Observation on Therapeutic Efficacy of Acupoint Application and Tuina Manipulation for Constipation after Cerebral Infarction: Postprint

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Abstract

Objective: To investigate the efficacy of acupoint application and Tuina massage in the treatment of constipation following cerebral infarction. Methods: Seventy-eight patients with post-cerebral infarction constipation were selected and allocated to a control group (n=22), an acupoint application group (application group, n=31), and a Tuina massage group (massage group, n=25). The control group received conventional integrated traditional Chinese and Western medicine treatment and nursing care; the application group additionally received traditional Chinese medicine plaster application at the Shenque (CV8) acupoint; and the massage group received acupoint massage manipulation. The intervention duration was 2 weeks, with daily observation of bowel movements in the three groups, and comparison of defecation frequencies on treatment days 7 and 14. The Barthel Index (BI) was employed to assess patients' activities of daily living. Results: In the first treatment week, the defecation frequency in the application group was significantly higher than that in both the massage group and control group ($P < 0.05$); in the second treatment week, the defecation frequency in the application group remained significantly higher than that in the control group ($P < 0.05$); all three groups exhibited increased defecation frequencies in the second week compared with the first week. BI scores at discharge were elevated compared with admission scores across all three groups. Conclusion: Both acupoint application therapy and Tuina massage therapy can improve defecation frequency in patients with post-cerebral infarction constipation, with acupoint application demonstrating more marked efficacy.

Full Text

Observation on Therapeutic Effect of Acupoint Application and Massage Technique in Treating Constipation After Cerebral Infarction

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Abstract

Objective: To observe the clinical efficacy of acupoint application and massage therapy for constipation following cerebral infarction.

Methods: A total of [number] patients with constipation after cerebral infarction were selected and divided into three groups: control group, acupoint application group, and massage group. The control group received conventional integrated Chinese and Western medicine treatment and nursing care. Based on this, the massage group received acupoint massage techniques, while the acupoint application group received traditional Chinese medicine application at the Shenque acupoint. Defecation patterns were observed daily for two weeks, and defecation frequency was compared among the three groups on day 14 of treatment. The Barthel Index (BI) was used to evaluate patients' activities of daily living.

Results: In the first week of treatment, the defecation frequency in the acupoint application group was significantly higher than that in both the massage group ($P<0.05$) and the control group ($P<0.05$). In the second week, the acupoint application group maintained higher defecation frequency compared to the control group ($P<0.05$). All three groups showed increased defecation frequency in the second week compared to the first week. Additionally, all groups demonstrated elevated BI scores at discharge compared to admission.

Conclusion: Both acupoint application and massage therapy can improve defecation frequency in patients with constipation after cerebral infarction, with acupoint application showing more pronounced therapeutic effects.

Keywords: massage technique; acupoint application; cerebral infarction; constipation; Traditional Chinese Medicine nursing

Introduction

Constipation is defined as a change in normal bowel patterns characterized by reduced defecation frequency, passage of excessively dry and hard stools, and difficult or incomplete evacuation [1]. Stroke patients frequently develop constipation due to brain damage and decreased physical activity. Excessive straining during defecation can lead to elevated blood pressure and intracranial pressure, potentially precipitating recurrent cerebrovascular rupture or myocardial infarction and resulting in poor prognosis [2]. Research by Chen Xiaohong et al. [3] indicates that constipation can affect disability and mortality rates in stroke patients, emphasizing the critical importance of identifying and managing post-stroke constipation in clinical practice.

Modern theory suggests that massage therapy can promote intestinal peristalsis and enhance defecation dynamics [4], exerting both direct and indirect effects on gastrointestinal motility [5]. Acupoint application at the Shenque point, located on the abdomen, can unblock meridians and regulate qi and blood, thereby modulating organ function and facilitating recovery of gastrointestinal propulsive function. Both acupoint application and massage have been clinically applied for post-infarction constipation with demonstrated efficacy. To objectively evaluate their therapeutic effects, this study conducted a retrospective, small-sample, controlled observation of relevant cases, with results reported as follows.

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1. Materials and Methods

1.1 Study Population and Grouping

We retrospectively analyzed hospitalized cerebral infarction patients admitted to the Neurology Ward of our hospital between [dates]. Inclusion criteria were: (1) cerebral infarction confirmed by CT or MRI; (2) no organic bowel disease or malignant tumors; (3) absence of severe complications. Constipation was diagnosed when patients met two or more of the following criteria: (1) reduced defecation frequency (<3 times per week); (2) sausage-shaped or hard stools; (3) straining during defecation; (4) sensation of incomplete evacuation; (5) requirement for manual assistance (digital manipulation or pelvic pressure); (6) dependence on suppositories.

A total of [number] eligible patients were divided into three groups: control group (n=[number]), acupoint application group (n=[number]), and massage group (n=[number]). Baseline characteristics including gender, age, independent defecation ability, and laxative use during hospitalization showed no statistically significant differences among groups (P>0.05) .

1.2 Interventions

All three groups received conventional integrated Chinese and Western medicine treatment and nursing care. Additional interventions were as follows:

Massage Group: Patients received abdominal acupoint massage [6]. After emptying the bladder, patients assumed a supine position with the abdomen exposed. The operator used the right palm to massage the abdomen clockwise and counterclockwise around the umbilicus for [number] times, then applied bilateral thumb pressure to Tianshu (ST25) and Qihai (CV6) acupoints for [number] times. Using the right thenar eminence, the operator massaged from the proximal sigmoid colon to the anus [number] times, with pressure varying from light to heavy and back to light. Each session lasted [number] minutes. Operators were required to trim nails beforehand, maintain uniform, gentle yet firm pressure (causing 3-4 cm abdominal depression), and ensure accurate acupoint location. Massage was prohibited within 2 hours postprandially. Treatment was administered twice daily for two weeks.

Acupoint Application Group: Following abdominal massage (same protocol as massage group), patients received herbal application at the Shenque acupoint [7]. The herbal formula consisted of [specific herbs and dosages] ground into powder, mixed with ginger juice and rice wine to form a paste. The paste was applied to the Shenque acupoint, covered with dressing, and retained for 6-8 hours before cleaning. Treatment was administered once daily for two weeks.

Control Group: No additional intervention beyond conventional care.

1.3 Outcome Measures

Defecation patterns were observed daily in all three groups, with defecation frequency compared on day 14 of treatment. The Barthel Index (BI) was used to evaluate activities of daily living upon discharge.

1.4 Statistical Analysis

SPSS software was used for statistical analysis. Normally distributed continuous data were expressed as mean ± standard deviation (x ± s), while non-normally distributed data were expressed as median (interquartile range) [M(P25,P75)]. Continuous data were analyzed using one-way ANOVA, while severely skewed or heteroscedastic data were analyzed using non-parametric tests. Categorical data were expressed as percentages (%) and analyzed using ^{2} test or Fisher' s exact test. The significance level was set at α=0.05.

2. Results

2.1 Defecation Frequency

In the first treatment week, the acupoint application group showed significantly higher defecation frequency compared to both the massage group ($P<0.05$) and control group ($P<0.05$), while the massage group showed a trend toward higher frequency than the control group . In the second week, the acupoint application group maintained significantly higher defecation frequency than the control group ($P<0.05$) . All three groups demonstrated increased defecation frequency in the second week compared to the first week, with within-group comparisons showing upward trends [TABLE:4, TABLE:5, TABLE:6].

2.2 Activities of Daily Living

All three groups showed elevated BI scores at discharge compared to admission, with upward trends observed in each group [TABLE:7, TABLE:8, TABLE:9].

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3. Discussion

Constipation is a common complication after stroke, with an incidence of approximately [number]% [10]. Cerebral infarction patients often require prolonged bed rest due to limb dysfunction, reduced activity, and consequently decreased gastrointestinal motility, making them more susceptible to constipation. Investigations show that over [number]% of long-term bedridden patients post-infarction develop constipation [11]. Dry, hard stools can directly or indirectly cause anorectal diseases such as proctitis, anal fissure, and hemorrhoids, while straining may precipitate recurrent cerebrovascular events and myocardial infarction, adversely affecting prognosis [12]. Recent research [13] has found that stroke patients exhibit gut microbiota dysbiosis, which is associated with worse stroke outcomes. Constipation prevents timely elimination of endotoxins, hindering microbiota restoration and harming the central nervous system.

Traditional Chinese Medicine (TCM) theory posits that post-stroke constipation represents a phlegm-heat and bowel excess pattern, where obstructed bowel qi leads to accumulation of turbid toxins that can ascend to the brain and worsen the condition. Promoting defecation to unblock bowel qi provides a path for pathogen elimination and disease improvement [14]. Therefore, preventing and treating constipation after cerebral infarction is crucial. Common causes include:

1. **Neurological factors:** Sudden onset of cerebral infarction causes autonomic nervous system dysfunction, anxiety, and fear [15]. Wiesel et al. [16] found significant correlation between bowel activity and anxiety states in patients with neurological diseases.

2. **Reduced activity:** Prolonged bed rest decreases energy expenditure, lowers systemic metabolism, and weakens intestinal peristalsis.
3. **Inadequate intake:** Most cerebral infarction patients are elderly with diminished digestive function and appetite. Dysphagia, a common symptom, severely impacts feeding; patients requiring nasogastric feeding receive fiber-deficient liquid diets that reduce fecal volume.
4. **Medication effects:** Certain drugs such as antibiotics and steroids can cause gastrointestinal dysfunction and constipation.

Western medicine typically employs suppositories, enemas, or purgatives, which have numerous adverse effects and high recurrence rates after discontinuation. Defecation is a fundamental physiological function essential for life maintenance. TCM theory holds that elderly patients with post-stroke qi and blood deficiency develop intestinal dryness due to depleted fluids, weakened bowel transmission function, and emotional distress causing qi stagnation and impaired large intestine function.

Abdominal acupoint massage is a technique summarized through generations of TCM practice. As recorded in *Li Yue Pian Wen*: "The foundation of postnatal life lies in the spleen; to regulate the middle burner, massage the abdomen," highlighting the importance of abdominal massage for gastrointestinal diseases. The abdomen contains multiple meridians including the Conception Vessel, Kidney, Stomach, and Spleen meridians—the source of qi and blood production and the pivot of qi movement. Massage stimulation of abdominal meridians follows the principle "where the meridian passes, the treatment reaches," harmonizing qi and blood, regulating qi movement, and strengthening healthy qi while expelling pathogens. Mechanical force applied to the intestines through meridian conduction can coordinate pelvic floor muscle function. Clockwise and counterclockwise massage around the umbilicus aligns with large intestine anatomy and physiology, promoting peristalsis and accelerating fecal elimination [17]. Additionally, abdominal massage promotes digestive juice secretion, reduces water reabsorption in the intestines, and softens stools [18]. The abdomen contains numerous acupoints related to bowel regulation and spleen strengthening. Tianshu (ST25), a key acupoint of the Foot-Yangming Stomach Meridian with abundant qi and blood, is the front-mu point of the large intestine. Known as "Changxi" and "Gumen" in *Jingui Yaolüe*, it regulates bowel function, promotes qi movement, and aids digestion, demonstrating bidirectional regulation of the intestines [19]—both anti-diarrheal and laxative effects. Pressing Tianshu can excite gastrointestinal smooth muscle, promote motility, and facilitate water distribution to moisten and soften stools [20]. Qihai (CV6), located below the umbilicus and known as the "sea of yin meridians," converges with the Chong, Du, and Kidney meridians and connects with all three yin meridians of hands and feet. As the gathering point of innate original qi, it regulates qi movement, benefits original qi, tonifies kidney deficiency, and consolidates essence and blood. Massaging Qihai can strengthen the spleen and stomach, generate yang qi, unblock the triple burner, and regulate bowel qi to promote flatulence and defecation [21].

The *Nanjing* classic states that the umbilicus is "the root of the five viscera and six bowels, the root of the twelve meridians, the gate of respiration, and the source of the triple burner." The Shenque acupoint, located at the umbilical center, is a crucial point of the Conception Vessel, which regulates all yin meridians and connects with the Governing Vessel, allowing its qi to flow to all vessels and distribute to all viscera. Therefore, external herbal application at the umbilicus can rapidly reach disease sites through connections with viscera, meridians, and extraordinary vessels, unblocking meridians, regulating organs, and purging heat to promote defecation. Anatomical evidence supports umbilical therapy: the umbilical epidermis has thin stratum corneum, lacks subcutaneous fat, and features rich venous networks in the peritoneum, facilitating rapid drug absorption. Transdermal absorption bypasses hepatic first-pass metabolism, maximizing therapeutic effects and directly targeting the intestines to compensate for limitations of internal medication [22]. Thus, Shenque acupoint application regulates organ function, unblocks meridians and qi-blood, and restores gastrointestinal propulsive function to relieve constipation.

The herbal formula in this study used Evodia rutaecarpa, mugwort, Sichuan pepper, and ginger juice to warm the middle burner, dispel cold, and relieve pain; Atractylodes macrocephala and longan fruit to nourish the heart spirit and strengthen the spleen; immature bitter orange to regulate qi, relieve distension, and digest accumulation; Cannabis seed to moisten intestines and unblock bowels; and rice wine to regulate qi, dissipate masses, and enhance drug absorption and distribution. Combined, these herbs regulate qi movement, nourish fluids and blood, and moisten intestines to unblock bowels.

Our findings demonstrate that both acupoint application and massage therapy increase defecation frequency and improve constipation symptoms compared to conventional nursing, with acupoint application showing superior efficacy. The results also revealed that defecation frequency in all groups increased from week 1 to week 2, with higher frequencies in the intervention groups compared to control, suggesting that longer intervention duration yields more pronounced improvement, though some differences were not statistically significant, possibly due to small sample size. As TCM interventions administered under holistic theory, acupoint application and massage improve constipation through multiple mechanisms.

This retrospective study had limited observation indicators and did not record detailed stool characteristics, defecation time, or gastrointestinal symptoms during the intervention period. Future prospective, randomized, double-blind, large-sample controlled studies with expanded outcome measures are needed to comprehensively investigate the therapeutic effects of acupoint application and massage for post-infarction constipation.

Conclusion

Acupoint application and massage therapy demonstrate efficacy in treating constipation after cerebral infarction, with acupoint application showing particularly significant effects in increasing defecation frequency and promoting bowel function recovery.

Conflict of Interest Statement: The authors declare no conflicts of interest.

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Note: Figure translations are in progress. See original paper for figures.