

Observation on clinical effect of tuina plus Western medication for functional dyspepsia due to liver qi stagnation and spleen deficiency

推拿联合西药治疗肝郁脾虚证功能性消化不良疗效观察

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Abstract

Objective: To observe the clinical effects of tuina plus Western medication for functional dyspepsia (FD) due to liver qi stagnation and spleen deficiency.

Methods: A total of 72 patients in conformity with the inclusion criteria of FD were randomly divided into an observation group and a control group based upon the random number table, 36 cases in each group. The control group was treated with mosapride citrate dispersible tablets, and the observation group was treated with the same tablets plus tuina. Before the treatment and 4 weeks after the treatment, the clinical symptoms, quality of life (QOL) and depression severity were observed by the scale, and were followed up two months later after the treatment for assessment of the clinical effects.

Results: After the treatment and at the follow-up, the symptom scores of FD and the scores of Hamilton depression rating scale (HAMD) in both groups decreased, and the scores in Chinese version of quality of life questionnaire for functional digestive disorders (Chin-FDDQL) increased, with statistically significant differences in comparison with the same group before the treatment (all $P < 0.05$). In comparison between the two groups at the same time point after the treatment, the scores of FD symptoms, HAMD and Chin-FDDQL were improved better in the observation group than those in the control group, with statistically significant differences (all $P < 0.05$). The total effective rates at the follow-up were 91.7% in the observation group and 75.0% in the control group, without statistical difference between the two groups ($P > 0.05$). The rate of clinical cure and remarkable effect was 66.7% in the observation group, higher than 41.7% in the control group, it is higher in the observation group than that in the control group, with a statistically significant difference between the two groups ($P < 0.05$).

Conclusion: Tuina plus Western medication is precise in the therapeutic effects for FD due to liver qi stagnation and spleen deficiency and can effectively relieve clinical symptoms, elevate the QOL and alleviate depression severity of the patients. Moreover, it's better than the treatment by Western medication alone in the long-term therapeutic effects.

Keywords: Tuina; Massage; Dyspepsia; Depression; Quality of Life; Mental Status Schedule

【摘要】目的：观察推拿联合西药治疗肝郁脾虚证功能性消化不良(FD)的临床疗效。**方法：**将符合FD纳入标准的72例患者按随机数字表法随机分为观察组与对照组,每组36例。对照组予以枸橼酸莫沙必利分散片口服,观察组在此基础上加用推拿治疗。治疗前及治疗4星期后通过量表观察两组患者临床症状、生活质量及抑郁程度,并于治疗结束2个月后进行随访评价临床疗效。**结果：**两组患者治疗后及随访时FD症状评分、汉密顿抑郁量表(HAMD)评分均下降,中文版功能性消化不良生存质量量表(Chin-FDDQL)评分升高,与本组治疗前差异均具有统计学意义(均 $P < 0.05$)。两组治疗后同一时间点比较,观察组的FD症状评分、HAMD评分及Chin-FDDQL评分的改善情况均优于对照组,组间差异均有统计学意义(均 $P < 0.05$)。随访时观察组的总有效率为91.7%,对照组为75.0%,组间差异无统计学意义($P > 0.05$)。观察组的愈显率为66.7%,对照组的愈显率为41.7%,观察组愈显率高于对照组,组间差异有统计学意义($P < 0.05$)。**结论：**推拿联合西药治疗肝郁脾虚证FD疗效确切,能有效改善患者的临床症状,提高其生活质量,减轻抑郁程度,且远期疗效优于单纯西药治疗。

【关键词】推拿;按摩;消化不良;抑郁;生活质量;精神状态检查表

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Functional dyspepsia (FD) is a common pattern in dyspepsia, accounting for over 70% of the patients with dyspepsia by endoscopic examination^[1]. The incidence rate of FD is quite high, accounting for 20%-40% of the diseases in the gastroenterological outpatients^[2]. FD has a high relapse rate and can greatly affect the patient's life. Currently, FD is mainly treated by promoting the gastrointestinal dynamics. But, in the concept of brain-intestine axis, most scholars find out that the mental and psychological factors are closely related to the occurrence and development of FD. From March of 2016 to March of 2017, we treated 40 FD patients due to liver qi stagnation and spleen deficiency with manual techniques to soothe the liver and circulate qi, and regulate the mind and relieve depression in combination with mosapride citrate dispersible tablets. Now, the report is given as follows.

1 Data and Methods

1.1 Diagnostic criteria

The diagnostic criteria for FD in Western medicine were stipulated in reference to the relevant diagnostic criteria in Roma III^[3]. The diagnostic criteria in traditional Chinese medicine were formulated based upon *A Consensus on the Diagnosis and Treatment of Functional Dyspepsia by Chinese and Western Medicine* (2011)^[4].

1.2 Inclusion criteria

In conformity with the above diagnostic criteria; aged from 20 to 60 years old; without organic lesions in the stomach, intestines, liver, gallbladder, spleen and pancreas; having signed the informed consent.

1.3 Exclusion criteria

Those not in conformity with the above diagnostic criteria; those accompanied by other serious diseases of multiple systems or mental disorders; with a history of abdominal operation; under oral administration of other prokinetic agents in recent one week before this experimental treatment.

1.4 Statistical methods

The SPSS 20.0 version statistical software was used for statistical analysis. Chi-square test was used for the non-hierarchical enumeration data. The measurement data were expressed by mean \pm standard deviation ($\bar{x} \pm s$). The comparison before and after the treatment was processed by paired *t*-test, and the comparison between the groups was processed by independent sample *t*-test. The hierarchical enumeration data were processed by rank-sum test. $P < 0.05$ indicated a statistically significant difference.

1.5 General data

A total of 72 patients in conformity with the diagnostic criteria of FD due to liver qi stagnation and

spleen deficiency were recruited from the Second Affiliated Hospital of Hunan University of Chinese Medicine and were divided randomly into an observation group and a control group based upon the random number table, 36 cases in each group. By statistical analysis, the differences in the general data between the two groups were not statistically significant ($P > 0.05$), indicating that the two groups were comparable.

Table 1. Comparison of general data between the two groups

Group	<i>n</i>	Gender (case)		Average age ($\bar{x} \pm s$, year)	Average duration ($\bar{x} \pm s$, year)
		Male	Female		
Observation	36	22	14	50.2 \pm 6.1	2.1 \pm 1.4
Control	36	20	16	51.4 \pm 5.8	2.4 \pm 1.3

2 Therapeutic Methods

2.1 Observation group

2.1.1 Western medicine

Mosapride citrate dispersible tablets (lot number: 160110; specification: 5 mg/tablet, Chengdu Kanghong Pharmaceutical Group Co., Ltd., China), oral administration of 5 mg before meal each time, three times per day, totally for four weeks.

2.1.2 Tuina

Therapeutic principle: Soothing liver to regulate qi and regulating spirit to relieve depression.

Methods: The detailed manipulations were stipulated based upon the relevant literature^[5]. After the patient took a supine position, the medical therapist stood at the left side of the patient, and first applied the palm An-pressing manipulation to Zhongwan (CV 12), Qihai (CV 6) and Guanyuan (CV 4), to certain depth, till the patient felt soreness or distension in the back, abdomen and two lower limbs, and then lifted the hand slowly with the patient's inspiration, for 1-3 min each acupoint (Figure 1). Afterward, applied palm Yun-circular pushing manipulation to Shenque (CV 8) for 3-5 min (Figure 2), and applied finger Tui-pushing manipulation to the line from Jueque (CV 14) to Shenque (CV 8) for 3-5 min (Figure 3). After the patient took a prone position, the medical therapist sit at the right side of the patient and Rou-kneaded Ganshu (BL 18) and Danshu (BL 19) with both hands, for 1-3 min each point (Figure 4). Finally, the medical therapist stood at the left side of the patient and applied thumb Tui-pushing manipulation to Baihui (GV 20) and Fengchi (GB 20), for 1-3 min each point (Figure 5). The above manipulations were used alternatively for about 40 min in total. The treatment was given once every other day, for totally four weeks.



Figure 1. An-pressing abdominal points with the palm



Figure 2. Yun-circular pushing Shenque (CV 8) with the palm



Figure 3. Tui-pushing abdominal points with fingers



Figure 4. Rou-kneading points on the back



Figure 5. One-thumb Tui-pushing the points of the head

2.2 Control group

The patients in the control group only received oral administration of the same Western medicine as those in the observation group, same in dose and course.

3 Observation of Therapeutic Effects

3.1 Observed items

3.1.1 Score of FD symptoms

The assessment was processed based upon the grading criteria of FD symptoms in *A Consensus on the Diagnosis and Treatment of Functional Dyspepsia by Chinese and Western Medicine* (2011)^[4]. Grade 0, I, II and III were respectively recorded as 0, 3, 5 and 7 points. The higher the point, the severer the symptom.

3.1.2 Score of Chinese version of quality of life questionnaire for functional digestive disorders (Chin-FDDQL)^[6]

The quality of the life (QOL) of FD patients was assessed based upon Chin-FDDQL. The total score of Chin-FDDQL was 100 points. The higher the score, the better the patient's QOL.

3.1.3 Score of Hamilton depression rating scale (HAMD)^[7]

Depression severity was assessed by HAMD. The total HAMD score were 76 points. The higher the score, the more serious the patient's depression.

3.2 Criteria of the therapeutic effects

The criteria were formulated in reference to *A Consensus on the Diagnosis and Treatment of Functional Dyspepsia by Chinese and Western Medicine* (2011)^[4]. The therapeutic effect was evaluated by the above symptoms scores.

Index of the therapeutic effect = (Total scores of the symptoms before the treatment – Total scores of the symptoms after the treatment) ÷ Total scores of the symptoms before the treatment × 100%.

Clinical cure: Symptoms and signs basically disappeared, with the index of the therapeutic effect ≥90%, and with no recurrence for over two months.

Remarkable effect: Symptoms and signs were

obviously alleviated or relieved by at least 2 grades, or the index of the therapeutic effect was $\geq 70\%$, but $< 90\%$.

Improvement: Symptoms and signs were alleviated or relieved by at least 1 grade, or the index of the therapeutic effect was $\geq 30\%$, but $< 70\%$.

Failure: No improvements in the symptoms and signs, and the index of the therapeutic effect was $< 30\%$.

3.3 Results

3.3.1 Comparison of clinical effect between the two groups

The total effective rate at the follow-up was 91.7% in the observation group and 75.0% in the control group, without a statistically significant difference between the two groups ($P > 0.05$). The rate of clinical cure and remarkable effect was 66.7% in the observation group, higher than 41.7% in the control group, with a statistical significance in the difference between the two groups ($P < 0.05$), (Table 2).

3.3.2 Comparison of FD symptom score

After the treatment and at the follow-up, the scores of FD symptoms were lower than those before the treatment in both groups, and the intra-group differences were statistically significant in the two

groups (all $P < 0.05$). After the treatment and at the follow-up, the scores of FD symptoms were lower in the observation group than those in the control group, and the inter-group differences were statistically significant (all $P < 0.05$), (Table 3).

3.3.3 Comparison of Chin-FDDQL score

After the treatment and at the follow-up, Chin-FDDQL scores were higher than those before the treatment in both groups, and the intra-group differences were statistically significant in the two groups (all $P < 0.05$). After the treatment and at the follow-up, Chin-FDDQL scores were higher in the observation group than those in the control group, and the inter-group differences were statistically significant (all $P < 0.05$), (Table 4).

3.3.4 Comparison of HAMD score

After the treatment and at the follow-up, HAMD scores were lower than those before the treatment in both groups, and the intra-group differences were statistically significant in the two groups (all $P < 0.05$). After the treatment and at the follow-up, HAMD scores were all lower in the observation group than those in the control group, and the inter-group differences were statistically significant (all $P < 0.05$), (Table 5).

Table 2. Comparison of clinical effect between the two groups (case)

Group	n	Clinical cure	Remarkable effect	Improvement	Failure	Rate of clinical cure and remarkable effect (%)	Total effective rate (%)
Observation	36	13	11	9	3	66.7 ¹⁾	91.7
Control	36	9	6	12	9	41.7	75.0

Note: Compared with the control group, 1) $P < 0.05$

Table 3. Comparison of FD symptom score between the two groups ($\bar{x} \pm s$, point)

Group	n	Before treatment	After treatment	Follow-up
Observation	36	24.7 \pm 8.3	9.8 \pm 5.7 ¹⁾²⁾	11.4 \pm 3.5 ¹⁾²⁾
Control	36	24.3 \pm 7.6	14.5 \pm 7.4 ¹⁾	17.1 \pm 4.8 ¹⁾

Note: Intra-group comparison, 1) $P < 0.05$; inter-group comparison at the same time point, 2) $P < 0.05$

Table 4. Comparison of Chin-FDDQL score between the two groups ($\bar{x} \pm s$, point)

Group	n	Before treatment	After treatment	Follow-up
Observation	36	47.5 \pm 13.7	71.7 \pm 15.3 ¹⁾²⁾	67.2 \pm 12.4 ¹⁾²⁾
Control	36	46.1 \pm 12.2	63.5 \pm 13.3 ¹⁾	57.7 \pm 10.6 ¹⁾

Note: Intra-group comparison, 1) $P < 0.05$; inter-group comparison at the same time point, 2) $P < 0.05$

Table 5. Comparison of HAMD score between the two groups ($\bar{x} \pm s$, point)

Group	n	Before treatment	After treatment	Follow-up
Observation	36	21.1 \pm 2.3	9.3 \pm 2.4 ¹⁾²⁾	10.6 \pm 2.1 ¹⁾²⁾
Control	36	21.7 \pm 3.6	14.6 \pm 4.2 ¹⁾	17.3 \pm 2.7 ¹⁾

Note: Intra-group comparison, 1) $P < 0.05$; inter-group comparison at the same time point, 2) $P < 0.05$

4 Discussion

The nerve-endocrine network bridging the enteric nervous system, autonomic nervous system and central nervous system with the stomach and intestine is termed brain-intestine axis. With the brain-gut peptide as messenger, this network serves to regulate the mental status and gastrointestinal motion of the human body in two ways. The dysfunction of brain-intestine axis is currently believed as a core mechanism in the incidence of FD^[8]. As a typical somatopsychic disease, its sufferers would be mostly accompanied by mental disorder of anxiety and depression, with the scores of anxiety and depression obviously higher than those of the normal adults^[9], and in FD patients complicated with irritable bowel syndrome (IBS), their scores of anxiety and depression are all higher than those of FD patients^[10]. Liu HY, *et al*^[11] pointed out that the mental factors of anxiety and depression induced the dysfunction of vegetative nervous system, inhibited the excitement of the sympathetic nerve and vagus nerve, further causing abnormality in the gastrointestinal dynamics.

The pathological position of FD is in the stomach, but it is closely related to the liver and spleen and its pathogenesis is mainly attributed to liver qi stagnation and spleen deficiency^[12-13]. Namely, the liver qi stagnation would induce the disorder in the ascending and descending ability of the spleen and stomach, and would further cause discomfort in the stomach and intestines, presenting the relevant gastrointestinal diseases. Therefore, the satisfactory therapeutic effects can be achieved by regulating the mind and emotion of the human body as a supplementary treatment of FD due to liver qi stagnation and spleen deficiency.

Tuina manipulations to soothe the liver, circulate qi, regulate the mind and relieve depression are inherited and created by Prof. Sun Qing from Tianjin University of Traditional Chinese Medicine, based upon the experience of the forefathers, with the five layers of qi and four types of guiding therapies as the theoretic core (Namely, in accordance with the pathologic situation and body constitution of the patients, the manual techniques for reinforcing or reducing purpose are applied in different layers, and the abdomen of the human body is divided into five layers of qi from the shallow position to deep position, and the four types of guiding therapies of attacking, dispersing, lifting and leading skills are formulated based upon the priority of the manual techniques), in combination with multiple manual techniques for the head and abdomen, so as to deal with the causative factor by soothing the liver and circulating qi and to treat the symptoms by regulating the mind and relieving depression, for the clinical treatment of mental disorders^[5, 14]. In comparison with the traditional manipulations, Prof. Sun Qing's

manipulations are mainly applied to the abdomen and the selected acupoints (mostly locate on the abdomen and back). Shangwan (CV 13), Zhongwan (CV 12), Xiawan (CV 10), Guanyuan (CV 4) and Qihai (CV 6) can be used to regulate qi activity of the middle jiao and strengthen the gastrointestinal dynamics. It has been pointed out in the clinical study that the therapeutic effects are satisfactory in the treatment of FD by tuina on the abdomen, better than Western medicine^[15-17], and its mechanism is supposed to relax the abdominal muscles, dilate the intestines and enlarge the intestinal volume for promoting the gastrointestinal peristalsis and digestive secretion of FD patients, and further promote digestion and absorption of food stuffs and excretion^[18]. Ganshu (BL 18) and Danshu (BL 19) can soothe the liver, circulate qi and relieve depression. Tuina on Baihui (GV 20) and Fengfu (GV 16) can regulate the mind and improve the spiritual status. It has been indicated by the experiments that acupuncture at the points on the head of the rat can enhance the expression level of the brain-derived neurotrophic factor (BDNF) in the frontal cortex and hippocampus, so as to produce the antidepressant effect^[19]. Therefore, tuina on the abdomen in predominance, in combination with tuina on the head, can regulate the gastrointestinal functions and also regulate the central nervous system, more beneficial to the restoration of the normal brain-intestine interactional function.

In this study, the symptoms scores and HAMD scores decreased after the treatment in FD patients of the two groups, all lower than the scores of the same group before the treatment, and Chin-FDDQL scores increased, all higher than the scores of the same group before the treatment, indicating that both of the two therapies can improve the symptoms of indigestion in the patients, relieve the depression and elevate QOL. Moreover, FD symptoms scores, Chin-FDDQL scores and HAMD scores are improved better in the observation group than in the control group, indicating that tuina to soothe the liver, circulate qi, regulate the mind and relieve depression can enhance the therapeutic effect of mosapride citrate dispersible tablets due to a cooperative effect. At the follow-up, the symptom scores and HAMD scores of FD increased somewhat and Chin-FDDQL scores decreased in the two groups, with less change in the observation group than in the control group, indicating that this Tuina method has the effect to stabilize the therapeutic effect of mosapride citrate dispersible tablets. Mosapride citrate dispersible tablets is a typical medication in the treatment of gastrointestinal diseases, but FD is long in its duration and easy to reoccur and is related to the somatopsychic status. Thus, the use of Western medication alone is limited in the therapeutic effect^[20]. Therefore, we applied tuina method of 'soothing liver to regulate qi and regulating spirit to relieve depression' to treat FD,

and the findings indicate that this tuina method plus mosapride citrate dispersible tablet can effectively alleviate the clinical symptoms, enhance QOL and relieve depression of FD patients, and is stable and persistent in the therapeutic effect.

Conflict of Interest

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

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Statement of Informed Consent

Informed consent was obtained from the patients in this study.

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