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ORIGINAL

OBSERVATION ON THE CURATIVE EFFECT OF NECK ACUPUNCTURE AND SCALP ACUPUNCTURE IN IMPROVING COGNITIVE IMPAIRMENT AND QUALITY OF LIFE AFTER STROKE

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ABSTRACT

Objective: To explore the intervention value of needle acupuncture and scalp acupuncture in improving cognitive impairment and life in stroke patients; **Methods:** A total of 62 stroke patients who were healed in our hospital from August 2019 to October 2021 were retrospectively selected as the research objects, and were divided into a combined healing cluster (Combined healing cluster, CTG, n=31, The patients received conventional healing combined with acupuncture and acupuncture) and the general healing cluster (GTG, n=31). The healing effects of the two clusters were contrast, and the National Institutes of Health Stroke Scale (NIHSS), neurological deficit score before and after healing Table (NDS) and Barthel Index (BI) score changes, the follow-up outcomes of the two clusters of patients were calculated and contrast between the two clusters; **Results:** (1) The total effective rate of patients in CTG cluster was 96.77%, and the total effective rate of patients in GTG cluster was 80.65%, and the variation in effective rate between the two clusters was notable ($P<0.05$). The NIHSS and NDS marks of the CTG cluster were notably bottom than those of the GTG cluster, and the variation between the clusters was notable ($P<0.05$). (3) On the 7th, 15th and 30th days of healing, the BI marks of the CTG cluster were notably upper than those in the GTG cluster, and the variation between the clusters was notable ($P<0.05$). (4) There were a total of 3 recurrences in the CTG cluster after 6 months of follow-up, with a recurrence rate of

10.00%, and a total of 9 recurrences in the GTG cluster. The recurrence rate of patients in the CTG cluster was notably bottom than that in the GTG cluster ($P<0.05$);

Conclusion: The combined use of acupuncture and scalp acupuncture for stroke patients can help to enhance the healing effect and life of patients, enhance the neurological function of patients, and reduce the recurrence rate of stroke in patients in the short-term. It is recommended to popularize and apply it.

KEYWORDS: Neck acupuncture; Scalp acupuncture; Stroke; Cognitive impairment; Quality of life; Therapeutic effect

Stroke is a cerebrovascular accident with typical symptoms of acute cerebral hemorrhage or acute cerebral infarction, including ischemic and hemorrhagic stroke (Stinear, 2017). The causes of stroke are complex, including vascular-related factors, gender and age factors. As well as bad living habits and other factors, some scholars have investigated the epidemiology of stroke in 6 provinces and cities in my country, and the results show that the incidence of stroke is as high as 2.03%, which has become a common disease in my country and is one of the three major diseases that lead to the death of Chinese residents. (Rahayu, Wibowo, Setyopranoto, & Hibatullah Romli, 2020). Stroke has the characteristics of acute onset, critical illness, and high disability rate, which brings great social and economic burden to patients and their families. With the gradual emergence of the aging trend of our society, stroke has become an important factor restricting social development. (Kakuda, 2020).

Both neck acupuncture and scalp acupuncture are the healing measures in the traditional medicine of the motherland. Current studies have confirmed that neck acupuncture and scalp acupuncture have good effects in relieving headache and improving spastic hemiplegia due to stroke (Cassidy & Cramer, 2017; Chavez et al., 2017). There are still few studies on the application of acupuncture and scalp acupuncture to enhance cognitive impairment and life in post-stroke patients. This study intends to carry out a retrospective analysis to explore the application value of acupuncture and scalp acupuncture in improving cognitive impairment and life in stroke patients, in order to provide reference for improving the prognosis of such patients (Arato & Kano, 2021; ESMAEILI et al., 2017).

1. MATERIALS AND METHODS

1.1 General data

A total of 62 stroke patients who were healed in our hospital from August 2019 to October 2021 were retrospectively selected as the research subjects, and were divided into a combined healing cluster (CTG, $n=31$, Received conventional healing combined with acupuncture healing) and general healing cluster (General healing cluster, GTG, $n=31$).

Inclusion criteria: (1) All patients were diagnosed with stroke by CT or MRI; (2) They met the diagnostic criteria for stroke developed by the 4th National Cerebrovascular Disease Academic Conference (Sims & Yew, 2017); (3) The medical records were clear and complete ; (4) The patient is the first onset.

Exclusion criteria: (1) patients with psychiatric disorders; (2) patients with severe disturbance of consciousness; (3) patients with other organic diseases such as coronary heart disease, renal failure, etc.; (4) patients with brain tumors, trauma, etc. Those with stroke caused by vascular factors; (5) those with a history of previous stroke.

1.2 Intervention methods

The patients in the GTG cluster received conventional stroke healing measures, including health education, daily healing, dietary adjustment, medication guidance, and functional rehabilitation.

On the basis of the control cluster, the patients in the CTG cluster were additionally healed with acupuncture and scalp acupuncture. The specific measures were as follows: (1) Acupuncture: Take Fengchi, Fengfu, Swallow, Lianquan, Waijinjin, Yuye, Taichong, Taixi , Fenglong and Sanyinjiao were the intervention points. The patient was in a sitting position. After routine disinfection, bilateral Fengchi points were taken, pierced 1 cun, 100 revolutions per minute twisting for 15 days each, and the needles were retained for 30 minutes. Fu acupoint was punctured 1 cun in the direction of the Adam's apple, and the same manipulation was performed; then Lianquan, Waijinjin, and Yuye were taken. The patient was placed in the supine position, 1 cun in the direction of the base of the tongue, and 0.3 cun in the direction of swallowing. The above points were quickly twisted and acupuncture After 15s, the acupuncture was removed, once a day, 6 times a week, for 4 consecutive weeks; (2) Scalp acupuncture: the patient was in a sitting position, and scalp acupuncture was performed on the patient's forehead midline, parietal midline, anterior temporal line and posterior temporal line. , After twisting for a while, turn on the electronic pulse therapeutic apparatus, and give low-frequency electronic pulse stimulation. Each healing is 30 minutes, once a day, 6 times a week, and continuous healing for 4 weeks.

1.3 Observation indicators and evaluation standards

(1) healing effect, using the NIHSS scale (Maida, Norrito, Daidone, Tuttolomondo, & Pinto, 2020) to evaluate the healing effect before and after healing. The reduction of NIHSS score after healing by $\geq 46\%$ is considered to be markedly effective, the reduction of NIHSS score by 18%-45% is considered effective, and the reduction of $< 18\%$ Ineffective, effective rate = (markedly effective + effective)/total number of situations $\times 100\%$; (2) NIHSS score changes before and after healing, the NIHSS marks of the two clusters of patients were evaluated before healing, at 7 days of healing, 15 days after

healing and 30 days after healing. contrastion between clusters; (3) Changes of NDS score (Appleby et al., 2019) before and after healing, the NDS marks of the two clusters of patients were evaluated before healing, at 7 d, 15 d and 30 d of healing, respectively, and contrast between clusters; (4) BI index before and after healing (Appleby et al., 2019) mark changes, the BI index marks of the two clusters of patients were evaluated before healing, 7d, 15d, and 30d of healing, respectively, and the contrastion between the two clusters was carried out; contrastion between.

1.4 methods

T-test was used for the contrastion of measurement data that obeyed normal distribution and homogeneity of variance, and was described by (mean \pm standard deviation). The Mann-Whitney test (U test) in the test is described by the median (upper and bottom quartiles), and the measurement data is contrast by the chi-square test, which is expressed as situations (%), and $P < 0.05$ is considered notable. notable.

2. RESULTS

2.1 Contrastion of general data of the two clusters of patients

The gender, age, BMI index and other data of the two clusters of patients were included and the variations between the two clusters were contrast. The results showed that none notable variation between the two clusters in the above data ($P > 0.05$), Table 1 and Figure 1.

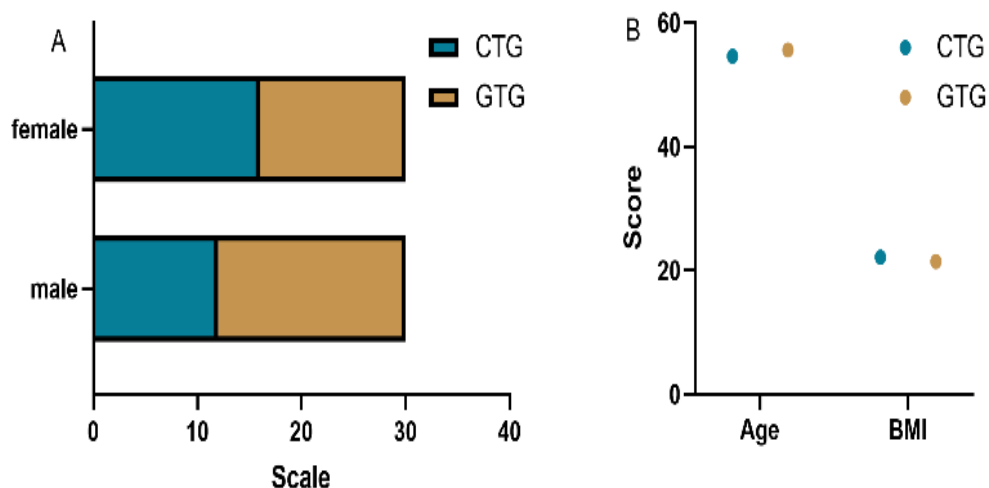


Figure 1. Contrastion of general data of two clusters of patients The gender (Figure A), age, BMI index (Figure B) and other data of the two clusters were contrast between the two clusters. The results showed that none notable variation between the two clusters in the above data ($P > 0.05$).

Table 1. Contrastion of general data of the two clusters of patients ($\bar{x} \pm s$)/[n (%)]

General information		CTG (n=30)	GTG (n=30)	t/ χ^2	P
Gender	Male	12	16	1.620	0.203
	Female	18	14		
Average age (years)		54.63±5.05	55.64±3.95	0.877	0.384
BMI (kg/m ²)		22.20±1.84	21.47±3.53	1.021	0.311

2.2 Contrastion of healing effects between the two clusters of patients

In the CTG cluster, 20 situations were markedly effective, 10 situations were effective, and the total effective rate was 96.77%. In the GTG cluster, 10 situations were markedly effective, and 15 situations were markedly effective, and the total effective rate was 80.65%. There is a variation in the effective rate between the two clusters. There was notable ($P < 0.05$), Table 2 and Figure 2.

Table 2. Contrastion of healing effects between two clusters of patients [n (%)]

Cluster	Cases	Visible effect	Effective	Invalid	Efficient
CTG	30	20 (64.52)	10 (32.26)	1 (3.23)	30 (96.77)
GTG	30	10 (32.26)	15 (48.39)	6 (19.35)	25 (80.65)
χ^2	-	-	-	-	4.026
P	-	-	-	-	0.045

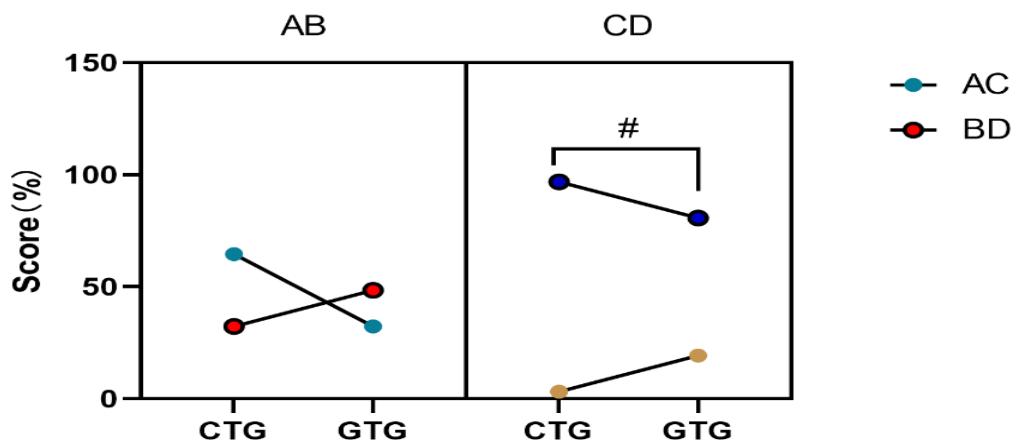


Figure 2. Contrastion of therapeutic effects between the two clusters. The total effective rate of CTG cluster was 96.77%, and the total effective rate of GTG cluster was 80.65%, and the variation in effective rate between the two clusters was notable ($P < 0.05$). # indicates that the variation between the same index clusters is notable.

2.3 Changes of NIHSS marks in the two clusters of patients during healing

Before healing, none notable variation in NIHSS marks between the two clusters ($P > 0.05$). On the 7th and 15th days of healing, the NIHSS marks of the CTG cluster were notably bottom than those of the GTG cluster, and the variation between the two clusters was notable ($P < 0.05$), Table 3 and Figure 3.

Table 3. Changes of NIHSS marks in two clusters of patients during healing ($\bar{x} \pm s$)

Cluster	Cases	Healing 0d	Healing 7d	Healing 15d	Healing 30d
CTG	30	10.95±1.05	7.25±0.98	7.10±1.08	7.10±0.43
GTG	30	10.58±2.16	8.37±1.17	7.68±0.65	7.56±0.53
t	-	0.844	4.019	2.520	3.692
P	-	0.402	<0.001	0.014	<0.001

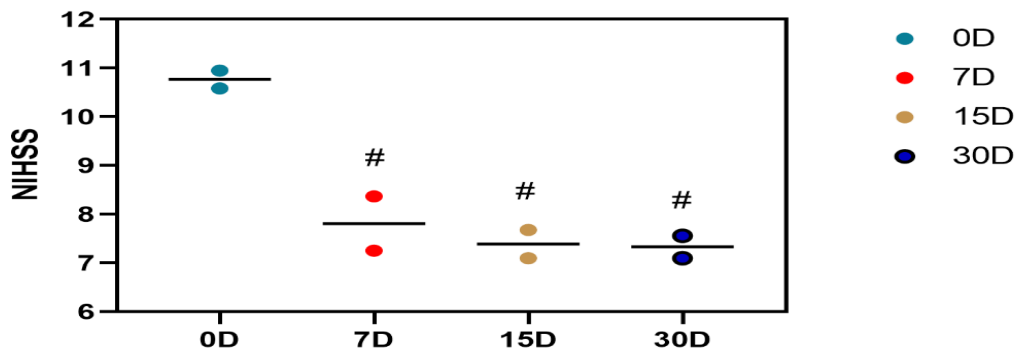


Figure 3. Changes in NIHSS marks of the two clusters of patients during healing None notable variation in the NIHSS marks between the two clusters before healing ($P>0.05$). On the 7th and 15th days of healing, the NIHSS marks of the CTG cluster were notably bottom than those of the GTG cluster, the variation between clusters was notable ($P<0.05$). # indicates that the variation between the same index clusters is notable.

2.4 Changes of NDS marks in the two clusters of patients during healing

Before healing, none notable variation in NDS marks between the two clusters ($P>0.05$). On the 7th, 15th, and 30th days of healing, the NDS marks of the CTG cluster were notably bottom than those of the GTG cluster, and the variation between the clusters was notable ($P<0.05$). Table 4 and Figure 4.

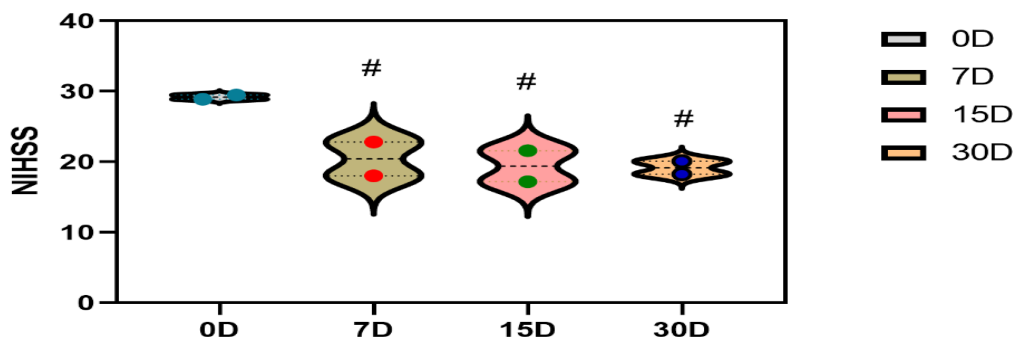


Figure 4. Changes in NDS marks of the two clusters of patients during healing None notable variation in the NDS marks between the two clusters before healing ($P>0.05$). On the 7th, 15th and 30th days of healing, the NDS marks of the CTG cluster were notably bottom In the GTG cluster, the variation between the clusters was notable ($P<0.05$). # indicates that the variation between the same index clusters is notable.

Table 4. Changes of NDS marks in the two clusters of patients during healing ($\bar{x} \pm s$)

Cluster	Cases	Healing 0d	Healing 7d	Healing 15d	Healing 30d
CTG	30	28.89±2.78	18.00±4.64	17.18±3.51	18.25±3.26
GTG	30	29.48±3.37	22.81±3.99	21.57±4.60	20.07±4.40
t	-	0.74	4.305	4.156	2.152
P	-	0.462	<0.001	<0.001	0.031

2.5 Changes of BI index in two clusters of patients during healing

None notable variation in BI marks between the two clusters before healing ($P>0.05$). On the 7th, 15th and 30th days of healing, the BI marks of the CTG cluster were notably upper than those of the GTG cluster, and the variation between the clusters was notable ($P<0.05$). Table 5 and Figure 5.

Table 5. BI index changes in two clusters of patients during healing ($\bar{x} \pm s$)

Cluster	Cases	Healing 0d	Healing 7d	Healing 15d	Healing 30d
CTG	30	34.86±6.50	45.64±4.20	59.40±7.26	72.02±7.82
GTG	30	35.73±5.05	41.43±3.89	51.25±3.81	56.06±7.96
t	-	0.579	4.028	5.444	7.834
P	-	0.565	<0.001	<0.001	<0.001

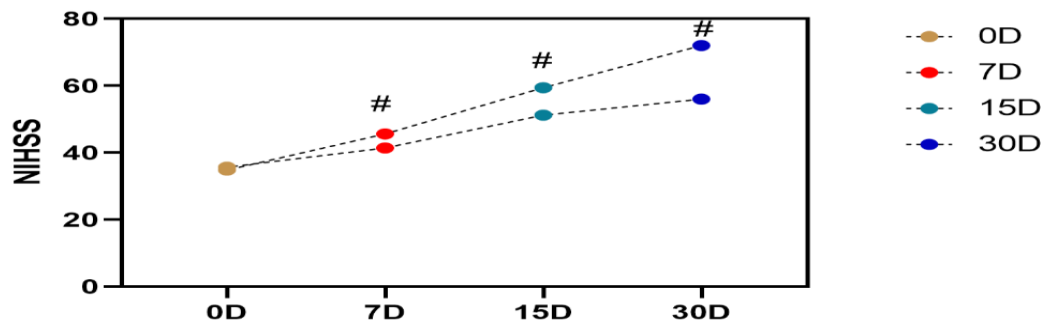


Figure 5 Changes of BI index in two clusters of patients during healing None notable variation in BI marks between the two clusters before healing ($P>0.05$). On the 7th, 15th and 30th days of healing, the BI marks of the CTG cluster were notably upper In the GTG cluster, the variation between the clusters was notable ($P<0.05$). # indicates that the variation between the same index clusters is notable.

2.6 Contrastion of outcomes of 6-month follow-up between the two clusters of patients

The results of the 6-month follow-up of the two clusters of patients were queried. There were 3 patients with recurrence in the CTG cluster, with a recurrence rate of 10.00%, and a total of 9 patients with recurrence in the GTG cluster, with a recurrence rate of 30.00%. contrast with the two clusters, the recurrence rate of the patients in the CTG cluster was notably bottom. in GTG cluster ($P<0.05$). Figure 6.

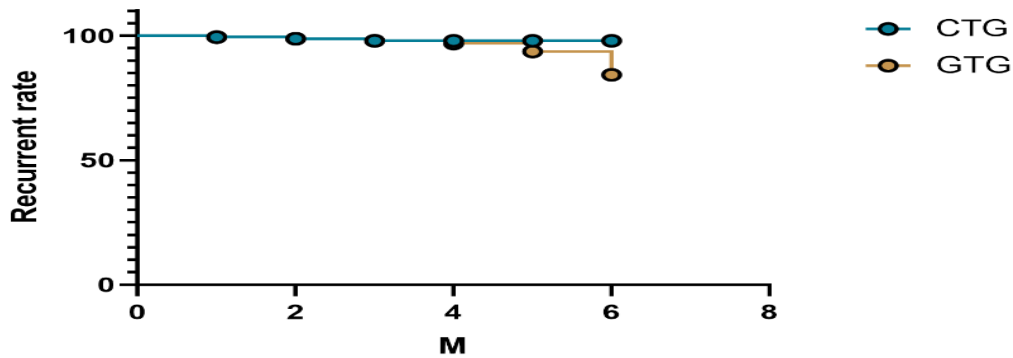


Figure 6. Contrastion of 6-month follow-up outcomes between the two clusters Patients in the CTG cluster had a total of 3 recurrence situations, with a recurrence rate of 10.00%, while patients in the GTG cluster had a total of 9 recurrence situations, with a recurrence rate of 30.00%, with a notably bottom recurrence rate in the CTG cluster than in the GTG cluster ($p<0.05$).

3. DISCUSSION

Stroke is a cerebrovascular accident with typical symptoms of acute cerebral hemorrhage or acute cerebral infarction, including ischemic and hemorrhagic stroke (Koh & Park, 2017). The causes of the disease are complex, including vascular-related factors, gender and age factors. and bad habits. The pathogenesis of the disease is the occlusion or stenosis of blood vessels in the brain, resulting in insufficient blood supply to the brain, which in turn leads to necrosis of brain tissue. Epidemiology shows that with changes in residents' lifestyles and eating habits, the incidence of stroke in my country continues to rise at an annual rate of about 8.7% (Pérez-de la Cruz, 2020). The incidence of stroke is increasing rapidly. The incidence rate of people over 55 years old will double every 10 years. At this stage, the trend of population aging in my country is becoming more and more obvious. An important factor in economic development (Fernández-de-Las-Peñas et al., 2021; Zhu et al., 2021).

In this study, by setting up a control cluster, the application value of acupuncture and scalp acupuncture in improving cognitive impairment and life of stroke patients was analyzed. The patients in the OTG cluster healed with neck acupuncture and scalp acupuncture had a notable increase in the therapeutic efficiency (96.77% vs 80.65%), suggesting that the increase of both neck acupuncture and scalp acupuncture notably enhanced the therapeutic effect. A controlled study on 120 stroke patients found that the total effective rate of patients in cluster A who received scalp acupuncture early after cluster intervention was 88.33%, which was notably upper than that of patients in cluster B who only received conventional healing (Abbas, Sayed, Samir, & Abeed, 2021). Although the results of this study are different from those of this paper, and the reasons for the analysis are mostly related to the disease severity of the included patients and the variations in the tools for evaluating

the efficacy of patients, it is undeniable that the increase of scalp acupuncture does enhance the healing effect.

The author of this article analyzes that scalp acupuncture, also known as scalp acupuncture, is developed on the basis of traditional Chinese medicine acupuncture and on the basis of modern medical cerebral cortex functional division theory. Stimulation to strengthen and stimulate various sensory and motor functions (Hastrup et al., 2018). Traditional medicine believes that "the head is the house of shrewdness", which means that the head is closely related to all the internal organs of the human body, and "form is controlled by the head" means that the head is an important part of the body's meridians and qi, so acupuncture on the head can It has the functions of dredging the meridians, running qi and blood, reconciling yin and yang, strengthening the righteousness and eliminating pathogenic factors, and has a particularly good effect on the healing of brain diseases (Jiang et al., 2020). The acupuncture points (swallowing) in this paper are all located in the neck, which belongs to the sensory fiber innervation area of the glossopharyngeal vagus nerve. Acupuncture on these points can transmit the stimulation through the neurons to the interneurons (medulla oblongata), and the medulla oblongata will process the stimulation. It can also be transmitted to the effector muscles, which can restore the normal regulation of the cerebral cortex on the cortical brainstem bundles, and also help the recovery of the efferent function of the upper and bottom motor neurons (Ojo & Brooke, 2016). The main reasons for the efficacy of stroke patients.

The Contrastion results of NIHSS and BDS in the two clusters of patients in this article confirm that the needle acupuncture and scalp acupuncture mainly exert therapeutic effects by regulating the neurological function of stroke patients, and have positive notable for improving the neurological function of the patients. This is also found in other scholars' studies(Z. Li & Zhai, 2022), as mentioned above, the neck acupuncture and scalp acupuncture can effectively stimulate the nerve cells of stroke patients, which helps to enhance the brain's innervation of the muscles (W. Li, Yue, & Liu, 2020), so the neurological function of the patients in the OTG cluster after healing. better than those in the GTG cluster who received conventional healing. As for the Contrastion of the BI index of the two clusters of patients, it shows that the needle and scalp acupuncture can help enhance the life of stroke patients, and the principle is relatively simple(Anstey et al., 2021). The enhancement of self-care ability can help enhance the life of patients. Finally, regarding the Contrastion of the short-term prognosis of the two clusters of patients, although the results in this paper suggest that the intervention of acupuncture and scalp acupuncture does reduce the short-term recurrence rate of stroke patients, the author of this paper believes that the results still need to be supported by large samples and long-term follow-up. This result is discussed further.

4. CONCLUSION

To sum up, the combined use of acupuncture and scalp acupuncture for stroke patients can help enhance the therapeutic effect and life of patients, enhance the neurological function of patients, and reduce the recurrence rate of stroke in patients in the short-term. It is recommended to popularize and apply.

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