

Research Progress of Traditional Chinese Medicine in the Treatment of Stroke Sequelae

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Keywords: Sequelae of stroke; TCM treatment; research progress; Review

Abstract: Stroke, also known as "stroke", is a critical disease related to cardiovascular and cerebrovascular diseases, which has attracted more and more attention because of its high mortality rate, high disability rate and high morbidity. Patients with stroke sequelae will have problems such as limited limb movement, limited speech, physical pain, and even negative emotions, such as anxiety, depression, etc., which will lead to the patient's life and work being affected, and will also lead to some problems in society. The use of Western medicine can play a therapeutic role to a certain extent, but there are still some adverse effects. Traditional Chinese medicine has a long history of development, has a rich understanding of the treatment of stroke sequelae, and has accumulated rich clinical experience. Compared with Western medicine, TCM treatment has fewer adverse reactions, diversified treatment methods, and simple treatment process, which is recognized by most patients in clinical practice. Therefore, this article provides a reference for clinical TCM treatment of stroke sequelae through the understanding of stroke and the integration of TCM treatment methods for sequelae.

Stroke is one of the common clinical diseases, which is mainly manifested as poor physical activity, language disadvantage, mouth and eye deviation. Stroke is sudden and can sometimes occur after emotional excitement. Stroke brings a heavy burden to patients and their families, has a negative impact on physiology and psychology, and hinders social progress to a certain extent. Data show that stroke is the second leading cause of death in the world ^[1]. In China, the incidence of stroke is increasing, and China has become the country with the heaviest economy for stroke and the country with the highest lifetime risk of stroke ^[2]. According to statistics, the incidence of male is higher than female ^[3]. And some researchers have found that 50% to 70% of patients after stroke still have sequelae after treatment ^[4], such as dysphagia, constipation, hemiplegia, urinary incontinence, cognitive dysfunction and so on. The treatment of stroke sequelae will improve the quality of life and social stability of patients, so how to treat stroke sequelae efficiently and minimize side effects has become a problem that must be overcome in the treatment of stroke. Western medicine is more systematic in the treatment of stroke sequelae, but the treatment of Western medicine has adverse reactions, long-term treatment of patients with intolerance, and high treatment costs. There were no obvious adverse reactions in patients treated with traditional Chinese

medicine, the cost of treatment was low, and the acceptance of patients was high. Therefore, the treatment of stroke sequelae by traditional Chinese medicine should be widely used in clinical practice. By summarizing the literature on the treatment of stroke sequelae by traditional Chinese medicine in recent years, the author expounds the treatment of stroke sequelae from the understanding of stroke by traditional Chinese medicine, and strives to prove the effectiveness of traditional Chinese medicine in the treatment of stroke sequelae.

1. Western medicine and Chinese medicine understanding of stroke

Western medicine refers to stroke as "stroke", which is a cardiovascular and cerebrovascular disease caused by cerebral vascular rupture or obstruction of ischemia^[5]. Cerebral vascular problems affect normal blood flow, cause hypoxia in the brain, cause neuronal damage, and even lead to irreversible brain damage affecting nervous system function. Western medicine believes that the mechanism of stroke is as follows: The intestinal flora can produce metabolites, and the intestinal flora and metabolites regulate the nervous system of the brain through immune, neuroendocrine and vagus nerve pathways. The disorder of flora can lead to the occurrence of cerebral hemorrhage^[6]. Pyroptosis is a kind of cell death. Inflammatory reactions occur through classical pathways and non-classical pathways, causing brain damage to form ischemic stroke^[7], and even affecting the recovery of stroke. 3 The inducement of traditional cardiovascular and cerebrovascular diseases: large artery atherosclerosis, cardiogenic embolism, hypertension, diabetes, smoking, etc., researchers believe that these factors will change the normal hemodynamics, causing cerebral hemorrhage^[8]. CeRNA can regulate coding genes and non-coding genes, which are closely related to many diseases, including stroke^[9]. PM2.5 is a mixture in the air, which has certain pollution to the environment. Modern studies have found that this substance enters the blood circulation through epigenetic mechanisms and affects the possibility of stroke^[10]. 6 Cerebral perfusion blood flow reduction, endothelial function and blood-brain barrier damage, genetic lead to white matter lesions, white matter and stroke are closely related^[11]. Under the influence of these factors, the incidence of stroke is increasing. After stroke, it causes a certain degree of nerve injury, which affects the body function and forms sequelae. Western medicine for stroke is mainly the implementation of reperfusion therapy, improve microcirculation, nutrition nerve treatment. However, western medicine has limitations in the treatment of stroke and sequelae. Long-term medication will increase the burden of liver and kidney, the treatment cost is high, the prognosis is unstable, and the curative effect does not significantly affect the patient's recognition of western medicine.

Chinese medicine called stroke "partial dry", "thin Jue" and so on^[12]. Traditional Chinese medicine believes that the location of stroke is in the brain, which is closely related to liver, spleen and kidney. Wind, fire, phlegm, blood stasis, qi and deficiency are the pathological factors of stroke^[13]. The causes are due to overwork, seven emotions, eating disorders, internal injuries, etc. Stroke can be divided into middle meridian and middle viscera. Middle meridian often occurs in the surface, middle viscera in the inside, and middle viscera is more serious than middle meridian. Most doctors believe that the occurrence of stroke is under the action of wind, fire, phlegm and other pathological factors, affecting the normal physiological function of the five internal organs, leading to qi and blood block and imbalance of yin and yang, so the disease. The famous medical book "Jingui Yaolue" wrote that "the wind is a disease, when the body is incomplete, or the arm is incomplete, this is Bi. Pulse micro and number, stroke", this is the first to put forward the concept of stroke books. The discussion points out that the human body has hemiplegia, limb function is limited, and the pulse is due to "stroke". The characteristics of "wind" are easy to move and change. Ancient doctors believe that the occurrence of stroke can be divided into internal wind and external

wind. Before the Tang and Song Dynasties, doctors believed that the cause of stroke was caused by external wind evil. The external wind invaded the human body, resulting in the disorder of qi, blood, yin and yang, which was stroke. After the Tang and Song Dynasties, doctors believed that stroke was caused by internal pathological changes. Phlegm and blood stasis, liver and kidney deficiency, qi and blood deficiency and other factors will cause the body's disorder caused by stroke ^[14]. Contemporary doctors believe that stroke is formed by the combined action of internal and external winds. The deficiency of healthy qi is the root of the disease. The healthy qi is not deficient, and the pathogenic qi is deficient. The external cause touches the internal cause, and the internal cause triggers the external cause, thus forming stroke ^[15]. Traditional Chinese medicine believes that if endogenous phlegm and blood stasis hinder the operation of qi and blood, phlegm and blood stasis should be eliminated to remove pathological products, so that qi and blood flow smoothly and wind cannot be generated ; if the deficiency of liver and kidney leads to the deficiency of yin and yang, yin and yang should be nourished, yin and yang should be supplemented, so as to balance yin and yang and coordinate ying and wei ; if qi and blood are deficient, no qi promotes blood circulation, no blood nourishes viscera, qi and blood should be replenished to make healthy qi abundant and evil qi not invade. When the stroke is severe or the healthy qi is not restored after the stroke, the residual evil qi will affect the recovery of the healthy qi of the human body, causing the deficiency of qi and blood, the loss of nourishment of tendons and veins and the balance of yin and yang, which will produce sequelae. As a valuable medical wealth in China, traditional Chinese medicine has rich experience in the treatment of stroke sequelae. It is trusted by patients and their families because of its characteristics of less adverse reactions, high safety, low treatment cost and stable control effect.

Traditional Chinese medicine and Western medicine have a certain understanding of stroke and sequelae. Compared with the treatment effect, traditional Chinese medicine treatment has more prominent advantages, and the promotion of traditional Chinese medicine treatment should be strengthened.

2. Traditional Chinese medicine treatment of stroke sequelae

There are many kinds of traditional Chinese medicine treatment methods, such as traditional Chinese medicine decoction, acupuncture, massage, medicated bath and so on, and have significant curative effect. The following will prove the effectiveness of traditional Chinese medicine in the treatment of stroke sequelae by using traditional Chinese medicine, acupuncture and massage for different stroke sequelae.

2.1 Hemiplegia of stroke sequelae

Some researchers have found that about 1/3 to 2/3 of the patients suffer from hemiplegia upper limb disorder within half a year after stroke ^[16]. Hemiplegia is manifested as poor limb activity, reduced or disappeared sensation, and changes in muscle tension. Traditional Chinese medicine believes that hemiplegia is a disease caused by stroke, which leads to the disorder of qi and blood, the disorder of zang-fu organs, the loss of nourishment of tendons and veins, and the failure of limbs to restore normal motor function. Liu Xuemei ^[17] used Xiaoxuming Decoction (Dangshen, Chuanxiong and other traditional Chinese medicine) to treat patients with hemiplegia of Yang deficiency type. After 4 weeks of treatment, the serum inflammatory factor level of patients decreased without obvious adverse reactions, which could protect neurons appropriately. 91 hemiplegic patients who met the test requirements were selected and divided into two groups by envelope method. One group was treated with western medicine and rehabilitation therapy, and the other group was treated with Buyang Huanwu Decoction (Astragalus, Epimedium, etc.) and

acupuncture (Yanglingquan, Huantiao, etc.)^[18]. After 28 days of treatment, the researchers found that the Fugl-Meyer score, Barthel index score and quality of life scale score of patients using traditional Chinese medicine and acupuncture after treatment were higher than those of patients taking western medicine and rehabilitation, and the difference was statistically significant ($P < 0.05$). In order to study the therapeutic effect of Tongdu Tiaoshen acupuncture (ditch, Mingmen, etc.) and abdominal acupuncture (upper wind dampness point, lower wind dampness point, etc.) on hemiplegic patients^[19], 20 stroke hemiplegic patients were treated. The results showed that the scores of NIHSS score scale, FMA evaluation scale and MBI evaluation scale were changed after treatment, which proved that acupuncture had a therapeutic effect on hemiplegia. Wang Linxiang et al^[20] selected 100 patients with hemiplegia after stroke, and instructed all patients to take oral conventional drugs. Forty patients were randomly selected for acupuncture (scalp acupuncture + body acupuncture) and rehabilitation treatment, 30 patients were treated with massage and rehabilitation, and the other 30 patients were only treated with rehabilitation. After treatment, the Ashworth score of the three groups of patients decreased, the ADL score increased, and the score of patients with acupuncture and rehabilitation changed significantly. It is proved that acupuncture combined with rehabilitation therapy can improve the daily living ability of patients and reduce limb disorders. Therefore, traditional Chinese medicine can be of great help to the limb recovery and quality of life of hemiplegic patients.

2.2 Dysphagia of stroke sequelae

Researchers have found that different degrees of dysphagia occur in about 51 % to 73 % of stroke patients^[21]. Dysphagia is reflected in inability or difficulty to swallow, sore throat, drooling, etc. Traditional Chinese medicine believes that dysphagia is due to stroke caused by the damage of viscera and meridians, qi and blood deficiency, invasion of external pathogens, resulting in obstruction of orifices and dysphagia^[22]. Gao Xiaojing^[23] with Huatan Tongluo Decoction (Fabanxia, Dannanxing, etc.), acupoint electrical stimulation (Jinjin, Yuye, etc.) combined with western medicine oral and swallowing rehabilitation for patients with dysphagia after stroke. After two weeks of treatment, the patient's TCM syndrome score and Kubota drinking water test grade were lower than before treatment, and the maximum amplitude of the hyoid muscle group was higher than before treatment. It shows that this treatment can improve the dysphagia of patients. On the basis of western medicine and rehabilitation training, Ma Jingli^[24] let the subjects with dysphagia after stroke of wind phlegm and blood stasis type take Liyan Qibi Decoction (safflower, silkworm, etc.) for treatment. After treatment, the results showed that the swallowing ability of the patients was improved, and the total effective rate of treatment was 90 %, which was much higher than that of the subjects who did not take Chinese medicine. Zhang Wen et al^[25] selected 59 patients with dysphagia after stroke as the observation group for ' Tongguan Liqiao' acupuncture and swallowing training methods, and selected 57 patients with the same disease as the control group using swallowing training methods. The researchers found that the drinking water test scores of the observation group were lower than those of the other group. The cerebral blood flow velocity of the two groups was higher than that before treatment, and the cerebral blood flow velocity of the observation group was more obvious. It shows that the combination of acupuncture and swallowing training can improve the brain blood circulation of patients. In order to explore the improvement effect of acupuncture on dysphagia, Mao Zhenying et al.^[26] selected patients who met the test requirements for experimental treatment. The treatment method is acupuncture combined with Vitalstim electrical stimulation. After the end of treatment, the patient's swallowing time was significantly shortened compared with that before treatment. Yang Shijie et al.^[27] carried out traditional Chinese medicine rehabilitation treatment on 40 patients with dysphagia after stroke,

including three methods : iontophoresis of traditional Chinese medicine, acupoint massage and pharyngeal stimulation (made of traditional Chinese medicine such as Bombyx Batryticatus and Borneol). After treatment, it was found that the patient's swallowing function and swallowing angiography were better than before treatment. It can be seen that traditional Chinese medicine has a significant improvement effect on dysphagia after stroke, and can promote patients to return to normal swallowing function.

2.3 Emotional disorders of stroke sequelae

Some researchers have concluded that emotional disorders are one of the more common diseases in stroke sequelae. Emotional disorders are mostly reflected in anxiety, depression, fear and so on. According to statistics, about 20 % to 65 % of patients are likely to have depression in the first 3 to 6 months after stroke^[28]. In China, the incidence of depression in post-stroke patients is 34 % to 40 % ^[29]. Traditional Chinese medicine believes that emotional disorders are caused by stroke, resulting in poor zang-fu qi movement and abnormal liver dredging, thus affecting emotional regulation. Zhang Liping et al ^[30] treated post-stroke anxiety patients with Chaihu plus Longgu Muli Decoction (Shichangpu, Fushen, etc.) and auricular point sticking (Shenmen, heart, liver, etc.). After 4 weeks of continuous treatment, the Hamilton Anxiety Scale (HAMA) score of the patients after treatment was reduced, and the sleep quality was better than before. Ye Changjun ^[31] for the treatment of patients with post-stroke depression, the choice of Albizia julibrissin and agkistrodon antithrombotic pills (Dilong, Tianma, etc.) treatment. After 8 weeks, the scores of stroke scale and Hamilton depression scale were lower than before, indicating that the neurological function and depression of the patients after treatment were relieved. Liu Ran^[32] used electroacupuncture (Baihui, Xinchu, etc.) to treat patients with post-stroke anxiety. The study found that patients treated with electroacupuncture maintained longer than patients taking paroxetine tablets, and were more effective in treating somatic and anxiety factors. Yang Jing ^[33] After selecting 60 patients who met the test requirements, 30 patients were randomly selected for acupuncture treatment of Tongdu Bushen acupuncture on the basis of conventional drugs and rehabilitation training, and another 30 patients were treated with conventional acupuncture at the same time. The results of the treatment showed that the depression, cognitive impairment and sleep disorders of the two groups of patients were better than before, and the changes of patients using Tongdu Bushen acupuncture were more obvious. Jinjin ^[34] treated the patients with post-stroke anxiety who met the test requirements with massage therapy (opening the Tianmen, rubbing the sun, sleeping in the wind pool, etc.) and auricular point sticking. After 28 days, the patient 's anxiety and depression were alleviated. Zhang Ye et al ^[35] used massage combined with scalp acupuncture exercise therapy to treat patients with post-stroke depression. The final results showed that the patient's sleep quality was improved, depression and pain symptoms were alleviated. In summary, traditional Chinese medicine treatment can regulate the emotional state of patients and improve insomnia.

3. Summary

The pressure of life in modern society, sub-healthy lifestyle, environmental pollution and other factors indirectly lead to stroke, that is, stroke develops into a type of acute cerebrovascular disease with high incidence, disability, mortality and recurrence rate^[36]. Once the risk of stroke is high, western medicine is effective in the treatment of stroke, but long-term western medicine treatment will produce some adverse reactions. As a valuable medical wealth in China, traditional Chinese medicine is no less than western medicine in the understanding and research of stroke and sequelae, and sometimes it is more efficient than western medicine in clinical efficacy. Traditional Chinese

medicine is good at treating patients with the principle of holistic concept and syndrome differentiation, and flexibly adjusts the treatment plan according to different constitutions, clinical manifestations, living environment and seasonal changes of patients. It is simple, inexpensive, safe, flexible and efficient. Stroke patients' recognition and acceptance of traditional Chinese medicine are constantly improving. However, from the current point of view, Chinese medicine treatment of stroke and sequelae still has limitations: different stages of the lack of a certain evaluation criteria; clinical medication is mainly empirical and lacks unified standardization. The treatment effect is different; lack of data support for a large number of clinical trials. Therefore, in the future use of traditional Chinese medicine treatment of stroke sequelae to actively overcome these problems, and constantly improve the standardization of traditional Chinese medicine treatment of diseases.

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