeal sensory apparatus is decreased. Early leakage of pellets into the pharyngeal period (Wanbing *et al.,* 2009). Dysphagia caused by stroke is mainly caused by dysphagia of tongue and palate. Dysplasia of the anterior two-thirds of the tongue caused by dysplasia of motor function. The back of the tongue retreats, elevates the obstacle, the tongue, palatine halos the east to weaken, then may cause the food group's oral retention in the early occurrence of overflow. According to the above characteristics, the acupoint prescription in oral stage is as follows: lianquan point, jia lianquan point, heart acupuncture point, spleen acupuncture point, kidney acupuncture point (Xuemin 1997).

Lianquan point, clip lianquan point: lianquan point point in front of the middle line, the upper throat, the upper hyoid depression (Huimin 1998; Yongzhong 2006; Zhongren 2010; Zhiling and Zhihong 2000; Wenge *et al.,* 1999). Double side clip lianquan cave (left and right side of lianquan cave open 1cm). The anatomic site of lianquan point is located between the thyroid cartilage and hyoid bone, between the anterior belly of the right and left digastric muscles, deep epiglottis, and the laryngopharynx below. The thyroid hyoid muscles and hyoid muscles are distributed with the cervical cutaneous nerve and the subglossal nerve branches are in the deep layer. "Acupuncture and moxibustion birth classics": "lianquan point main sublingual swelling difficult to speak, tongue longitudinal saliva. Go up, vomit, the tongue root shrink nasty, bottom feed hard." It can be seen that lianquan point swallowing difficult points. Yumin (2002) and Zhengzheng (2010) found that acupuncture at lianquan point has a significant effect in treating dysphagia after stroke. Weibin (2000) found that the clinical effect of electroacupuncture on lianquan point was obvious in the treatment of pseudobulbar paralysis.

Tongue needle: heart acupuncture (located at the tip of the tongue), spleen acupuncture (1 inch backward along the posterior median line in front of the tongue and 0.4 inch apart), kidney acupuncture (1.6 inches backward along the posterior median line in front of the tongue and 0.4 inch apart) (Qing and Ziping 2003; Jian and Xiaoting 2001 and Jinru 2004). Tongue acupuncture is a method of acupuncture on the tongue to treat diseases, mainly for the treatment of tongue and limb movement disorders. Through acupuncture on the upper heart, spleen and kidney of the tongue, it can stimulate the meridians associated with the tongue and activate the brain and blood circulation, dredge the meridians and collaterals, and make the throat and throat clear. Thereby promote the recovery of swallowing function. Jili Tong *et al*. (2011) conducted a clinical study on the treatment of dysphagia after stroke through the tongue acupuncture test group and the control group, showing that tongue acupuncture treatment has a good effect on the swallowing disorder of stroke patients.

Pharynx period

Pharyngeal dysphagia is mainly caused by laryngopharyngeal structural dysplasia and mutual movement disorder. One of the main causes of delayed pharyngeal initiation is the decreased impaction of tongue on food mass caused by posterior tongue movement disorder. The pharyngeal ridge formed by the soft palate and the posterior pharyngeal eminence is not in good contact, and the pharyngeal cavity and nasal cavity cannot be closed normally, resulting in nasal regurgitation. Arytenoid cartilage, vocal cords, and epiglottis are incapacitated and cannot effectively close the larynx, causing ingrowth to stray into the airway. Hyoid bone and laryngeal insufficiency can result in hypopharyngeal insufficiency, slow food mass delivery, and upper esophageal sphincter opening disorder. The upper end of the esophagus sphincter is malfunctionally unable to open the upper end of the esophagus to receive the mass. Acupoint prescription in pharyngeal period was as follows: fengchi point, yifeng point, human ying, fu tu, pharyngeal wall.

fengchi point, yifeng point: the air pool hole is in the neck, below the occiput, level with the wind house, and the depression between the sternocleidomastoid muscle and the upper end of the trapezius muscle. The fengchi point is the rendezvous point offutu point shaoyang's biliary meridian and yangwei's vein, at the same time, futu point

shaoyang's biliary meridian and thefutu point after the circulation of the throat. "qianjin fang": "the main guttural hump causes clonus not to close", acupuncture fengchi point can adjust liver to put out wind, cut phlegm benefit pharynx, yifeng point is behind the earlobe, when the mastoid process is depressed between the mandible. yifeng point is the three jiao meridians of the hand shaoyang, and the meridians of the hands and feet shaoyang, the sixty-third of the internal path and the theory of mu-ci. Jiji Tong (2011), Duhua Dang (1995) and other studies have shown that acupuncture on fengchi and yifeng acupoints has a good clinical effect on dysphagia after stroke.

renying point: in the neck, beside the Adam's apple, when the front of the sternocleidomastoid muscle, the common carotid pulse place. Belong tofutu point Yang stomach classics, futu point Yang Ming, futu point less Yang meeting." The emperor's inner path is too plain", said:"in the Adam's apple two boxes, feet yangming pulse to meet the five internal organs of the gas to nurture people, so that people ying." "The origin offutu point Yang Ming in the calendar, marked in the face of the decay of the body." Acupuncture human ying point has the function of tongli larynx, regulating qi, and tong mai. Wei Zhou *et al*. (1998) stimulate the nerve endings of the tongue and pharynx, hypoglossal nerve, trigeminal nerve, vagus nerve, facial nerve and cervical spinal nerve branches through acupuncture at human ying point, promoting the flexibility and coordination of muscles and improving the swallowing function.

Protuberance: in the lateral part of the neck, parharyngeal, between the anterior and posterior border of the sternocleidomastoid. Belong to the large intestine of hand yangming, yangming position of multiple blood gas, puncture can dredge local gas blood. Jinru (2004) acupuncture on the acupuncture point can change the dysphagia caused by pseudobulbar paralysis. They achieved a total effective rate of 92% in the treatment of dysphagia after stroke through acupuncture at futu point.

Posterior pharyngeal wall: puncture can stimulate local muscles, small ligaments and other receptors, forming the stimulation of central nervous system and enhancing synergistic effect. Jili (2011) early acupuncture combined with pharyngeal posterior wall point stimulation in the treatment of pseudobulbar paralysis after stroke has a significant effect.

Mechanism of action of deglutition stage acupuncture for treating deglutition disorder after stroke

TCM

After stroke, dysphagia can be seen in "laryngeal arthralgia", "choking", "tongue strong" and other diseases, such as acupuncture classics: "excessive dark gas hard, laryngeal arthralgia can not rest, no food and drink....."; theory of various pathogenic factors"; "a person with laryngeal arthralgia, laryngeal swelling and arthralgia, and water slurry can not enter"; In most of the relevant literature, swallowing disorder usually with hemiplegia, breath skewed partial body center symptoms such as numbness appear at the same time, such as the jinbian calendar day ` stroke disease"; " wind is for the disease, when hemiplegia, or but found in the arm, this is bi, micro vein and number of stroke due to.....Evil lies in the collaterals, skin is not benevolent; Evil lies in the scriptures; To enter the government, that is, do not know people; Evil into the dirt, the tongue is difficult to speak, mouth spit." Chinese medicine classified the etiology and pathogenesis of dysphagia after stroke as "stroke" in Chinese medicine. Acupuncture treatment of stroke dysphagia has been widely recorded in ancient Chinese medical literature, such as the record in the book "preparation for a sudden treasure": "partial failure, loss of tone and non-aphasia, tan baihui, feng fu". It is recorded in the book of acupuncture acupuncture at tongrenshu acupoints: "from mouth to body, sharp contraction of the root of the tongue, eating male, taking lian-quan, yifeng point zhi can't speak." Pku for stroke....." Or cry more, words do not choose", "the kind of classics diagram wing" in the record: "fengchi point to treat stroke silent, soup water can not entrance, one hundred hui said to cure sad laugh to die." "Compendium of medicine" in the record: "the root of the tongue contraction, lianquan point three points, get gas diarrhea." It can be seen that the ancient literature has recorded the treatment of post-stroke hypopharyngeal disorder by acupuncture. The key pathogenesis of dysphagia after cerebral apoplexy is blocked veins and ventilators. The shu acupoints only treat the local and adjacent tissues, the function of organ disease and syndrome, that is, "where the acupoints are, where the main treatment is". Acupuncture has the therapeutic effect of dredging meridians and collaterals, which can make the blocked meridians unblocked and play its normal physiological function. According to the close treatment effect of shu acupoints, the acupoints of the lesion were selected for acupuncture treatment, which had the function of opening and closing the collaterals, guiding qi and promoting qi and promoting qi and promoting qi and promoting qi, so as to improve the symptoms of stroke, swallowing disorder.

CONCLUSION

This study evaluated the efficacy and safety of 12-day acupuncture in patients with dysphagia after stroke. The following conclusions are drawn: For dysphagia after stroke, the therapeutic effect of the deglutition stage acupuncture group was better than that of the conventional acupuncture group: the efficacy of the oral pharyngeal stage between the two groups was compared, and the therapeutic effect of the deglutition stage

acupuncture group was also better than that of the conventional acupuncture group. Deglutition stage acupuncture was superior to conventional acupuncture group. The advantage of the conventional acupuncture method of deglutition stage is that different acupoints and acupuncture methods are taken according to different muscle nerves involved in different stages of deglutition disorder, so that the treatment is more targeted and the treatment effect is better.

Deglutition stage acupuncture therapy has a good clinical effect on deglutition disorders after stroke, and can be applied to clinical therapeutic treatment with targeted safety.

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