

Clinical Progress of Acupuncture in Treating Post-stroke Constipation

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Abstract: Constipation is one of the complications after stroke, which not only seriously affects the life quality of patients but may even induce secondary stroke if not appropriately handled. Regarding the treatment of post-stroke constipation, western medicine has an immediate effect. However, its effective time is short, the frequency of medication is high, and the long-term effect is not promising. Therefore, traditional Chinese medicine has gradually attracted attention in clinical practice due to its unique advantages. Mainly, acupuncture for treating symptoms of post-stroke constipation is widely used in the clinic because of its convenient operation and no noticeable adverse reactions. Therefore, after summarizing and studying relevant literature in recent years, it is found that acupuncture, warm acupuncture, and other therapies have apparent therapeutic effects on post-stroke constipation.

Keywords: Acupuncture; Stroke; Constipation; Review

1. Stroke Complications Introduction

Stroke is one of the leading causes of death and disability. With changes in diet and lifestyle, the incidence and recurrence rate of stroke is increasing, and the age of the onset population tends to be younger [1]. Constipation refers to symptoms of an unhealthy decrease in the frequency of defecation (< 3 times per week), dry and hard stool, or normal stool but difficult to defecate [2]. According to domestic and foreign survey results, constipation is one of the common complications of stroke patients, with an incidence rate of 30% to 60%. And the acute stage of stroke is the high-incidence period of constipation (41.9%) [3]. While in the chronic stage of stroke, 23% of patients suffer from constipation [4]. Therefore, it is of great significance to summarize the treatment of post-stroke constipation in recent years.

2. Etiological Factor and Pathogenesis

The symptoms of constipation were first introduced in the "Huangdi Neijing," which called constipation "post-disadvantage" and "difficulty in defecation" [5]. The leading causes of constipation are improper diet, emotional disorders, sedentary and inactive, decreased physical function, postpartum, post-disease, and so on. The pathogenesis is mainly manifested in intestinal conduction failure caused by heat stagnation, qi stagnation, cold coagulation, deficiency of qi and blood, and yin and yang. At the same time, post-stroke constipation is mainly caused by a deficiency of vital energy, heat, and phlegm. For patients in stroke recovery and sequelae stage, prolonged illness and qi deficiency in the spleen and lung are more common causes of constipation. The deficiency of qi prevents it from pushing the feces to pass through the large intestine. Therefore, although the stool is not dry and hard, the defecation is not smooth. Over time, it will also lead to intractable stool after a long time. So, the treatment should benefit qi and moisten the intestines to improve bowel movement. After a stroke, patients are prone to depression, excessive worry, or sitting for a long time without moving, resulting in stagnation of qi and dysfunction of the internal organs. Therefore, the flow of qi in the large intestine is abnormal, the conduction is ineffective, and the stool is stuck internally, which cannot go down smoothly, resulting in constipation. Stroke patients are mostly older adults. Elderly and physically weak people will suffer from deficiency of both qi and blood after being ill. The deficiency of qi will lead to the weak transporting ability of the large intestine. At the same time, a blood deficiency will lead to internal dryness. In some worse cases, yin and yang deficiency will appear, and yin deficiency will cause the intestinal tract to lose its moisture, leading to dry stool, which is hard to be defecated. Yang deficiency will cause the intestinal tract to lose

its warmth, leading to cold stagnation and body fluid blockage, resulting in dry stool and difficulty in defecation. Generally, the etiological factor and pathogenesis of post-stroke constipation are based on qi deficiency [6].

3. Acupuncture and Moxibustion for Post-stroke Constipation

3.1 Acupuncture Therapy

Acupuncture has the functions of invigorating and transporting qi, nourishing yin to improve bowel movement, strengthening the body, and eliminating pathogens. It has apparent effects in treating post-stroke constipation. Wei Aixiang et al. randomly divided 60 patients into a treatment group of 30 cases (acupuncture) and a control group of 30 cases (enema). They clinically observed the two groups for ten days [7]. The results showed that the cure rate of the acupuncture group was significantly better than the soft soap laxative enema group, indicating that acupuncture has advantages in treating post-stroke constipation. Wang Wei et al. selected 51 patients and randomly divided them into a treatment group (acupuncture) and a control group (enema) [8]. The results showed that the total effective rate of the treatment group was better than that of the control group, indicating that acupuncture at the acupoints reduced the qi in the lung, increased the qi in the spleen, and cleared the large intestine. Leng Mengtong et al. randomly divided 66 patients into treatment and control groups, with 33 cases in each group. The treatment group received acupuncture at back-shu points and front-mu points combination, and the control group took the original Chinese medicine six-grind soup orally [9]. The conclusions showed that acupuncture treatment for post-stroke constipation was superior to simple Chinese medicine treatment. Liu Haifei et al. randomly divided 68 patients into a treatment group of 35 cases and a control group of 33 cases [10]. The treatment group was treated with acupuncture at he points and mu points combination; the control group was given Maren Runchang Pills orally. In this experiment, seven days was a course of treatment. After two courses of treatment, the clinical scores of constipation in the two groups were reduced compared with those before treatment. And the effective rate of the treatment group was better than that of the control group.

3.2 Electro-acupuncture Therapy

Electro-acupuncture has the dual functions of enhancing needle sensation and electrical stimulation. Since the dilatational wave can not only enhance metabolism but also promote the circulation of Qi and blood, it can stimulate the gastrointestinal smooth muscle to accelerate gastrointestinal motility, further promote bowel movement, and strengthen the smooth function of the internal organs. Wang Dongsheng et al. used abdominal electro-acupuncture at Daheng, Fujie, Tianshu, and Shuidao to treat post-stroke constipation [11]. The total effective rate was significantly better than that of Cisapride in the western medicine group, which indicated that electro-acupuncture could improve the vitality of abdominal nerves and muscles and restore the conduction function of the large intestine to promote defecation. Liu Weiai et al. randomly divided 70 patients into treatment and control groups [12]. The patients of the treatment group were treated with electro-acupuncture, while the patients of the control group were treated with senna leaves as an infused decoction. The results showed that the long-term effect of the treatment group was better than that of the control group. In addition, the incidence of adverse reactions in the treatment group was less than that in the control group. Peng Yongjun et al. divided 48 patients into the electro-acupuncture and drug groups, 24 cases each [13]. The treatment results showed that the scores of constipation symptoms in both groups were improved. Still, the electro-acupuncture group was higher than the drug group, which confirmed that the electro-acupuncture significantly improved the symptoms of post-stroke constipation through deep acupuncture on Tianshu. Wang Chengwei et al. randomly divided the patients into an electro-acupuncture group and a conventional treatment group [14]. The conventional group was treated with western medicine, rehabilitation, and conventional acupuncture. And the electro-acupuncture group was treated with electro-acupuncture for 30 minutes after the conventional treatment. The results show that electro-acupuncture at Tianshu and Zusanli combined with basic treatment can effectively reduce the occurrence of post-stroke constipation, which has a guiding significance for the clinical preventive treatment of post-stroke constipation.

3.3 Eye Acupuncture Therapy

Professor Peng Jingshan created eye acupuncture therapy, a microneedle therapy based on the theory of viscera channels, combined with the "Wulun-bakuo theory" and a large amount of clinical practice.

Wang Chengpan conducted a randomized parallel controlled study on eye acupuncture combined with body acupuncture for post-stroke constipation [15]. The group treated with eye acupuncture combined with body acupuncture used eye acupuncture on the lung area and large intestine area around the eyes and body acupuncture on both Tianshu, Shangjuxu, Qihai, and Zhongwan, and according to the clinical performance to adjust treatment. And the group treated only by body acupuncture used the same points. In addition, seven days was a course of treatment. After two courses of treatment, it was found that eye acupuncture combined with body acupuncture was more effective in treating post-stroke constipation than body acupuncture alone. Zhao Xitong randomly divided 60 patients into test and control groups [16]. The test group was the eye-acupuncture embedding group; Dachang and Xiajiao in the eye-acupuncture point area were selected as the main six. And the control group was the polyethylene glycol electrolyte powder group. Patients in both groups were observed for fourteen days. From the observation of the patients before, after, and one month after treatment, it was concluded that eye acupuncture embedding therapy and polyethylene glycol electrolyte powder were both effective in treating post-ischemic stroke constipation. However, eye acupuncture therapy has the characteristics of fewer adverse reactions and side effects and sound long-term effects.

3.4 Scalp Acupuncture Therapy

Since it is common for stroke patients to have brain tissue ischemia and hypoxia, and damaged upper motor neurons, the defecation center in their cerebral cortex cannot receive and send out defecation information. Therefore, the low-level center in the spinal cord also loses its regulatory function, resulting in defecation disorders. Zhou Wei et al. explored the effect of scalp acupuncture at the foot motor sensory area on constipation after cerebrovascular disease [17]. So the treatment group is the scalp acupuncture group. Compared with the treatment with senna leaf, the total effective rate of the treatment group was not significantly different from that of the control group. Still, after two weeks and four weeks, the effective rate of the treatment group was significantly higher than that of the control group. In addition, the side effects of the scalp acupuncture group were significantly less than those of the control group. It indicated that scalp acupuncture at the foot motor sensory area is an excellent way to treat constipation after cerebrovascular disease. Zhao Ying used scalp acupuncture combined with body acupuncture to treat post-ischemic stroke constipation [18]. The treatment group used electroacupuncture to stimulate the foot movement sense area of the head and acupoints such as Guilai, Waishuidao, Waiguilai, Tianshu, and other points; the control group was treated with oral senna therapy. After two courses of treatment, the clinical symptoms of the treatment group were significantly improved compared with the control group.

3.5 Warm Acupuncture Therapy

Warm acupuncture therapy combines acupuncture and moxibustion, which is suitable for diseases requiring both needle retention and moxibustion. It can warm the meridians, regulate Qi and blood, strengthen local blood circulation, strengthen gastrointestinal smooth muscle, enhance immunity, and improve the body's internal environment. Li Guiyuan used warm acupuncture as the treatment group to treat post-stroke constipation [19]. In the experiment, both groups selected the same acupoints: bilateral Tianshu, Shangjuxu, Zusanli, and Zhigou. And the control group used regular acupuncture. Compared to the results, it is found that the two groups were effective in promoting rapid defecation. In addition, the first course of treatment had a definite curative effect, and the effect of both groups was similar. However, after two courses of treatment, the effect of the warm acupuncture group is more evident than that of the regular acupuncture group. Lin Guanghua et al. randomly divided 60 patients with post-stroke constipation into a treatment group and a control group, with 30 cases in each group [20]. The treatment group was treated with speed acupuncture on Ciliao combined with warm acupuncture, while the control group was treated with speed acupuncture on Ciliao alone. Both groups were treated once a day, and ten days was a course of treatment. After two treatment courses, the treatment group's effective rate was higher than that of the control group. Moreover, three months after the treatment ended, the treatment group's effective rate was still higher than that of the control group, indicating that warm acupuncture can improve symptoms in the short term and increase long-term efficacy.

4. Other Therapies

4.1 Ear Pressure Beans Therapy

Modern experiments and studies have proved that the corresponding parts of auricular points are closely related to the gastrointestinal electrical activity through nerves. Xu Xiuju believed that ear point pressure beans could treat diseases by continuously stimulating the ear points with varying strengths to adjust the flow of qi and blood in the meridian and the viscera function [21]. Yin Hui et al. selected 120 cases of constipation after Qi deficiency and blood stasis type stroke [22]. The observation group applied ear pressure with Wangbuliuxing seeds on the large intestine, small intestine, rectum, and other acupoints, and the control group received health guidance. The effect of ear pressure beans on constipation of patients with blood stasis type stroke is good, and there is no adverse reaction. Through clinical observation, it is concluded by Di Zhiyue that the frequency of defecation and the first defecation of the grouping and cross-selecting ear acupoint seed embedding are significantly higher than those of the conventional ear acupoint seed embedding; the effect is better, and the symptoms of constipation are effectively improved [23]. Grouping and cross-selecting ear acupoints and embedding seeds can also significantly increase the content of substance P (SP) in serum and correspondingly reduce the content of vasoactive intestinal peptide (VIP) in serum. Therefore, it can significantly improve the treatment effect on post-stroke constipation by promoting the contraction of gastrointestinal smooth muscle, strengthening gastrointestinal peristalsis, stimulating parasympathetic nerves to generate excitatory responses, and increasing serum SP levels, reducing VIP levels, and remodeling the defecation reflex.

4.2 Catgut Implantation at Acupoint Therapy

Using modern medical technology combined with traditional acupuncture, absorbable sutures or catgut are implanted into acupoints. Therefore, the absorption of implanted thread can produce lasting stimulation to acupoints, regulate the immune function of patients, stimulate viscera function, and finally, achieve the effect of tonifying deficiency and reducing excess and harmonizing internal organs. Wu Wenfeng et al. randomly divided 60 patients with post-stroke constipation into a control group and a treatment group, with 30 cases in each group [24]. The treatment group used catgut implantation at acupoints in bilateral Dachangshu, Tianshu, and Shangjuxu; the control group received ordinary acupuncture. After treatment, the scores of constipation symptoms and modified Rankin scale were significantly reduced in both groups, and the reduction was more significant in the treatment group. Catgut implantation at acupoint therapy significantly affects patients with post-stroke constipation and can improve their quality of life. Wang Shan et al. randomly divided 60 patients with post-stroke constipation into a treatment group and a control group, with 30 cases in each group [25]. Besides being treated by conventional western medicine, 2-0 absorbable outer sutures of 2 cm were buried in Rutianshu (double), Zusanli (double), Shangjuxu (double), Shenshu (double), Dachangshu (double) in the treatment group. And the control group takes regular acupuncture on Tianshu, Dachangshu, Shangjuxu, Zhigou, and Zhaohai. The treatment was once a day, five times a week, for four weeks. After one course of treatment, the effective rate and constipation symptom scores of the treatment group were better than those of the control group.

4.3 Acupoint Patching

Acupoint patching applies traditional Chinese medicine to acupoints, and the medicine stimulates the acupoints through the skin, regulates blood in the meridians, and improves intestinal dysfunction in patients with constipation.

Xu Hongwei et al. used traditional Chinese medicine, such as raw rhubarb, mirabilite, magnolia officinalis, and citrus aurantium, to apply to acupoints Shenque, Tianshu, and Zhongwan [26]. They believe that it can improve gastrointestinal function, improve the patient's defecation, and effectively prevent the occurrence of constipation in stroke patients. Qin Lixia divided 64 patients with post-stroke constipation into a test group and a control group, with 32 cases in each group [27]. Both groups were given routine nursing; the experimental group was given a self-made laxative patch on the Shenque acupoint based on routine nursing; the control group was given Maren Soft Capsules orally. After four weeks of treatment, the total effective rate of the experimental group was better than that of the control group.

4.4 Massage Therapy

As a commonly used rehabilitation therapy in clinics, it is easy to operate and easy for patients to

accept. Through various massage techniques, force is applied to the patient's gastrointestinal tract to accelerate the gastrointestinal peristalsis. Liang Binglian et al. observed the nursing effect of treating post-stroke constipation patients with the "Fu Yuan Tong Fu" abdominal massage method [28]. The control group was given traditional Chinese medicine routine nursing, and the experimental group was given "Fu Yuan Tong Fu" abdominal massage based on traditional Chinese medicine routine nursing. After one week of treatment, the experimental group effectively improved the treatment effect of post-stroke constipation patients and improved the patient's psychological status, which positively impacted the patients. Tian Feng et al. showed that acupuncture and massage could treat senile constipation [29]. After being treated for 20 days, the levels of MLT and GAS in the serum were higher than before, while the level of somatostatin (SS) in the serum was lower than before. Comparing the experiment group that uses acupuncture and massage and the control group that uses western medicine, the level of MLT AND GAS of the experiment group is higher than that of the control group. At the same time, the level of SS of the experiment group is lower than that of the control group. Results show that acupuncture and massage treatment of senile constipation can regulate the level of gastrointestinal hormones in patients, improve gastrointestinal function, improve the treatment effect of patients with a low recurrence rate, and improve the quality of life and prognosis.

5. Conclusion

Traditional Chinese medicine has a definite effect on treating post-stroke constipation. Comparing other methods, such as traditional Chinese medicine therapy, massage therapy, etc., with acupuncture, the former can alleviate the condition and symptoms, but the long-term effect is not good. Acupuncture, as an external treatment method, has no drug dependence, enhances physical fitness, and can even prevent constipation, enhance the effect of replenishing qi and the function of the spleen, and clear the Sanjiao to improve bowel movement. Particularly, acupuncture stimulates acupoints more directly. While improving the motility function of the gastrointestinal tract, it also accelerates the peristalsis function of the large intestine, promotes the secretion of body fluids, increases internal pressure, stimulates the brain to produce a defecation reflex, and accelerates the excretion of waste in the gastrointestinal tract. In addition, acupuncture plays an important role in regulating mental states and improving the related functions of organs, which is more conducive to the excretion of stool. Although acupuncture has achieved specific results in treating post-stroke constipation, there still needs improvement in the prevention and treatment of constipation. Firstly, patients' acceptance of traditional Chinese medicine is slightly lower. Although the effect of western medicine kicks in fast, it has a high frequency of medication, strong adverse reactions, and long-term effects are far lower than traditional Chinese medicine. Therefore, the knowledge of traditional Chinese medicine should be popularized to patients and their family members from the time of admission to the hospital to achieve the purpose of preventing disease before it develops, preventing the disease from becoming worse, and preventing disease after recovery; secondly, at present, there are more and more researches on post-stroke constipation, but the standard of diagnosis and treatment is always unclear, and there is a lack of large samples and follow-up in the literature. Later follow-up can better evaluate traditional Chinese medicine's safety and timeliness, which needs further exploration.

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