



“Tong Guan Li Qiao” Acupuncture Therapy on Post-Stroke Dysphagia

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Abstract

Keywords

- ▶ dysphagia
- ▶ poststroke
- ▶ “Tong Guan Li Qiao” acupuncture therapy
- ▶ regulating spirit
- ▶ manipulation quantification
- ▶ brain

The differences between the “Tong Guan Li Qiao” acupuncture therapy and the conventional and current other acupuncture methods for poststroke dysphagia are as follows: first, it adheres to the basic idea of “Xing Nao Kai Qiao” acupuncture therapy in selecting and combining acupoints, centers on the brain, and combines the dysphagia symptoms of the mouth, tongue, and throat-related orifices with the root cause of “brain”; second, there are strict and standard requirements in the acupuncture operation, that is, manipulation quantification. In addition to standardized twirling, lifting, and thrusting, the techniques of deep needling on the acupoints in the neck region, blood-letting puncturing at the posterior wall of the pharynx, and the needling sensation of “like a fishbone getting stuck in the throat” are all unique.

Introduction

The incidence of poststroke dysphagia is approximately 27 to 78%.^{1–4} For these patients, dehydration, electrolyte disorders, and malnutrition may occur due to inadequate intake of food and water, and the concomitant aspiration can lead to aspiration pneumonia or even asphyxiation. Aspiration pneumonia is one of the main causes of increased mortality in stroke.^{4–6} Poststroke dysphagia can be classified into the categories of “Yinfei”, “Yege”, and “Houbi” in Chinese medicine. The traditional acupuncture treatment for this disease mostly starts from the symptoms. In the *Illustrated Classic of Acupoints on the Bronze Figure (Tongren Shuxue Zhenjiu Tujing)*, it records that the Lianquan (RN 23) is mainly used to treat “contraction of the tongue root, difficulty in swallowing”, etc.

Xuemin Shi, a Chinese medicine master, created the “Tong Guan Li Qiao” acupuncture therapy from the perspective of “brain” by combining modern research works to treat poststroke dysphagia and achieved the synchronous and coordinated treatment of both the root cause and the symptoms.⁷ This method has become a clinical appropriate skill of Chinese medicine approved by the National Administration of Traditional Chinese Medicine and has been popularized nationwide.⁸ Its core essence can be summarized as spirit regulation as the basis and quantification as the key.

Spirit Regulation as the Basis

The “Tong Guan Li Qiao” acupuncture therapy originated from the acupuncture system of “Xing Nao Kai Qiao”. Based on the theory of “brain”, it adheres to the idea of “governing

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the spirit”, which is mainly reflected in the following two aspects.

For Mind Confusion, Spirit Regulation is the Key

This disease is secondary to stroke and is located in the brain. The brain is the residence of the primordial spirit and the boarding house of mind. Therefore, acupuncture treatment for brain disease must be based on spirit regulation. The “Tong Guan Li Qiao” acupuncture therapy is a set of characteristic acupuncture methods based on the theory of “brain” and “spirit regulation”. Xuemin Shi believes that the key to the pathogenesis of post-stroke diseases lies in the damage of pathogenic qi such as wind, phlegm, and blood stasis, which blocks the brain orifice and leads to absent mindedness, internal blockage, and inability in guiding the meridian qi. Therefore, the first priority of treatment is to “dredge the orifice and restore consciousness”.⁹ The ethical batch number of this research is TYLL2021[K]021.

The selection of Neiguan (PC 6) and Renzhong (DU 26) as the main acupoints reflects the idea of “regulating spirit”. Neiguan (PC 6) pertains to the pericardium meridian of Jueyin. Since the pericardium acts on behalf of the heart and the heart governs spirit, needling Neiguan (PC 6) can eliminate pathogenic wind, phlegm, and blood stasis from invading spirit. Renzhong (DU 26) pertains to the governor meridian. The governor vessel governs all the yang qi in the body, starting from the uterus and reaching the peak of the head. The functional activities of yang qi are the manifestations of “spirit”. Therefore, needling Renzhong (DU 26) can stimulate the spirit to control the limbs, joints, and orifices. The combination of the two acupoints can dredge stagnation and stimulate spirit so that spirit can “guide qi” to the limbs, meridians, organs, and orifices and restore their functions. At the same time, Sanyinjiao (SP 6) should also be needled as the main acupoint to ensure the source of spirit generation. Sanyinjiao (SP 6) is the intersection acupoint of spleen meridian of foot Taiyin, kidney meridian of foot Shaoyin, and liver meridian of foot Jueyin. Liver and kidney share the same origin, which dominate the congenital constitution. The spleen dominates the transportation and transformation of the acquired constitution. Therefore, needling Sanyinjiao (SP 6) can nourish both congenital and acquired constitution, supplement healthy qi and brain marrow.

For Blockage of Orifices, Spirit Regulation Is the First Priority

The chapter of *Miraculous Pivot: Loss of Voice due to Anxiety and Rage (Lingshu: Youhui Wuyan)* says that “The throat is the passage of the water and food. The throat extends to the lung and is the passage through which the air is breathed out and breathed in.” It pointed out that the throat is not only an important gateway for food to enter the stomach but also an important channel for respiratory qi exchange, and together with the tongue orifice, it constitutes a key link for swallowing. Post-stroke dysphagia refers to the symptoms such as difficulty in pushing food, swallowing, or even respiratory aspiration due to the spirit’s failure to control the tongue, throat, and other organs caused by brain damage.⁸ The root

cause of the disease was in the brain, and the symptoms were in the mouth, tongue, and throat.

In the acupuncture treatment, the root cause should be treated first, that is, to mobilize the spirit of the brain and then apply acupuncture to the neck, attract the “spirit qi” to the tongue and throat, so as to achieve the purpose of “dredging orifice”. In the acupuncture operation, acupuncture is first performed on the main acupoints of “Xing Nao Kai Qiao”, such as Neiguan (PC 6), Renzhong (DU 26), and Sanyinjiao (SP 6) and then on the neck, such as Yifeng (SJ 17), Lianquan (RN 23), etc. When acupuncture is applied to Renzhong (DU 26) but not the cervical acupoints, the patient has the feeling of saliva secretion and wants to “swallow”, which is to mobilize “spirit qi” to the orifice. The orifice is the manifestation of the “spiritual messenger”, which is the “spiritual response” mentioned by Xuemin Shi.

Quantification Is the Key Factor

Acupuncture manipulation is an important component part of acupuncture treatment and has a direct influence on clinical efficacy. The best stimulation dosage to establish acupuncture manipulation is manipulation quantification.¹⁰ Acupuncture manipulation quantification was first proposed in the 1970s by Xuemin Shi. This manipulation makes acupuncture therapy more normative, repeatable, and operable so that acupuncture therapy rises from qualitative to quantitative levels, filling a gap in the history of acupuncture.¹¹

Performing Twirling, Lifting, and Thrusting Manipulation and Sparrow-Pecking Moxibustion Method to Lay the Foundation for Spirit Regulation

There are strict acupuncture sequence and operation specifications in the actual operation of “Tong Guan Li Qiao” acupuncture therapy. First, Puncture bilateral Neiguan (PC 6) perpendicularly for 12.5 to 25 mm, using combinative reducing method for 1 minute; then puncture Renzhong (DU 26) obliquely upwards to the nasal septum for 7.5 to 12.5 mm with heavy bird-pecking method until the patient’s eyeballs are moistened or tears flow; then Sanyinjiao (SP 6) should be inserted by 25 to 40 mm needle on the affected side, and the needle is inserted along the medial margin of the tibial surface at an oblique angle of 45 degrees to the skin. The reinforcing method of lifting and thrusting is used until the foot twitches involuntarily for three times.¹²

Studies have shown that according to the above manipulation quantification, acupuncture at Neiguan (PC 6) can improve cardiac output and thus increase cerebral blood supply¹³; needling Renzhong (DU 26) can excite the facial vasodilation center-sphenopalatine ganglion, activate the trigeminal nerve-vascular system, and relax the cerebral microvasculature to accept the increased cerebral blood supply due to needling of Neiguan (PC 6).¹⁴ The combination of the two acupoints can prolong the tolerance time of cerebral ischemia and protect brain cells. Needling Sanyinjiao (SP 6) can enhance the average signal intensity of the ipsilateral and contralateral functional areas of the brain injury site so that

the information integration of the central nerve is conducive to functional rehabilitation.¹⁵

The special sign corresponding to the dose response after needling Renzhong (DU 26) is “eyeball moistness”. The chapter of *Miraculous Pivot: Symptoms of Zangfu-organs due to Attack of Pathogenic Factors (Lingshu:Xieqi Zangfu Bingxing)* records that “qi and blood in the twelve meridians and 365 collaterals all flow to the face and infuse into the seven orifices on the face. The pure yang qi infuses into the eyes.” It points out that the eyes are the convergence of the essence of the human meridians and blood. That needle until “the eyeball is moist” is the manifestation of the mobilization of qi and blood throughout the body by the spirit. The release of neurotransmitters with dilated cerebral vessels can be stimulated only if the stimulation intensity and duration of the points are strong enough to cause reflexive tears. Therefore, “moist eyes” marks that the needling of Renzhong (DU 26) reaches the stimulation amount of relaxing cerebral microvascular.¹⁴

Deeply Needling Towards Throat to Treat Yin Diseases and Coordinate Yin and Yang

The chapter of *Plain Questions: Discussion on the Essentials of Acupuncture (Suwen:Ciyao Lunpian)* states that “Diseases are either external or internal and needling can be either shallow or deep. To treat diseases, needles should be inserted into the required depth, neither too deep nor too shallow.” The depth of needling is one of the important indicators affecting the curative effect. In the treatment of post-stroke dysphagia with the “Tong Guan Li Qiao” acupuncture therapy, the 75-mm needle was used to needle Fengchi (GB 20), Wangu (GB 12) and Yifeng (SJ 17) on both sides by 60 to 75 mm, and the needle was also used to needle Lianquan (RN 23) in the direction of the tongue root by 60–75mm. The needling was significantly deeper than that of traditional acupuncture.⁸ The main reasons for the deep needling were as follows.

Deep Needling for Yin Disease

The chapter of *Miraculous Pivot: Yin and Yang, Luicidity and Turbidity (Lingshu:Yinyang Qingzhuo)* records that “So in needling the yin meridians, the needles should be inserted deeply and retained for a longer period of time.” It reveals that if the disease location is deep and belongs to yin disease, deep needling should be applied. The pharynx is deep in the neck. The chapter of *Plain Questions: Discussion on Taiyin and Yangming (Suwen:Taiyin Mingyang Lun)* states: “The larynx associates with heaven qi and the pharynx with earth qi”, indicating that the pharynx is yin relative to the larynx. Therefore, in the treatment of dysphagia with “pharyngeal” disease, deep needling should be used to cure the disease.

Communicating Yin and Yang

The selected acupoints in the neck region, Fengchi (GB 20), Wangu (GB 12), and Yifeng (SJ 17), all belong to the yang meridians, while the pharynx belongs to yin. They are deeply needled from the yang meridians and have the function of guiding yang qi of the yang meridian to the yin part to warm and dredge the throat. At the same time, coordinate with

Lianquan (RN 23) which is also deeply needled on the conception vessel. Conception vessel is called as the “sea of yin meridians”, which follow the path through the throat. Thus, needle Lianquan (RN 23) deeply can meet the yang qi which is guided by yang meridians from yin meridian aspect..

The chapter of *Miraculous Pivot: Five Disorders, Luicidity and Turbidity (Lingshu:Wuluan)* says that “Slow insertion and slow withdrawal of the needle means to direct the qi, that is to guide the meridian qi to flow normally in the meridians.” In terms of manipulation, slowly and vibrationally needle Fengchi (GB 20), Wangu (GB 12), Yifeng (SJ 17), and Lianquan (RN 23) to guide yin qi and yang qi to converge in the throat.

Opening and Closing Yin and Yang

Both Fengchi (GB 20) and Wangu (GB 12) belong to the gallbladder meridian of foot Shaoyang, and Yifeng (SJ 17) belongs to the triple energizer meridian of hand Shaoyang. Shaoyang as the pivot which dominates opening and closing and is the gateway for communicating yin qi and yang qi. The throat is the portal for food (yin) and clear qi (yang) to enter the body from the outside, and also the dividing range between yin and yang. When swallowing, if the pharynx cannot open on time, it will lead to food not being delivered to the stomach; if the larynx cannot close in time, it will cause choking and aspiration due to disordered opening and closing of the gateway and uncoordinated yin and yang. Therefore, Shaoyang should be needled to open the gateway and coordinate yin and yang. Besides, the cause of stroke in Chinese medicine is pathogenic “wind”. Needling Fengchi (GB 20), Wangu (GB 12) and Yifeng (SJ 17) in the neck region also have the function of “dispelling wind,” which is the selection and combination of acupoints with consideration of both the root cause and symptoms.

Like a Fishbone Getting Stuck in the Throat, Breaking Through the Tradition and Stressing Precision

When needling Fengchi (GB 20), Wangu (GB 12), and Yifeng (SJ 17), patients will have a special needling sensation under the condition of ensuring accurate selection of acupoints, direction, and depth of needling, sensation like a fishbone getting stuck in the throat.¹⁶ This special needling sensation breaks through the traditional understanding of needling sensation characterized by sourness, numbness, distension, and pain and is a key to the efficacy of this method.

The effect of acupuncture lies in the “arrival of qi” and “qi reaching the disease position”. In the swallowing reflex, sensory input is key to triggering swallowing in the pharynx and regulating sequential activities of the muscles.¹⁷ Modern functional magnetic resonance also confirmed that the “sensation of qi arrival” of acupuncture treatment is an important link in promoting brain function activation.¹⁸ Under the guidance of the special needle sensation “like a fishbone getting stuck in the throat”, patients will have a strong subjective experience of involuntary swallowing action, and many patients will objectively produce sequential swallowing action. Studies have shown that continuous swallowing actions are an excellent recovery of swallowing function.¹⁹

Improving Blood Supply by Reinforcing Method of Small-Amplitude and High-Frequency Twirling

For the acupuncture treatment of dysphagia, acupoints in the neck region are usually selected. The sublingual nerve, vagus nerve, glossopharyngeal nerve, and its branches are distributed in the deep layer of the neck acupoints. Acupuncture can excite the motor fibers of peripheral nerves and promote the recovery of glossopharyngeal function.²⁰ However, in addition to the difference in depth of needling acupoints in the neck region between “Tong Guan Li Qiao” acupuncture therapy and conventional acupuncture method, the further manipulations are also especially characterized by the following: bilateral acupoints of Fengchi (GB 20), Wangu (GB 12), Yifeng (SJ 17), and Lianquan (RN 23) are all needled with a twirling amplitude less than 90 degrees, a frequency of 120 to 160 r/min, and a manipulation duration of 1 minute.¹⁰ Studies showed that the application of the reinforcing needling method with small-amplitude and high-frequency twirling to Fengchi (GB 20), Wangu (GB 12), etc., in the neck region can effectively increase the cerebral blood supply of the vertebral artery, promote the establishment of collateral circulation, and create favorable conditions for the recovery of brain function in patients with dysphagia.¹¹

Needling the Pharynx to Remove Stagnation, Dredging Channels to Facilitate Swallowing

In the operation of “Tong Guan Li Qiao” acupuncture therapy, in addition to needling on the surface of the body, five needles with a diameter of 0.3 mm and a length of 75 mm should be used to prick the posterior pharyngeal walls for three to five times on each side. The local ruddy and slight bleeding state should be taken as the appropriate degree, and the total bleeding should be controlled at 1 to 2 mL. The needling method applies the commonly used bloodletting method on the surface of the body and the sublingual collaterals to the deep part of the pharyngeal cavity, which is an extension and innovation of the blood-letting method.

The chapter of *Miraculous Pivot: Explanation of the Small Needles, Lucidity and Turbidity (Lingshu:Xiaozhen Jie)* says that “The idea of using removing techniques to deal with stagnation of qi and blood means to eliminate blood stagnation in the vessels.” For dysphagia, blocking orifices and local qi, and blood stagnation, local acupuncture and blood-letting method should be performed to dredge the meridians. In the actual operation, Xuemin Shi combined the disease location and the pathogenic characteristics, adhered to the laws and flexibly changed the methods: (1) the posterior wall of the pharynx is deep, so the 75-mm needle is selected to directly reach the disease location. (2) The pharynx mucosa is tender, so the operation adopts the methods of pricking, scattering, and rapid pricking to avoid excessive stimulation and control the amount of bleeding. Before needling, the mouth should be cleaned to avoid infection.

Studies have shown that the junction of nasopharynx and oropharynx is the area with the densest distribution of pharyngeal sensory receptors, and this area is also the blood-letting area in the process. Compared with electrical stimulation, mechanical stimulation of the pharyngeal wall

and soft palate is more likely to induce swallowing.¹⁷ Therefore, pricking and blood-letting at this site can further promote the establishment of the swallowing reflex.

Conclusion

Meijian Zheng in the Qing Dynasty said in the *Jade Key to the Secluded Chamber (Chong Lou Yu Yao)* discussed that in acupuncture treatment of various throat diseases, “the meridians should be dredged by needling to promote smooth flow of qi and blood”. It indicates that acupuncture has advantages in the treatment of various throat diseases. The “Tong Guan Li Qiao” acupuncture therapy has deeply revealed the advantage in acupuncture indications. Combined with modern medicine and based on the “brain” theory, the idea of “spirit regulation” penetrates through the whole process. At the same time, strict and standardized manipulations are also crucial to its effectiveness. In the future, modern evaluation methods of dysphagia are needed to further clarify the action targets and mechanism of this method so as to make it better play its medical value.

Credit Authorship Contribution Statement

Hongwen Huang: Writing –original draft, project administration. **Huiyan Shi:** Supervision, writing-review & editing, resources. **Xuesong Ren:** Investigation, resources. **Xuemin Shi:** Conceptualization, supervision, writing-review & editing.

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Conflict of Interest

The authors declare no conflict of interest.

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