

Clinical Effectiveness of Acupuncture in Conjunction with Huatan Tongluo Decoction in Managing Post-Stroke Sequelae

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Qu *et al.*: Acupuncture and Huatan Tongluo Decoction in Post-Stroke Sequelae

To observe the clinical effectiveness of acupuncture in conjunction with Huatan Tongluo decoction in treating post-stroke sequelae. This study enrolled a sample of 110 individuals diagnosed with post-stroke sequelae, consecutively admitted to our hospital from June 2020 to June 2022. By utilizing a random number table, the patients were allocated into either the control group (54 cases) or the observation group (56 cases) in a randomized manner. Acupuncture treatment was administered to the control group at the Zusanli, Hegu, and Quchi acupoint, while the observation group received an additional treatment of Huatan Tongluo Decoction. The treatment lasted for 3 mo. Prior to and following the treatment, a comparison was made between the two groups in terms of neurological function, motor function, and activities of daily living. The overall treatment efficacy was evaluated based on clinical symptoms after 3 mo of treatment, and the occurrence of adverse reactions during the treatment period was observed. The observation group exhibited significantly better neurological deficit score, functional comprehensive assessment, and Barthel index scores compared to the control group following the treatment. A comparison between the observation group and the control group revealed a higher total effective rate of 96.4 % (54/56) in the former, surpassing the control group's rate of 77.8 % (42/54) ($p < 0.05$). A significant reduction in the incidence of adverse reactions was observed in the observation group when compared to the control group ($p < 0.05$). Combining acupuncture with Huatan Tongluo decoction has proven to be a successful approach in clinically treating post-stroke sequelae. It excels at enhancing neurological function, motor function, activities of daily living, overall treatment effectiveness, and minimizing the occurrence of adverse reactions.

Key words: Acupuncture, Huatan Tongluo decoction, stroke, sequelae, clinical efficacy

Interruption of cerebral blood supply or rupture of blood vessels leads to stroke, a brain injury that ranks among the primary causes of disability and death^[1]. Although the incidence of stroke has decreased globally, post-stroke sequelae remain a significant challenge to quality of life and functional recovery^[2]. Post-stroke sequelae include limb paralysis, speech disorders, cognitive impairments, and impose a heavy burden on patients and their families^[3,4]. Acupuncture is a therapeutic approach that involves stimulating specific acupoints to regulate the flow of energy in the body. By adjusting the function of the nervous and endocrine systems, acupuncture can improve blood circulation, metabolism, and alleviate post-stroke sequelae symptoms, promoting recovery^[5]. Acupuncture is widely used in restoring

limb function, improving speech disorders, cognitive impairments, and more^[6-8]. Additionally, it can relieve pain and emotional disorders such as depression, enhancing the quality of life^[9,10]. Huatan Tongluo decoction is a traditional Chinese herbal formula composed mainly of herbs with properties such as phlegm-resolving, blood circulation-promoting, and activating collaterals, such as *Salvia miltiorrhiza*, *Acorus tatarinowii*, *Gastrodia elata*, and *Atractylodes macrocephala*. This formula has been widely used in traditional Chinese medicine for treating conditions involving thrombosis, poor blood circulation, and blood stasis. It possesses actions such as blood-activating, stasis-breaking, and clearing collaterals, which can improve symptoms of post-stroke sequelae and promote

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neuroregeneration^[11,12]. Considering the potential effectiveness of acupuncture and Huatan Tongluo decoction in managing post-stroke sequelae, there is growing interest from patients and healthcare providers in using this traditional Chinese medicine therapy. However, to date, there is a lack of systematic research and evaluation of the clinical effectiveness of acupuncture in conjunction with Huatan Tongluo decoction in managing post-stroke sequelae. The objective of this research is to assess the effectiveness of acupuncture in conjunction with Huatan Tongluo decoction in treating post-stroke sequelae through clinical experiments. By doing so, it aims to present more effective traditional Chinese medicine choices for rehabilitating post-stroke sequelae. The findings of this research will contribute new evidence and theoretical support for the development of stroke rehabilitation medicine and the integration of Chinese and Western medicine, ultimately leading to better rehabilitation outcomes for stroke patients. A sample of 110 individuals with post-stroke sequelae, treated at our hospital from June 2020 to June 2022, was enrolled in this research. The patients exhibited varying degrees of memory impairment, language disorders, and hemiparesis, all meeting the diagnostic criteria for stroke^[13]. All patients and their families were informed about this research and voluntarily agreed to participate. Exclusion criteria encompassed patients with significant organ diseases, such as heart, liver, and kidney conditions, as well as those with cognitive impairment and myocardial infarction. The study was approved by the Ethics Committee of our hospital. Patients were randomly assigned to two groups; the study group (n=56, 33 males and 23 females, aged 55 y to 82 y with an average age of (67.7±5.3) y) and the control group (n=54, 32 males and 22 females, aged 54 y to 83 y with an average age of (68.3±5.4) y). The two groups demonstrated no substantial disparities in terms of gender, age and other initial characteristics (p>0.05), signifying their comparability. The control group received acupuncture treatment, targeting the acupoints Zusanli, Hegu, and Quchi, with a duration of 30 min per session, once a day for 3 mo. The study group received a combination treatment of Huatan Tongluo decoction and acupuncture. The acupuncture treatment was the same as the control group, and the formula for Huatan Tongluo decoction included 12 g of *Salvia miltiorrhiza*, 12 g of *Acorus tatarinowii*, 10 g of *Gastrodia elata*, 10 g of *Pinellia ternata*, 10 g of *Atractylodes macrocephala*, 8 g of *Rhizoma*

Zingiberis Recens, 6 g of *Gardenia jasminoides*, and 5 g of *Rhei Radix et Rhizoma preparata*. The decoction was prepared by boiling with water, with a dosage of 100 ml per administration, twice a day for 3 mo. The Neurological Deficit Scale (NDS) was used to assess neurological function^[14], with a total score of 45 points, and the score was positively correlated with the severity of neurological deficits. The Functional Comprehensive Assessment (FCA) was employed to assess the motor function of both groups prior to and post treatment, with a total score of 108 points^[15], with a higher score denoting improved motor function. The Barthel index was employed to evaluate the daily living abilities of the patients before and after treatment, with a higher score indicating better ability^[16]. The therapeutic effectiveness was evaluated based on the improvement of clinical symptoms and neurological function after treatment. Complete disappearance of clinical symptoms and signs, as well as a reduction of more than 90 % in the neurological deficit score, was categorized as a cure. Marked improvement in clinical symptoms and signs, with a reduction of 45 % to 90 % in the neurological deficit score, was classified as significant efficacy. Considered effective^[17], the reduction in the neurological deficit score ranged from 18 % to 45 %, accompanied by improvement in clinical symptoms and signs. Ineffectiveness was attributed to a reduction of <18 % in the neurological deficit score, coupled with no improvement in clinical symptoms or signs. The total effective rate was calculated as (number of “cured”+number of “significant” +number of “effective” cases) divided by the total number of cases, multiplied by 100 %. The occurrence of adverse reactions such as nausea, dizziness, and rash during the treatment period was recorded. Statistical Package for the Social Sciences (SPSS) 25.0 will be utilized to perform the statistical analysis in this research. Continuous variables will be reported as mean±standard deviations (x±s) and analyzed using t-tests. Categorical variables will be presented as frequencies and percentages [n (%)] and analyzed using Chi-square (χ^2) tests. To establish statistical significance, a significance level of p<0.05 will be employed. Prior to treatment, no noteworthy distinction in NDS and FCA scores was identified between groups (p>0.05). Following treatment, the study group exhibited lower NDS scores compared to the control group, along with higher FCA scores and Barthel index, indicating significant disparities

($p < 0.05$) as shown in Table 1. With a significant difference ($p < 0.05$), the study group presented an overall effective rate of 96.4 %, surpassing the control group's 77.8 % as shown in Table 2. Within the treatment period, the study group witnessed 2 occurrences of adverse reactions, making up 3.6 % of the total, in contrast to the control group's 8 cases of adverse reactions, constituting 14.8 %. The statistical analysis revealed a significant distinction between the two groups ($p < 0.05$) as shown in Table 3. Stroke patients frequently experience post-stroke sequelae, a complication that has a considerable influence on their physical and psychological well-being. Traditional Chinese medicine has rich experience and efficacy in acupuncture and herbal medicine. Therefore, this study aimed to explore the application effect of acupuncture in conjunction with Huatan Tongluo decoction in managing post-stroke sequelae and provide a scientifically effective treatment plan for clinical practice. The results of this study demonstrated that adding Huatan Tongluo decoction to acupuncture treatment significantly improved the condition of patients with post-stroke sequelae. The study group showed significantly higher scores in neurological function, motor function, and daily living abilities compared to the control group. This indicates that the combination of acupuncture and Huatan Tongluo decoction has significant clinical efficacy in the recovery of neurological function, improvement of motor function, and restoration of daily living abilities. Acupuncture, as one of the treatment modalities in traditional Chinese medicine, exerts therapeutic effects by stimulating specific acupuncture points to regulate the circulation of qi and blood, and the functioning of the nervous system. Huatan Tongluo decoction, as a traditional herbal formula, has phlegm-clearing and blood-circulation-promoting effects, which can improve the pathological state of phlegm stasis and further enhance blood circulation and smooth flow of qi and blood. Therefore, the combination of acupuncture and Huatan Tongluo decoction exhibits a synergistic effect in treating

post-stroke sequelae, significantly improving treatment outcomes. With a total effective rate of 96.4 %, the study group outperformed the control group, which had a rate of 77.8 %. Following treatment, the study group exhibited a significant reduction in NDS scores compared to the control group. Additionally, the FCA scores and Barthel index showed substantial improvements, with statistically significant differences. These results further confirm the superiority of acupuncture in conjunction with Huatan Tongluo decoction in treating post-stroke sequelae. The findings of this study demonstrate the excellent clinical efficacy of acupuncture in conjunction with Huatan Tongluo decoction in managing post-stroke sequelae. Although these results are promising, additional research is required to validate the findings and delve into the specific treatment mechanisms. Future studies may include larger sample sizes of clinical trials, multicenter research, and longer-term follow-up to further evaluate the durability and long-term effects of the treatment outcomes. Furthermore, the study revealed a relatively low occurrence of adverse reactions, with the study group experiencing a lower occurrence rate compared to the control group. This suggests that acupuncture in conjunction with Huatan Tongluo decoction treatment has relatively good safety and tolerability in clinical practice. However, it is still necessary to closely monitor the occurrence of adverse reactions in patients during the treatment process and take appropriate management measures. In summary, acupuncture in conjunction with Huatan Tongluo decoction treatment shows good clinical efficacy in post-stroke sequelae. Its advantages include improving neurological function, enhancing motor function and daily living abilities, and achieving a higher total effective rate. Furthermore, this combination treatment exhibits a relatively low incidence of adverse reactions, demonstrating good safety and tolerability. However, to assess the clinical value of this combination treatment more accurately, future research should focus on larger sample sizes with multicenter follow-up studies, and further exploration of its underlying therapeutic mechanisms.

TABLE 1: COMPARISON OF CURATIVE EFFECT

Group (n)	NDS		FCA		BI	
	Before	After	Before	After	Before	After
Observation (56)	24.24±4.10	11.22±5.81	30.57±4.32	64.08±5.30	51.37±3.93	78.89±4.46
Control (54)	24.62±4.89	15.89±7.50	30.89±4.38	48.83±5.12	51.46±3.38	65.64±4.20
t	0.45	3.66	0.387	-15.339	0.13	-16.016
p	0.654	0.000	0.699	0.000	0.897	0.000

TABLE 2: COMPARISON OF CURATIVE EFFECT

Group (n)	Cure	Significant	Effective	Invalid	Overall effective rate
Observation (56)	11 (19.6)	29 (51.8)	14 (25.0)	2 (3.6)	54 (96.4)
Control (54)	5 (9.3)	22 (40.7)	15 (27.8)	12 (22.2)	42 (77.8)
χ^2					8.609
p					0.003

TABLE 3: OCCURRENCE OF ADVERSE REACTIONS n (%)

Group (n)	Nausea	Dizziness	Rash	Overall incidence
Observation (56)	1 (1.8)	0 (0)	1 (1.8)	2 (3.6)
Control (54)	4 (7.4)	2 (3.7)	2 (3.7)	8 (14.8)
χ^2				4.205
p				0.04

Conflict of interests:

The authors declared no conflict of interests.

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