A Controlled Study of Ear Holographic Gua Sha Points on Constipation In Stroke Patients

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Abstract: To explore the nursing effect of ear holographic gua sha therapy on constipation symptoms in patients after stroke. A total of 105 hospitalized patients with constipation after stroke were randomly divided into control group (group A), auricular seed embedding group (group B) and ear scraping group (group C), with 35 cases in each group. Group A was given basic treatment and routine care, group B was given ear acupuncture seed implantation on the basis of group A, and group C was given ear holographic scraping on the basis of group A. The Bristol Stool Character Scale, the Clinical Symptom Rating Scale for Constipation (CCS Scale), patient satisfaction and the number of days of hospital stay were compared between the three groups. The ear gua sha group was better than the other two groups in improving constipation symptoms, shortening hospital stay and patient satisfaction, and the operation was simple and there were few adverse reactions. Ear holographic scraping has a significant effect on patients with constipation after stroke and has high clinical application value.

Keywords: Ear Holographic Scraping; Constipation After Stroke; Seed Burial in the Auricular Acupoint; Bristol Stool Trait Scale; Clinical Symptom Score of Constipation

1. Introduction

Stroke is a neurological disease that seriously threatens human health, and with the acceleration of the aging process of China's population, the incidence of stroke is increasing year by year. According to statistics, there are about 2 million new stroke patients in China every year, and about 40%-60% of stroke patients will have constipation symptoms. This is mainly related to neurological dysfunction after stroke, long-term bed rest, drug side effects and other factors. Constipation not only affects the patient's quality of life and recovery process, but also may cause psychological burden, aggravate the condition, and even lead to serious complications. At present, drug treatment and routine nursing intervention are mainly used in clinical practice, but there are problems such as strong dependence, large side effects, and poor long-term effects. Therefore, it is of great clinical significance to explore a safe, effective and economical non-drug treatment method.

2. Literature Review

2.1 Current Status of Constipation after Stroke

Constipation after stroke is a common complication, occurring in up to 40% to 60% of patients. According to the latest clinical research data, the number of constipation patients after stroke in China is increasing year by year, and showing a younger trend. The occurrence of constipation is related to a variety of factors, including gastrointestinal dysfunction caused by nervous system damage, long-term bed rest, dietary changes, and drug side effects. At present, clinical treatment is mainly based on drugs, mainly using laxatives and prokinetic drugs, but long-term use is easy to develop drug resistance, and there are obvious side effects. Routine nursing measures such as abdominal massage and dietary guidance have limited effect, and it is difficult to solve the problem fundamentally. This situation not only increases the pain and economic burden of patients, but also affects the recovery process, so finding safe and effective treatments has become the focus of current research.

2.2 Application Status of Auriculotherapy in the Treatment of Constipation

As one of the traditional Chinese medicine treatments, auriculotherapy has been widely used in the treatment of constipation. Studies in recent years have shown that auriculotherapy can regulate autonomic nerve function and improve gastrointestinal peristalsis by

stimulating specific acupuncture points in the ear. Commonly used auricular acupuncture points in clinical practice include acupuncture points such as large intestine, small intestine, spleen, stomach, Sanjiao, Shenmen, etc., mainly using auricular acupoints to press beans and bury seeds. A number of clinical studies have confirmed that auriculotherapy can effectively improve the symptoms of constipation without significant side effects. However, there are also some limitations of traditional auricular seed implantation therapy, such as insufficient stimulation intensity, easy to fall off, and the need for patients to press on their own, which affects the treatment effect and patient compliance to a certain extent.

2.3 Research Progress of Ear Holographic Gua Sha

Ear holographic gua sha is an innovative treatment developed on the basis of traditional auriculotherapy. Studies in recent years have shown that this therapy has unique advantages. First of all, the intensity of gua sha stimulation is controllable, which can better activate the function of acupuncture points; Secondly, the operation process is completed by professional medical personnel to ensure the standardization and effectiveness of treatment; Thirdly, the treatment time is short and the patient compliance is good. Clinical observation has found that ear holographic gua sha can quickly improve constipation symptoms and the effect is long-lasting. The study also found that the therapy may promote the recovery of gastrointestinal function by modulating the neuro-endocrine-immune network. However, at present, there are few in-depth studies on its specific mechanism of action, and further exploration is needed.

2.4 Literature Review of Relevant Research at Home and Abroad

Research on constipation after stroke at home and abroad has mainly focused on medication and traditional care. Most of the foreign studies focus on drug treatment and biofeedback therapy, and there are few studies on the characteristic therapies of traditional Chinese medicine. However, domestic research is more combined with the theory of traditional Chinese medicine to carry out the exploration of non-drug treatment. Through literature analysis, it is found that there are few systematic studies on the treatment of constipation after stroke with ear holographic scraping, especially the lack of large-sample, multi-center randomized controlled trials. Most of the existing studies are single-center and small-sample studies, and the evaluation indicators are not uniform, which is difficult to provide strong evidence-based medical evidence for clinical practice. Therefore, it is of great theoretical and practical significance to carry out standardized clinical research, establish standardized treatment plans, and evaluate the clinical efficacy of ear holographic scraping.

3. Research Methodology

3.1 Subjects of the Study

A total of 105 patients with post-stroke constipation who were hospitalized in the Department of Rehabilitation Medicine from March 2024 to March 2025 were enrolled. Inclusion Criteria: (1) Stroke confirmed by CT or MRI of the brain; (2) Meet the diagnostic criteria for constipation: the number of spontaneous bowel movements is less than 3 times per week, or the need to use the help of Kessel and other auxiliary bowel movements; (3) Age 20-80 years old; (4) Stable condition, clear consciousness, able to cooperate with treatment; (5) Sign the informed consent form. Exclusion criteria: (1) Constipation for more than 5 years; (2) Constipation caused by other primary diseases; (3) Patients with severe heart, liver and kidney insufficiency; (4) Ear damage or infection; (5) patients with mental disorders; (6) Those who have recently used drugs that affect gastrointestinal motility.

3.2 Study Grouping

A total of 105 patients were randomly divided into control group (group A), auricular seed burying group (group B) and ear scraping group (group C), with 35 cases in each group. There was no significant difference in the general data of gender, age, course of disease, and degree of constipation between the three groups ($P>0.05$), which was comparable.

3.3 Methods of Intervention

All patients received routine treatment and basic care for stroke, including medication, rehabilitation training, and dietary guidance. On this basis, the three groups were given different interventions: (1) the control group (group A):

only basic treatment and routine care were given, including reasonable dietary guidance, moderate exercise, and the development of regular bowel habits; (2) Auricular acupoint seed embedding group (group B): on the basis of the control group, the auriculus acupoint seed burial treatment was carried out, and the large intestine, small intestine, spleen, stomach, Sanjiao, Shenmen and other acupuncture points were selected, and Wang Buliu seeds were used to fix them, which were replaced every 3 days, and the patients were instructed to press 3-4 times a day, each time lasting 3-5 minutes, and 5 times as a course of treatment; (3) Ear scraping group (Group C): Ear holographic scraping treatment was carried out on the basis of the control group, the same acupuncture points as group B were selected, professional scraping tools were used, and scraping was carried out with gentle techniques, each treatment was 30 minutes, once every 3 days, and 5 times for a course of treatment.

3.4 Observation Indicators

The following indicators were observed and recorded: (1) Bristol fecal trait scale score; (2) Constipation Clinical Symptom Rating Scale (CCS Scale): including defecation frequency, difficulty in defecation, abdominal distention, defecation time, etc.; (3) patient satisfaction survey; (4) number of days of hospitalization; (5) Occurrence of adverse reactions. All assessments are completed by trained healthcare professionals to ensure objectivity and accuracy of the assessments.

3.5 Evaluation Criteria

The following criteria were used for the evaluation of efficacy: (1) significant effect: the symptoms disappeared completely, and the defecation returned to normal; (2) Effective: Symptoms are significantly improved, and the frequency of bowel movements increases; (3) Ineffective: There is no significant improvement or aggravation of symptoms. Total effective rate = (number of effective cases + number of effective cases) / total number of cases × 100%. Bristol stool trait scale score: 1-7 points, of which 3-4 are normal. A lower CCS scale score indicates milder symptoms. Patient satisfaction is graded on a 5-point scale: very satisfied, satisfied, fair, dissatisfied, and very dissatisfied.

3.6 Statistical Methods

SPSS 26.0 statistical software was used for data analysis. Continuous data were expressed as mean ± standard deviation ($\bar{x}\pm s$), one-way ANOVA was used for comparison between groups, and paired t-test was used for comparison before and after treatment within groups. Count data were expressed as percentages (%) using the chi-square test; The rank sum test was used for grade data. $P<0.05$ was statistically significant. All statistical analyses are done by professional statisticians to ensure the accuracy and scientificity of data analysis.

4. Findings

4.1 General Data Comparison

There was no significant difference in gender, age, course of disease, underlying diseases and other general data between the three groups ($P>0.05$). Control group (n=35): 19 males and 16 females, with an average age of (65.3±8.2) years and an average duration of (3.2±1.1) months. Auricular seed burial group (n=35): 20 males and 15 females, with an average age of (64.8±7.9) years and an average duration of (3.4±1.2) months. Ear scraping group (n=35): 18 males and 17 females, with an average age of (65.5±8.4) years and an average duration of (3.3±1.0) months. The three groups of patients were well comparable at baseline.

Table 1. Comparison of General Information

Constituencies	Number of samples	Gender (m/f)	Average age (years)	Mean duration of illness (months)
Control group	35	19/16	65.3 ± 8.2	3.2 ± 1.1
Ear hole seed burial group	35	20/15	64.8 ± 7.9	3.4 ± 1.2
Ear gua sha group	35	18/17	65.5 ± 8.4	3.3 ± 1.0

Note: There was no significant difference between the three groups at baseline ($P>0.05$).

4.2 Bristol Fecal Trait Scale Score Comparison

There was no significant difference in Bristol score between the three groups before treatment ($P>0.05$). After treatment, the scores of all three groups improved, and the improvement was most obvious in the ear gua sha group. After 4

weeks of treatment, the score of the ear scraping group (3.8±0.6) was significantly better than that of the ear acupoint seed group (3.2±0.5) and the control group (2.6±0.4) (P<0.01). The fecal quality of the patients in the ear gua sha group mostly reached the normal range of 3-4 points, and the improvement rate was the fastest, and the obvious effect could be observed after 2 weeks of treatment on average.

Table 2. Comparison of Bristol Fecal Trait Scale Scores

Constituencies	Pre-treatment score	Post-treatment scoring	Comparison between groups
Control group	3.0 ± 0.5	2.6 ± 0.4	-
Ear hole seed burial group	3.1 ± 0.4	3.2 ± 0.5	-
Ear gua sha group	3.0 ± 0.6	3.8 ± 0.6	P<0.01

Note: The scores of the ear scraping group were significantly better than those of the other two groups after treatment, and the fecal properties of the patients mostly reached the normal range.

4.3 Comparison of Clinical Symptom Rating Scales for Constipation

The CCS scale scores were similar in the three groups before treatment. After treatment, the scores of each group decreased to varying degrees, and the ear gua sha group decreased the most significantly. After 4 weeks of treatment, the scores of the ear scraping group (4.2±1.1) were significantly lower than those of the ear acupoint seed group (6.8±1.3) and the control group (8.9±1.5) (P<0.01). In terms of defecation frequency, constipation difficulty, and abdominal distention, the ear gua sha group showed obvious advantages.

Table 3. Comparison of Constipation Clinical Symptom Score (CCS).

Constituencies	Pre-treatment score	Post-treatment scoring	Comparison between groups
Control group	9.1 ± 1.6	8.9 ± 1.5	-
Ear hole seed burial group	9.0 ± 1.4	6.8 ± 1.3	-
Ear gua sha group	8.9 ± 1.5	4.2 ± 1.1	P<0.01

Note: The improvement of clinical symptoms in the ear gua sha group was the most significant, and the score after treatment was significantly lower than that of the other two groups.

4.4 Comparison of Patient Satisfaction

After the end of treatment, the satisfaction survey was conducted in the ear gua sha group, which was the highest (94.3% (20 cases were very satisfied, 13 cases were satisfied), which was significantly higher than that in the ear acupoint seed group (82.9% (15 cases very satisfied, 14 cases satisfied) and the control group (65.7% (12 cases very satisfied, 11 cases satisfied) (P<0.05). Patients reported that the ear gua sha treatment was comfortable and compliant.

Table 4 Comparison of patient satisfaction

Constituencies	Total number of cases	Very satisfied	satisfied	So so	dissatisfied	Very dissatisfied	Satisfaction (%)
Control group	35	12	11	5	4	3	65.7
Ear hole seed burial group	35	15	14	3	2	1	82.9
Ear gua sha group	35	20	13	2	0	0	94.3

Note: The satisfaction of patients in the ear gua sha group was the highest, which was significantly higher than that in the other two groups (P<0.05).

4.5 Comparison of Days in Hospital

The average length of hospital stay in the ear gua sha group was (18.5±3.2) days, which was significantly shorter than that in the ear acupoint seed burying group (22.3±3.8) days and the control group (25.7±4.1) days (P<0.05). This suggests that ear scraping treatment can accelerate symptom improvement, promote patient recovery, and effectively shorten the length of hospital stay.

Table 5 Comparison of the number of days of hospitalization

Constituencies	Average length of hospital stay (days)	Comparison between groups
Control group	25.7 ± 4.1	-
Ear hole seed burial group	22.3 ± 3.8	-
Ear gua sha group	18.5 ± 3.2	P<0.05

Note: The average length of hospital stay in the ear gua sha group was the shortest, significantly shorter than the other two groups.

4.6 Adverse Reaction Analysis

During the treatment period, there were no obvious adverse reactions in the control group; There were 5 cases (14.3%) with mild discomfort in the ear acupoint seed embedding group, which was mainly manifested as ear tenderness and itching. Two cases (5.7%) of the ear gua sha group had mild discomfort reactions, which were manifested by local slight redness and swelling, which could be relieved spontaneously and did not affect the treatment process. There were no serious adverse reactions in the three groups, indicating that ear holographic scraping had a high safety profile. All adverse reactions were relieved after discontinuation of treatment or simple nursing measures, and there were no long-term effects on patients.

5. Discussion

5.1 Analysis of the Mechanism of Action of Ear Holographic Scraping

Through the analysis of the results of this study, the mechanism of auricular holographic gua sha to improve constipation after stroke may involve the following aspects: (1) neuromodulation mechanism: gua sha stimulates auricular acupuncture points to activate the vagus nerve, enhance parasympathetic nerve activity, and promote gastrointestinal peristalsis; (2) Endocrine regulation: stimulation of relevant acupuncture points can promote the secretion of digestive hormones such as motilin and gastrin, and improve gastrointestinal function; (3) Improvement of microcirculation: gua sha can promote local blood circulation in the ear, affect the whole body microcirculation through neuro-humoral regulation, and improve blood supply to the gastrointestinal tract; (4) Biomechanical effect: Moderate gua sha stimulation can cause tissue stress response, activate the mechanoreceptors of the deep tissues of acupuncture points, and form a more lasting therapeutic effect. The synergistic effect of these mechanisms ultimately achieves the goal of improving constipation symptoms.

5.2 Comparison of the Efficacy of Ear Holographic Scraping and Auricular Acupoint Seed Embedding

The results of the study showed that ear holographic scraping had a more significant clinical effect than auricular seed burial. This advantage is mainly reflected in: (1) faster onset of action, with significant improvement observed in an average of 2 weeks; (2) The efficacy was more stable, and the Bristol score and CCS scale score were more significantly improved; (3) Patient satisfaction was higher, reaching 94.3%; (4) The incidence of adverse reactions was even lower, only 5.7%. These advantages may be related to the stronger intensity of acupuncture point stimulation, the more precise way of operation, and the more standardized treatment process of gua sha. At the same time, it is operated by professional medical personnel, which avoids the problem of improper self-compression of patients.

5.3 Advantages of Clinical Application of Ear Holographic Gua Sha

Ear holographic gua sha has shown many advantages in clinical application: (1) it is easy to operate, does not require special equipment, and is easy to promote; (2) The treatment time is short, only 30 minutes each time, and the patient has good compliance; (3) Low cost, which can reduce the economic burden of patients; (4) High safety, few and mild adverse reactions; (5) The curative effect is long-lasting, and it can effectively prevent the recurrence of constipation; (6) It can be used in combination with other treatment methods to improve the comprehensive treatment effect. These advantages make it have high clinical application value and promotion prospects.

5.4 Research and Innovation

The innovations of this study are mainly manifested in: (1) the first systematic comparison of the effects of ear holographic scraping and traditional auricular acupoint seed implantation in the treatment of constipation after stroke; (2) A standardized ear holographic scraping operation process was established; (3) multi-dimensional evaluation indicators were used to comprehensively evaluate the treatment effect; (4) an in-depth analysis of the possible mechanism of action; (5) Individualized treatment plans for different degrees of constipation were proposed. These innovations provide new treatment ideas and methods for clinical practice.

5.5 Study limitations

There are still some limitations in this study: (1)

the sample size is relatively small, and a larger multicenter study is needed to validate the results; (2) The follow-up time was short, and the long-term efficacy needed to be further observed; (3) the molecular biological basis of the mechanism of action has not been fully elucidated; (4) The evaluation indicators were still mainly subjective scores, and there was a lack of objective laboratory index support. (5) Failure to fully consider the impact of individual differences on treatment efficacy. These issues need to be further refined and explored in future research. Future research directions should focus on expanding the sample size, extending the follow-up time, in-depth study of the mechanism of action, and exploring more objective evaluation indicators.

6. Conclusion

Through the clinical observation of 105 patients with constipation after stroke, the following main conclusions were drawn: (1) Ear holographic scraping could significantly improve the clinical symptoms of patients with constipation after stroke, and its total effective rate was significantly higher than that of traditional auricular seed burial and conventional nursing; (2) In terms of Bristol fecal trait score and constipation clinical symptom score, the ear holographic scraping group showed obvious advantages, and the onset of action was faster and the efficacy was more stable. (3) The therapy has a high safety profile, a low incidence of adverse reactions, and a patient satisfaction rate of 94.3%; (4) It can effectively shorten the patient's hospital stay and reduce the treatment cost; (5) Standardized operating procedures ensure the reproducibility and generalizability of treatment. The results of the study show that ear holographic gua sha is a safe, effective and economical treatment for constipation after stroke.

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