Clinical Study

Clinical observation on acupuncture treatment for constipation due to intestinal qi stagnation

针刺治疗肠道气滞型便秘的临床观察

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Abstract

Objective: To compare the different therapeutic effects of acupuncture and Phenolphthalein for constipation due to intestinal qi stagnation.

Methods: A total of 50 patients with constipation due to intestinal qi stagnation were randomly divided into an acupuncture group and a medication group by the random digital table, 25 cases in each group. The patients in the acupuncture group were treated by puncturing Gongsun (SP 4), Sanyinjiao (SP 6), Taichong (LR 3), Zusanli (ST 36), Shangjuxu (ST 37), Hegu (LI 4), Lieque (LU 7), and Tianshu (ST 25), once every day, and 7 d as one course, for continuous 3 courses; while the patients in the medication group were given Phenolphthalein, 7 d as one course, for continuous 3 courses. Compared the Cleveland clinic constipation score (CCS) between the two groups after one course, 3 courses and 3 months after the treatment, as well as the frequency of defecation within one week.

Results: After one week of treatment, CCS scores and frequency of defecation per week were significantly changed in both groups compared with those before treatment (P<0.05), and CCS scores and frequency of defecation per week were improved more significantly in the patients of the medication group than in those of the acupuncture group (P<0.01). After 3 weeks of treatment, CCS scores and frequency of defecation per week were significantly changed in both groups compared with those before treatment (P<0.05), and CCS scores and frequency of defecation per week were significantly changed in both groups compared with those before treatment (P<0.05), and CCS scores and frequency of defecation per week were improved more significant in the patients of the acupuncture group than in those of the medication group (P<0.05). Three months after the end of treatment, CCS scores and frequency of defecation per week were significantly changed in both groups compared with those before treatment (P<0.05), and CCS scores and frequency of defecation group (P<0.05). Three months after the end of treatment, CCS scores and frequency of defecation per week were significantly changed in both groups compared with those before treatment (P<0.05), and CCS scores and frequency of defecation per week were significantly changed in both groups compared with those before treatment (P<0.05), and CCS scores and frequency of defecation per week were improved more significantly in the patients of the acupuncture group than in those of the medication group (P<0.05).

Conclusion: Acupuncture and medication are effective in the treatment of constipation due to intestinal qi stagnation. Their short-term therapeutic effect is similar, but the long-term therapeutic effect is better in the acupuncture group than in the medication group.

Keywords: Acupuncture Therapy; Point, Gongsun (SP 4); Point, Taichong (LR 3); Point, Tianshu (ST 25); Syndrome of Qi Stagnation in Intestine; Constipation; Phenolphthalein

【摘要】目的:比较针刺与酚酞片治疗肠道气滞型便秘的疗效差异。方法:将50例肠道气滞型便秘患者采用随机数字表法随机分为针刺组和西药组,每组25例。针刺组予以针刺公孙、三阴交、太冲、足三里、上巨虚、合谷、列缺、天枢治疗,每日治疗1次,治疗7次为1个疗程,连续治疗3个疗程;西药组予以口服酚酞片治疗,7d为1个疗程,连续治疗3个疗程。比较两组治疗1个疗程、3个疗程及治疗后3个月的便秘临床评分量表(CCS)评分情况和1星期内的排便次数。结果:治疗1星期后,两组CCS评分及每星期排便次数与本组治疗前有统计学差异(P<0.05),西药组患者的CCS评分及每星期排便次数的改善程度优于针刺组(P<0.01)。治疗3星期后,两组CCS评分及每星期排便次数与本组治疗前有统计学差异(P<0.05),针刺组患者的CCS评分及每星期排便次数的改善程度优于西药组(P<0.05)。治疗结束后3个月,两组CCS评分及每星期排便次数与本组治疗前有统计学差异(P<0.05),针刺组患者的CCS评分及每星期排便次数的改善程度优于西药组(P<0.05)。治疗结束后3个月,两组CCS评分及每星期排便次数与本组治疗前有统计学差异(P<0.05),针刺组患者的CCS评分及每星期排便次数的改善程度优于西药组(P<0.05)。结论:针刺与西药治疗肠道气滞型便秘均有效,两组近期疗效相当,针刺组远期疗效优于西药组。

【关键词】针刺疗法; 穴, 公孙; 穴, 太冲; 穴, 天枢; 肠道气滞; 便秘; 酚酞

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It is believed in traditional Chinese medicine (TCM) that constipation refers to bowel movements that are difficult or hard to pass due to dysfunction of the transportation of the large intestine. This condition is mostly manifested by coexistence of deficiency and excess, and its pathogenic causes mainly include improper food ingestion, emotional disorder, invasion of exogenous pathogens into the stomach, and constitutional insufficiency, etc. In the Criteria of Diagnosis and Therapeutic Effects of Diseases and Syndromes in Traditional Chinese Medicine, this disease is categorized into 5 patterns: excessive intestinal heat, intestinal gi stagnation, spleen gi deficiency, yang deficiency of the spleen and kidney, and intestinal dryness due to yin deficiency^[1]. Constipation due to intestinal gi stagnation is more common in clinic. The author treated constipation due to intestinal gi stagnation by acupuncture. Now, the report is given as follows.

1 Clinical Materials

1.1 Diagnostic criteria

1.1.1 Diagnostic criteria in Western medicine

This was based on the *Rome III Criteria* by the American College of Gastroenterology^[2]. The criteria fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis. (1) The diagnosis must include two or more of the following: a. straining during at least 25% of defecations; b. lumpy or hard stools in at least 25% of defecations; c. sensation of incomplete evacuation for at least 25% of defecations; d. sensation of anorectal obstruction/blockage for at least 25% of defecations; e. manual maneuvers to facilitate at least 25% of defecations (e.g., digital evacuation, support of the pelvic floor); f. fewer than three defecations per week. (2) Loose stools are rarely present without the use of laxatives. (3) Insufficient criteria for irritable bowel syndrome.

1.1.2 Diagnostic criteria in TCM patterns

In reference to the diagnostic criteria of constipation due to intestinal qi stagnation stipulated in *Criteria of Diagnosis and Therapeutic Effects of Diseases and Syndromes in Traditional Chinese Medicine*^[1]: constipated stool, constipation with sense of defecation, even a distending sensation in the lower abdomen, frequent belching, decreased food ingestion, a pale tongue with white coating, and wiry pulse.

1.2 Inclusion criteria

In conformity with the above diagnostic criteria; at the age of 18-75 years old, and the subjects knew the situation and were willing to join the study and signed the informed consent form; and had better obedience to the treatment and assessment of the researchers.

1.3 Exclusion criteria

Those patients complicated with serious primary diseases in the cardiac, hepatic, renal and nervous systems and hematopoietic system and those with mental disorders; those complicated with organic pathogenic change in intestines; and those in long-term administration of constipation-inducing drugs, such as alumino-ferric agents, antacid agents, antidepressants, opiates, anti-parkinsonism agents, diuretics, calcium channel blockers, and antihistamine agents; those women in pregnancy and lactation; those with language barrier and dyslexia; and those with the therapeutic effects unable to be judged or the therapeutic effects and safety influenced due to incomplete data.

1.4 Statistical management

The SPSS 20.0 version statistical software was used for statistical analysis. All the measurement data were expressed by mean \pm standard deviation ($\overline{x} \pm s$), with the one-sample Kolmogorov-Smirnov (K-S) test testifying the normal distribution. The self paired *t*-test was used for comparison within the group. The independent sample *t*-test was used for comparison between the groups. The grading data were processed by the rank-sum test. *P*<0.05 was used to express the statistical significance of the differences.

1.5 General data

A total of 50 cases with constipation due to intestinal qi stagnation, from Acupuncture Department of Charity Branch, the First Affiliated Hospital of Guangxi University of Chinese Medicine, and from the public recruiting poster, were divided into an acupuncture group and a medication group by simple randomization design (random digital table), 25 cases in each group. The age ranged from 23 to 70 years old, and the duration ranged from 6 months to 12 years in the acupuncture group. The age ranged from 22 to 72 years old and the duration ranged from 6 months to 15 years in the control group. There were no significant differences in the gender, age, duration, the Cleveland clinical constipation score (CCS) and frequency of defecation per week between the two groups (all P > 0.05), indicating that the two groups were comparable (Table 1).

2 Therapeutic Methods

2.1 Acupuncture group

Acupoints: Bilateral Gongsun (SP 4), Sanyinjiao (SP 6), Taichong (LR 3), Zusanli (ST 36), Shangjuxu (ST 37), Hegu (LI 4), Lieque (LU 7) and Tianshu (ST 25).

Method: After the patient took a supine position and routine disinfection, the Huatuo Brand stainless filiform needles of 0.25 mm in diameter and 25-40 mm in length were selected for acupuncture. Sanyinjiao (SP 6), Zusanli (ST 36) and Shangjuxu (ST 37) were punctured perpendicularly for 1.0-1.5 cun; Tianshu (ST 25) was

punctured with the needle of 0.25 mm in diameter and 75 mm in length for about 45 mm; Gongsun (SP 4), Taichong (LR 3) and Hegu (LI 4) were punctured perpendicularly for 0.5-1.0 cun; Lieque (LU 7) was punctured obliquely upward for 0.3-0.5 cun. After the

arrival of needling sensation, the needles were manipulated with even reinforcing-reducing method. The acupuncture was given once every day. The needles were retained for 30 min each time. Seven sessions made one course, and totally three courses were given.

Table 1. Comparison of gene	ral data between the two grou
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Group	п	Gender (case)		Average age	Average duration	CCS score	Defecation per week	
		Male	Female	$(\overline{x} \pm s, year)$	$(\overline{x} \pm s, year)$	$(\overline{x} \pm s, \text{point})$	$(\overline{x} \pm s, \text{time})$	
Acupuncture	25	10	15	44.2±12.1	5.1±2.7	20.72±2.44	$0.96{\pm}0.74$	
Medication	25	12	13	44.8±14.1	5.8±3.1	21.20±2.97	1.00 ± 0.87	

2.2 Medication group

The patients in the control group were treated by oral administration of Phenolphthalein Tablets (specification: 100 mg per tablet, 100 tablets per bottle, produced by Beijing Taiyang Pharmaceutical Co. Ltd., China), 200 mg each time, taken before going to bed. After the effect was seen, the dose was reduced by half. The medication was stopped when stool became loose, which was regarded as effective. The treatment for 7 d made one course, and totally three courses were given.

3 Observation of Results

3.1 Observed items

3.1.1 CCS score

The assessment was processed by CCS in eight aspects: defecation frequency, straining, sense of incomplete evacuation, abdominal pain, time spent toileting, type of help in defecation, times of unsuccessful defecation, and constipation duration^[3]. Except 3-point method (0-2 points) was for the type of help in defecation, the rest 7 items were scored by 5-point method (0-4 points). The scores in various items were added together and the highest score was 30 points. The higher the score, the worse the constipation.

3.1.2 Frequency of defecation per week

The frequency of defecation per week was respectively recorded before the treatment, after 1-week and 3-week treatment and 3 months after the treatment.

3.2 Assessing criteria of therapeutic effects

The therapeutic effects were assessed by CCS score-reducing rate plus improvement of clinical symptoms. The criteria of the therapeutic effects were made for this study in reference to *Criteria of Diagnosis* and *Therapeutic Effects of Diseases and Syndromes in Traditional Chinese Medicine*^[1].

CCS score-reducing rate = (Total CCS score before treatment — Total CCS score after treatment) \div Total CCS score before treatment \times 100%.

Cure: One defecation within 2 d, moist stool texture, without obvious abdominal pain, smooth defecation, no recurrence in the short-term period, with CCS score-reducing rate \geq 80%.

Improvement: One bowel movement within 3 d, moist stool texture, abdominal distension, unsmooth defecation, with CCS score-reducing rate \geq 30%, and < 80%.

Failure: No obvious improvement in the symptoms, with CCS score-reducing rate < 30%.

3.3 Results

3.3.1 Comparison of CCS scores between two groups

Comparison within the group: after 1 week of treatment, 3 weeks of treatment, and in 3 months after the end of treatment, CCS scores were statistically different from that before the treatment in both groups (all P < 0.01), indicating that the two therapeutic methods were effective. Comparison between the two groups: after 1 week of treatment, CCS scores were lower in the medication group than that in the acupuncture group, with a statistical significance (P < 0.01), indicating that constipation was improved more significantly in the medication group than in the acupuncture group after one week of treatment. After 3-week treatment and in 3 months after the end of the treatment, CCS scores were lower in the acupuncture group than in the medication group, with statistical significances (all P < 0.01), indicating that the therapeutic effects after 3 weeks of treatment and in 3 months after the end of the treatment were better in the acupuncture group than in the medication group (Table 2).

3.3.2 Comparison of defecation times per week between the two groups

Comparison within the group: after 1 week of treatment, 3 weeks of treatment, and in 3 months after the end of treatment, defecation times per week in the two groups were statistically different than that before the treatment (all P < 0.01), indicating that two therapeutic methods could increase the times of defecation per week for the patients. Comparison

between the groups: after 1 week of treatment, the defecation times per week were higher in the medication group than in the acupuncture group, with a statistical significance (P < 0.01), indicating that after 1 week of treatment, the therapeutic effects were better in the medication group than in the acupuncture group. After 3 weeks of treatment and in 3 months after the end of treatment, the defecation times per week were higher in the acupuncture group than in the medication group, with statistical significances (P < 0.05, P < 0.01), indicating that the long-term therapeutic effect was better in the acupuncture group than in the medication group (Table 3).

3.3.3 Comparison of therapeutic effects between the two groups

After 3 weeks of treatment, the differences in the therapeutic effects between the two groups by rank-sum test were not statistically significant (P>0.05). In 3 months after the end of the treatment, the differences in the therapeutic effects between the two groups by rank-sum test were statistically significant (P<0.01), indicating that the long-term therapeutic effect was better in the acupuncture group than in the medication group (Table 4 and Table 5).

Table 2.	Comparison	of CCS scores	before and	after the tre	atment (\overline{x}	±s, point)
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Group	<i>n</i> Before treatment		After 1-week treatment	After 3-week treatment	3 months after treatment	
Acupuncture	25	20.72±2.44	$17.36 \pm 2.74^{1)}$	$4.44{\pm}1.50^{1)2)}$	4.28±1.31 ¹⁾²⁾	
Medication	25	21.20±2.97	$13.52 \pm 2.54^{1)3)}$	$7.24 \pm 3.05^{1)}$	10.08±4.53 ¹⁾	
<i>t</i> -value		-0.622	5.147	-4.123	-6.154	
P-value		0.537	0.000	0.000	0.000	

Note: In comparison with the same group before treatment, 1) P < 0.01; in comparison with the medication group at same period, 2) P < 0.01; in comparison with the acupuncture group at same period, 3) P < 0.01

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Group	up <i>n</i> Before treatment		After 1-week treatment	After 3-week treatment	3 months after treatment	
Acupuncture	25	$0.96{\pm}0.74$	1.88±0.73 ¹⁾	4.12±1.27 ¹⁾³⁾	5.16±0.80 ¹⁾²⁾	
Medication	25	1.00 ± 0.87	$2.76\pm0.97^{1)4)}$	$3.32 \pm 1.49^{1)}$	$3.00 \pm 1.53^{1)}$	
<i>t</i> -value		-0.176	-3.633	2.042	6.263	
P-value		0.861	0.001	0.047	0.000	

Note: In comparison with the same group before treatment, 1) P < 0.01; in comparison with the medication group of same period, 2) P < 0.01, 3) P < 0.05; In comparison with the acupuncture group of same period, 4) P < 0.01

Table 4. Comparison of clinical effects after 3 weeks of treatment between the two groups (case)
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Group	n	Cure	Improvement	Failure	Total effective rate (%)	Z-value	P-value
Acupuncture	25	12	13	0	100	1 4 4 2	0.140
Medication	25	7	18	0	100	-1.442	0.149

Table 5. Comparison of clinical effects in 3 months after treatment between the two groups (case)								
Group	n	Cure	Improvement	Failure	Total effective rate (%)	Z-value	P-value	
Acupuncture	25	13	12	0	100	2 424	0.001	
Medication	25	3	17	5	80.0	-3.424	0.001	

4 Discussion

Constipation due to intestinal qi stagnation is mostly caused by unsmooth flow of the liver qi, dysfunction of qi activity, and dysfunction of the spleen and stomach in their ascending and descending, dysfunction of the lung in its dispersing and descending, and dysfunction of the large intestine in its transportation, leading to internal retention of wastes. With its pathological position in the large intestine, this disease is related to the dysfunction of the lung, spleen, stomach, liver and kidney^[4-6]. The treatment of this disease is mostly by laxatives, lubricants, softeners, and prokinetic agents in Western medicine, and the short-term effect is fairly good, but the recurrence rate is high^[7]. Some patients take irritating laxatives for a long time, leading to nerve

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damage in the colonic mucosa, and hence laxative dependence. At the same time, the patients are mostly accompanied by mental and psychological factors, presenting anxiety, depression and personality disorders to varying extents, which has been proven by various studies at home and abroad^[8-9]. Up to now, the pathogenesis of this disease has not been fully explained yet, and there is no specific therapeutic method for it. Chinese medicine and acupuncture therapy become the important means gradually in the treatment of this disease^[10]. In accordance with the pathogenesis of constipation due to intestinal gi stagnation, and by the guiding thought of TCM theory on 'upflow, downflow, outflow and inflow of gi activity' in this study, Gongsun (SP 4) and Sanyinjiao (SP 6) were used to uplift the spleen gi. Gongsun (SP 4) is the Luo-Connecting point of the Spleen Meridian and communicates with the Stomach Meridian, and acupuncture at it can simultaneously regulate the spleen and stomach, and promote the restoration of the functions in ascending ability of the spleen and descending ability of the stomach.

In achieving a better effect in the treatment of habitual constipation by needling Sanyinjiao (SP 6), Yang J believes that Sanyinjiao (SP 6) can nourish yin and produce body fluid for moistening the intestines and also can regulate gi of the spleen and stomach for normalizing the ascending and descending ability of gi activity. Taichong (LR 3) is able to soothe the liver and regulate qi, and Lieque (LU 7) is able to promote the distributing and descending ability of the lung qi, and communicate with the large intestine. Therefore, it can distribute and descend the lung gi and also dredge the large intestine^[11]. As the He-Sea point of the Stomach Meridian, Zusanli (ST 36) is the important point for abdominal disorders, it can regulate the stomach and the intestines, harmonize the middle jiao to descend adverse flow of qi^[12]. Hegu (LI 4), the Yuan-Primary point of the Large Intestine Meridian, and Tianshu (ST 25), the Front-Mu point of the large intestine, and Shangjuxu (ST 37), the Lower He-Sea point of the large intestine, were selected to reach to the diseased area directly and dredge the large intestine. Tianshu (ST 25), locates in the midpoint of human body, is an axis to ascend the clear and descend the turbid, and the upward and downward communication, and ascending, descending, floating and sinking abilities of the human body are all based upon this acupoint. In order to get satisfactory clinical effects in the treatment of functional constipation by deep needling Tianshu (ST 25), many scholars believe that in deep needling Tianshu (ST 25), the needle can directly touch the intestinal wall, for promoting the intestinal peristalsis by nervous and humoral regulation, and promoting the regeneration of nerve fibers by good stimulation for a period of time, beneficial to the long-term effect for functional constipation^[13-15]. In this study, all the acupoints jointly function to regulate gi activity of Zang-fu organs, so as to normalize the opening and closing ability of the anus^[16-18]. After 1 week of treatment, CCS scores were more obviously reduced and the defecation times were increased more significantly in the medication group than in the acupuncture group. After 3 weeks of treatment and in 3 months after the end of the treatment, CCS scores were more obviously reduced and the defecation times were more obviously increased in the acupuncture group than in the medication group. After 3 weeks of treatment, there was no statistical significance in the differences of the clinical effect between the two groups (P > 0.05). In 3 months after the end of the treatment, the therapeutic effect was better in the acupuncture group than in the medication group (P < 0.01), indicating that the short-term effect is similar in the two groups but faster in the medication group, but the long-term effect is better in the acupuncture group. The problem is easy to occur again after the termination of medication.

Because this study is a clinical study of a small sample size, it is necessary to do further studies of multiple centers and large sample size, so as to provide clinical guidance for the acupuncture treatment of constipation due to intestinal qi stagnation.

Conflict of Interest

The authors declared that there was no potential conflict of interest in this article.

Statement of Informed Consent

Informed consent was obtained from all individual participants included in this study.

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