

Research Progress about Diagnosis and Treatment of TCM to IBS-C of Liver-Qi Stagnation

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Abstract: Irritable bowel syndrome (IBS) is a common gastrointestinal disease with intestinal dysfunction as the main symptom, and irritable bowel syndrome with constipation (IBS-C) is one of the subtypes. Traditional Chinese medicine believes that the onset of IBS-C is closely related to the liver and is affected by emotions, and syndrome of stagnation of liver and qi is one of the common clinical syndrome types. This article reviews the research progress of traditional Chinese medicine (TCM) in the form of IBS-C of Liver-Qi Stagnation from three aspects: etiology and pathogenesis, clinical symptoms, and treatment.

Keywords: IBS, Constipation type, TCM, Syndrome of Liver-qi stagnation

Irritable bowel syndrome (IBS) is a functional bowel disease characterized by abdominal pain, abdominal distension, or abdominal discomfort with a change in the frequency and texture of stool^[1]. The Rome IV criteria^[2] recommend the classification of IBS subtypes according to the Bristol Stool Trait Scale, which divides IBS into four subtypes: diarrheal type irritable bowel syndrome (IBS-D), constipate type irritable bowel syndrome (IBS-C), mixed type irritable bowel syndrome (IBS-M), and unclassified type irritable bowel syndrome (IBS-U). IBS-C is one of the subtypes, and its clinical symptoms are mainly abdominal pain and constipation. The pathogenesis of IBS-C is still unclear, but studies have shown that increased visceral sensitivity and gastrointestinal motility disorders caused by dysfunction of the brain-gut axis are important factors leading to IBS-C^[3].

In ancient Chinese medicine books, there is no name of "irritable bowel syndrome". According to the different main symptoms, irritable bowel syndrome belongs to the category of "constipation", "yang constipation", "yin constipation", "abdominal pain", and "diarrhea" of TCM^[4]. The "Treatise on Cold Damage Diseases" says: "The floating and rapid pulse, able to eat but constipated, this is a manifestation of excess pattern, which is called yang constipation, and the disease is further aggravated after 14 days. If the pulse is dull and slow, unable to eat, the body is heavy, and the stools are dry and hard, this is called yin constipation, and the disease is further aggravated after seventeen days."

Syndrome of Liver-qi stagnation is one of the common syndrome types of IBS-C. In the Qing Dynasty, Tang Rongchuan pointed out that "The liver is responsible for evacuating the bowels, and when liver qi is reversed, it does not evacuate the bowels, thus making it difficult to pass stools." This specifies the relationship between liver and constipation. In this article, we will introduce the progress about diagnosis and treatment of TCM to IBS-C of Liver-Qi Stagnation from the three aspects: etiology and pathogenesis, clinical symptoms, and treatment.

1. Etiology and pathogenesis

The common causes of this disease are external contraction, dietary irregularities, moodiness, fatigue due to overexertion. The failure of liver to govern free coursing is an important part of the pathogenesis of IBS-C. If liver fails to govern free coursing, and the bowel qi of large intestine ascends and descends unfavorably, there will be abdominal pain and abdominal distension; abnormalities in the function of the bowels to conduct stools can lead to constipation. The "Zheng, Yin, Mai and Zhi" said: "Anger makes the qi upward and retrograde, excessive thinking makes the qi stagnation. Worry and anxiety cause the qi not to move normally, then the qi congests in the large intestine and therefore leads to constipation." Therefore, if the liver qi is stagnant and depressed, the qi movement will be out of order, and the ascending-descending will be disordered, which will further lead to the congestion of the qi of the large intestine, and will not be able to conduct the dregs of the bowels properly. The "Su Ling

Wei Yun" says: "The liver is responsible for the excretion of feces and urine." It can be seen that the smoothness of defecation is closely related to the normal functioning of the liver. Wu Da, a medical doctor in the Qing Dynasty, said in "Medicine Seeking the Truth": "When the wood is depressed and does not circulate without obstruction, wind will be generated, then wind and wood restrains the spleen and earth. This is why there is pain below the umbilicus", which explains the "abdominal pain" pathogenesis of IBS-C. In Yuan dynasty, Zhu Zhenheng's "Danxi's Experiential Therapy" emphasizes the role of depression in the occurrence of disease, such as "If qi and blood are harmonious, all diseases do not arise. Once there is depression, all diseases occur. Therefore, all diseases in life, more born in the depression". After the Ming Dynasty, the depression of emotion gradually become the main content of the depression pattern. In the Ming Dynasty, Xu Chunfu said: "Depression is that seven emotions are not comfortable, and then become stagnation and depression, and when the depression lasts for a long time, different diseases will be born". This shows that liver depression and constipation is a two-way effect. Constipation can be caused by liver depression, which leads to the occurrence of depression, while liver qi depression can also lead to and aggravate constipation.

Modern medical doctors also have different views on the pathogenesis of IBS-C of liver-qi stagnation. Prof. Tang Xuegui, a nationally renowned expert in anal and intestinal diseases, who has studied various types of constipation deeply, pointed out that although the disease site of IBS-C is in the large intestine, its onset is due to the dysfunction between the liver and the spleen, which causes the dysfunction of the large intestine's conduction and ventilation and descending, and the retention of feces in the large intestine is the root cause of the onset of the disease. It is also pointed out that the liver qi depression and stagnation and the disorder of emotions are the important causes of the disease^[5]. Zhang Qian^[6] and others believe that the pathogenesis of the disease is mainly due to stagnation of qi, dysfunction of nourishment, disorder of qi movement, and dysfunction of conduction of the large intestine. Lv Yonghui^[7] and others take the liver and the large intestine as the main pathogenic parts of the disease, and believe that emotional upset causes liver depression and qi stagnation, and the disorder of free coursing of liver causes the large intestine to conduct poorly, and the dregs accumulate, which ultimately cause constipation.

2. Clinical symptoms

In the Expert consensus opinion on Chinese medicine diagnosis and treatment of irritable bowel syndrome (2017)^[8], the clinical symptoms of syndrome of liver depression and qi stagnation are mainly constipation, abdominal pain or abdominal distension, which may also be accompanied by secondary symptoms such as chest tightness, frequent belching, and distension and pain in both sides of the hypochondrium, and the tongue is dark red and the pulse is string-like. In the "Diagnosis and treatment program combined Chinese and Western medicine for irritable bowel syndrome (draft)"^[9], it is proposed that syndrome of liver depression and qi stagnation has constipation, difficulty to defecate, distension and fullness of the chest and hypochondrium, irritability, and secondary symptoms such as borborigmus and farting, belching, torpid intake, tenesmus, insomnia and dreaminess, and bittermouth and dry pharynx. According to Zhang Zhenyu^[10], IBS-C of liver-qi stagnation is characterized by dry stools, constipation, abdominal distension, abdominal pain, gastric and abdominal stuffiness, irritability, bitter mouth and dry throat, red tongue, and thin white tongue fur. Different medical practitioners have slightly different descriptions of the symptoms of IBS-C of Liver Depression and Qi Stagnation, but the main symptoms are abdominal pain and constipation, which may be accompanied by emotional depression, belching, fullness of the chest and hypochondrium, etc. The tongue and pulse are generally characterized by a red tongue with thin white tongue fur and a string-like pulse.

3. Treatment

3.1 Chinese medicine

Simo Decoction. Simo Decoction is derived from Yan's Prescriptions for Rescuing Lives, and consists of radix Aucklandiae, semen arcae, lignum aquilariae resinatum, and radix linderiae, which is a qi-regulating formula in Chinese medicine, and the combination of the four herbs has the efficacy of directing qi downward, promoting digestion and removing food stagnation, and relieving pain. Consensus^[8] used Simo Decoction as a standard formula for the treatment of IBS-C with liver depression and qi stagnation, indicating that Simo Decoction has recognized efficacy in the treatment of this condition. Modern medical practitioners also have many studies and results in treating IBS-C

with Simo Decoction. Jia Fuyun^[11], in the clinical observation of 80 patients with IBS-C of liver-qi stagnation, treated the experimental group with the modified Simo Decoction, and the control group was treated with the western medicine mosapride tablets, and the results showed that the modified Simo Decoction was clinically effective in treating the liver depression and qi stagnation syndrome of IBS-C, and it could reduce the recurrence rate in the follow-up period and the distant future. Bao Huimin^[12] observed the efficacy of treatment to 100 IBS-C patients of liver depression and qi stagnation, and found that the efficacy of treatment with Simo Decoction Oral Liquid (composed of radix aucklandiae, semen arecae, lignum aquilariae resinatum, and radix linderiae) was significantly better than that of the western medicine group which was treated with mosapride tablets. Han Mianmei^[13] et al. treated 80 cases of IBS-C patients with liver depression and qi stagnation with Simo Decoction Oral Liquid as the treatment group, and the control group was treated with mosapride citrate dispersible tablets, and the total effective rate of the treatment group (92.50%) was higher than that of the control group (84.62%), and the difference was statistically significant ($P < 0.05$). It shows that the treatment of IBS-C of liver depression and qi stagnation type with Simo Decoction Oral Liquid has better efficacy, and the improvement of symptoms is more significant compared with western medicine treatment.

Chaihu Shugan Powder. Chaihu Shugan Powder is a classic formula from Complete Works of Jingyue, and the treatment of IBS-C with the Chaihu Shugan Powder can realize the effect of descending qi and removing food stagnation, soothing the liver and regulating qi. Guo Haorui^[14] et al. treated 35 IBS-C patients with liver depression and qi stagnation with modified Chaihu Shugan Powder combined with mosapride as the treatment group, and the control group was treated with mosapride, and the results showed that the total effective rate of the treatment group was 97.14%, which was better than that of the control group which was 85.71%, and there was a significant difference in the comparison of the two groups ($P < 0.05$). The improvement of major symptom scores in the treatment group was better than that in the control group ($P < 0.05$). Chu Lin et al. found that the modified Chaihu Shugan Powder could effectively alleviate the clinical symptoms of IBS-C patients with Qi stagnation syndrome and enhance the clinical efficacy, and the total effective rate was significantly higher than that of the cisapride control group. Li Ruoming^[15], in the clinical observation of 80 patients with IBS-C who conformed to the syndrome of liver depression and qi stagnation, found that the efficacy of treatment with the modified Chaihu Shugan Powder for 4 weeks was significantly higher in the traditional Chinese medicine group than that in the control group which used cisapride alone.

Xiaoyao Powder. Xiaoyao Powder is from Prescriptions from the Great Peace Imperial Grace Pharmacy, it can soothe the liver and relieve depression, harmonize the liver and spleen, and strengthen the spleen and stomach. It has been proved by many experiments that the treatment of IBS-C with the Xiaoyao Powder has certain clinical efficacy. Zheng Heping^[16] et al. treated patients with IBS-C of liver depression and qi stagnation by administering Xiaoyao Powder and Simo Decoction Oral Liquid as the treatment group, and the control group was given Oral Liquid, and the results showed that the administration of Xiaoyao Powder and Simo Decoction Oral Liquid could not only significantly reduce the patients' symptoms but also alleviate the patients' depression and anxiety. Rao Haibing^[17] et al. combined sisabilis with Xiaoyao Powder to treat liver depression and qi stagnation pattern of IBS-C, and compared with the group of oral sisabilis, the total effective rate of the treatment group was 91.30%, and 82.93% in the control group, and there was a significant difference in the comparison between the two groups, and the near-term and long-term clinical efficacy and symptomatic improvement were all more excellent in the treatment group.

3.2 Acupuncture

In recent years, more and more clinical studies have proved the efficacy of acupuncture in the treatment of IBS, and its therapeutic effects are mainly realized through the regulation of gastrointestinal dynamics, the brain-gut axis, the immune system, intestinal flora, and the inhibition of visceral hypersensitivity^[18]. The commonly used acupoints for acupuncture treatment of IBS in clinical practice are mainly Zusanli, Shangjuxu, Dachangshu, Tianshu, and Zhongwan. Peng Suifeng^[19] et al. used electroacupuncture to stimulate the Zusanli and Tianshu to treat IBS-C patients of liver-qi stagnation as the treatment group, and the control group was treated with the macrogol 4000 powder and Live Combined Bacillus Subtilis and Enterococcus Faecium Enteric-coated Capsules, and the results showed that the therapeutic efficacy of the electroacupuncture treatment group was significantly superior to that of the control group. Experimentally, it was proved that electroacupuncture stimulation of the Zusanli and the Tianshu not only reduced the clinical symptoms of the patients with liver depression and qi stagnation syndrome of IBS-C, but also accelerated the transmission of the colon,

improve the psychological state of patients, and improve the quality of life of patients. Du Yanjun^[20] et al. treated 21 cases of IBS-C of liver depression and qi stagnation by acupuncture with bilateral Dachangshu, Zusanli, Zhongwan, bilateral Yanglingquan and Xingjian, using draining method. The comparison of symptoms after treatment with that before treatment showed 15 cases of significant effect, 4 cases of effective and 2 cases of ineffective, with a total effective rate of 90%. Dou Baofeng^[21] treated patients with IBS-C liver depression and Qi stagnation by acupuncture with the method of soothing the liver and regulating qi. In this experiment 60 patients with IBS-C were randomly divided into 30 cases each in the acupuncture treatment group and the control group with western medicine, and the results showed that the total effective rate of the treatment group was 93.33%, and the total effective rate of the control group was 83.33%, and the difference between the groups was significant ($P < 0.05$). This indicates that both acupuncture treatment with soothing the liver and regulating qi method and oral treatment with staidson can improve the clinical symptoms of the patients, but the efficacy of acupuncture treatment is better. In conclusion, acupuncture has significant efficacy in treating IBS-C of liver-qi stagnation and is superior to oral administration of staidson or Live Combined Bacillus Subtilis and Enterococcus Faecium Enteric-coated Capsules.

3.3 Other treatments

Acupoint Patching. Mao Zhilong^[22] used Chaihu Shugan Powder San combined with acupoint patching therapy for the treatment of liver depression and qi stagnation pattern of IBS-C, compared with the control group treated with Chaihu Shugan Powder. The results of 4 weeks of treatment showed that the total effective rate of the treatment group was 83.7%, and that of the control group was 67.3%, and the difference of the two groups was statistically significant ($P < 0.05$), and therapeutic efficacy of the treatment group was superior to that of the control group. Hua Hanbing^[23] et al. conducted clinical observation on 60 cases of IBS patients with syndrome of liver depression and qi stagnation. The observation group was supplemented with traditional Chinese medicine acupoint patching and TDP lamp irradiation besides conventional treatment. The results showed that the symptom score of the observation group was significantly lower than that of the control group, and the efficacy of the observation group was significantly better than that of the control group, when compared with that of the control group that used conventional treatment alone.

Catgut implantation at acupoint. Zou Lei^[24] et al. used catgut implantation at acupoint combined with Shugandaozhi decoction to treat patients with IBS-C of liver-qi stagnation and observed the efficacy. 60 cases of IBS-C patients were randomly divided into Chinese medicine comprehensive trial group and Western medicine control group of 30 cases each. The trial group was given the catgut implantation at acupoint combined with Shugandaozhi decoction, while the patients of control group orally took Itopride tablets, and the two groups were observed for 4 weeks. The results showed that the trial group was better than the control group in reducing patients' main symptoms, improving anorectal dynamics and increasing the sensory volume threshold ($P < 0.05$), and the recurrence rate of patients was lower than that of the control group ($P < 0.05$). It indicates that catgut implantation at acupoint together with Shugandaozhi decoction has good therapeutic effect on IBS-C.

Tuina therapy. Pei Jianwei^[25] gave mosapride to treat IBS-C with liver depression and qi stagnation as the control group, and the treatment group applied Tuina therapy of adjusting qi and tong-fu (taking acupoints such as tianshu, zhongwan, guanyuan, qihai, and jiaji, etc., and applying techniques such as spine pinching, qi-concentrated single-finger pushing manipulation, pressing and kneading), and the results showed that the therapeutic efficacy of the treatment group (96.67%) was higher than that of the control group (76.67%). The symptom score of the treatment group was smaller than that of the control group ($P < 0.05$). It can be seen that Tuina therapy of adjusting qi and tong-fu is a more effective treatment for IBS-C of liver depression and qi stagnation. Huang Zhaoxin^[26] used Heshu massage to treat patients with liver depression and qi stagnation syndrome of IBS-C as a treatment group, and abdominal massage therapy as the control group. The result showed that both the treatment group and the control group can reduce the clinical symptoms of patients, but the treatment group has a significant advantage in reducing the clinical symptoms of the patients, improving the efficacy of the treatment, and reducing the severity of the disease ($P < 0.05$).

4. Summary

At present, the efficacy of western medicine in treating IBS-C is poor, while several studies have shown that the efficacy of Chinese medicine in treating IBS-C is more significant than that of western

medicine, and the long-term prognosis is better than that of western medicine. Chinese medicine treatment of IBS-C with liver depression and qi stagnation is based on the method of soothing the liver and regulating qi. The internal treatment is represented by Simo Decoction, Chaihu Shugan Powder, and Xiaoyao Powder, while the external treatment includes acupuncture, tuina therapy, acupoint patching, and catgut implantation at acupoint.

However, the shortcomings of TCM treatment are the lack of large-sample, multi-center, randomized double-blind controlled trials, the low evidence-based level in various treatment options, the fact that the treatment mechanism is still unclear, and the insufficiency of objective indicators for evaluating the treatment effect. In the future, large-sample, multicenter, randomized double-blind controlled trials should be set up to strengthen the research on treatment mechanisms in order to improve the level of evidence-based medicine.

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