

Professor Song Zongliang's Experience in Treating Diabetic Constipation

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Keywords: Zengye Huoxue Tang; Diabetes; Constipation; Complication; Song Zongliang

Abstract: Constipation is one of the chronic complications of diabetes and the most common gastrointestinal symptom of diabetes patients. Constipation in diabetes is the result of multiple factors, such as the damage of intestinal mucosal epithelial cells caused by elevated blood sugar, the reduction of colorectal sensitivity, and colorectal autonomic neuropathy. Professor Song Zongliang believes that the main pathogenesis of diabetes constipation is intestinal dryness, body fluid depletion, and blood stasis. The treatment of diabetes constipation adopts the methods of nourishing yin and increasing fluid, promoting blood circulation and removing blood stasis, purging the fu organs, and purging heat. He not only created Zengye Huoxue Tang but also developed personalized treatment plans, which achieved significant therapeutic effects.

1. Introduction

Constipation is one of the chronic complications of diabetes. Modern medicine believes that diabetes autonomic neuropathy causes gastrointestinal motility to slow down, anorectal sphincter dysfunction, and rectal sensory function to decline. Factors such as immune disorder, chronic inflammation, gastrointestinal peristalsis, intestinal flora imbalance, anxiety, and depression in diabetes patients will further aggravate constipation [1-3], as shown in Figure 1 and Figure 2. According to the survey data, about 2/3 of diabetes patients will have different degrees of constipation [4]. About 90% of patients with obvious diabetes neuropathy show constipation of different degrees [4]. Clinically, modern medicine has no definite therapeutic effect on diabetes constipation. Most cases are treated symptomatically, but the treatment effect is average and prone to recurrence. TCM treatment of diabetes constipation attaches importance to the overall concept and combines the characteristics of diabetes itself. At the same time, based on the patient's different physical constitution and condition, differentiation, and treatment will be carried out. By developing personalized treatment plans, significant therapeutic effects have been achieved.

Professor Song Zongliang is the chief physician, professor, and master's supervisor of the Endocrinology Department of the Affiliated Hospital of Shaanxi University of Chinese Medicine. He has been engaged in the treatment of endocrine diseases with a combination of traditional Chinese and Western medicine for more than 30 years. He is not only good at using integrated

traditional and Western medicine to treat diabetes and its complications but also has unique insights into the treatment of diabetes constipation. The author had the privilege of following Professor Song and benefited greatly. This article briefly summarizes Professor Song's academic thoughts and clinical experience in treating diabetes constipation.

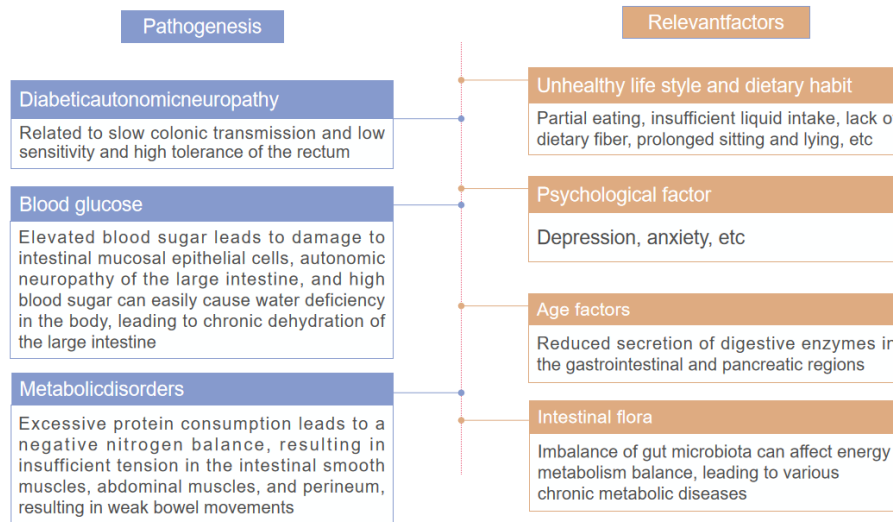


Figure 1: Etiology of diabetic constipation

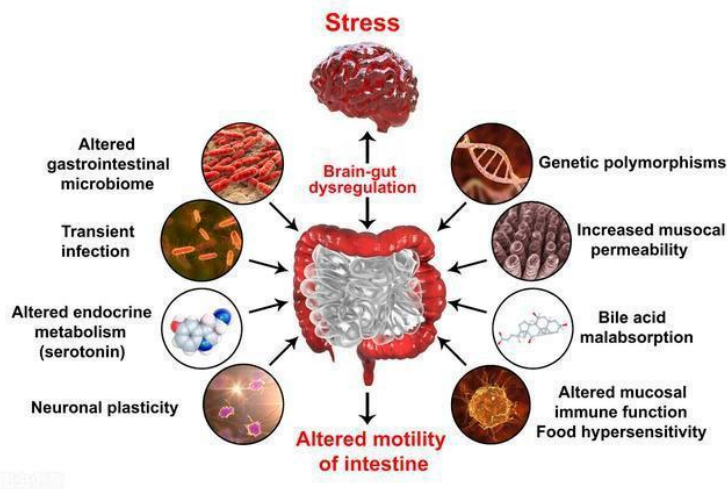


Figure 2: Correlation between Brain-gut axis and intestinal flora

2. Etiology and pathogenesis

Diabetes belongs to the category of "diabetes" and constipation belongs to the category of "constipation" in traditional Chinese medicine. There are many discussions on diabetes constipation in ancient medical books. The book 'Standards of Diagnosis and Treatment' mentions that "If you urinate more due to diabetes, you will experience constipation". The book 'General Treatise on the Cause and Symptoms of Diseases' mentions that "People with diabetes who are very thirsty must be constipated". They all pointed out that diabetes consumes body fluid, leading to the loss of intestinal nourishment, resulting in constipation. The book 'Secret Treasure of the Orchid Chamber' clearly points out that irregular diet and sleep can damage the spleen and stomach, consuming body fluids. This will lead to thirst, constipation, and other symptoms of diabetes constipation. The pathogenesis of diabetes is mainly "loss of body fluid and excessive dryness and heat". The main pathogenesis of

constipation is the accumulation of heat in the intestines, which consumes body fluids.

Professor Song believes that the main pathogenesis of diabetes constipation is intestinal dryness, body fluid depletion, and blood stasis. Constipation, bloating, purple and dull tongue color, or ecchymosis are the key points for differentiation. Diabetes is a chronic lifelong disease with a long course. Suffering from diabetes for a long time will lead to Qi deficiency and Yin deficiency. Suffering from diabetes for a longer time will lead to congestion. Even in the early stage of diabetes without obvious clinical symptoms, the patient's tongue picture and sublingual vein showed blood stasis. Blood stasis is the main pathogenic factor for constipation [5]. Blood stasis obstructs the intestines, leading to constipation, and prolonged constipation can also be accompanied by blood stasis. Blood stasis and constipation are closely related and interact with each other [6-7].

3. Summary of experience

3.1. Pharmacotherapy

A long time of illness of diabetes will make the body dry and hot, lose body fluid, lose the nourishment of the intestines, and eventually lead to constipation. Or diabetes will damage Qi and Yin for a long time, which will slow intestinal peristalsis, leading to the accumulation of feces in the intestinal tract and eventually constipation. Or diabetes patients often feel depressed, which will lead to stagnation of Qi, blood stasis in the body, and eventually constipation. Clinical symptoms mainly include constipation, dry mouth, fatigue, accompanied by abdominal pain or bloating, poor appetite, purple and dark tongue, ecchymosis, and fine veins. Qing Dynasty medical expert Wu Jutong believed that "A lack of body fluid in the body can lead to constipation and should be treated with Zengye Tang". The focus of febrile diseases is on the Yangming meridian, causing a series of pathological symptoms in the stomach and large intestine, such as constipation. If there are no symptoms of upper jiao, ChengQi Tang should be used for treatment. If the patient is physically weak, Zengye Tang should be used instead. Ancient medical books mention the use of blood-activating and Qi-promoting herbs in traditional Chinese medicine to treat symptoms of constipation. In Li Gao's "Treatise on the Spleen and Stomach", blood-activating drugs such as Angelica Sinensis and the peach kernel were used to treat constipation. Chen Shiduo used blood-activating and Qi-promoting drugs such as Ligusticum Wallichii, peach kernel, and safflower to treat constipation in his "The Secret Record of the Stone Chamber".

Professor Song often treats diabetes constipation by nourishing yin, increasing body fluid, promoting blood circulation to remove blood stasis, purging the fu organs, and purging heat based on strictly controlling blood sugar, and adjusting patients' living habits and mental factors. He created Zengye Houxue Tang, which was a combination of Zengye Tang and Taohe Chengqi Tang. Medications include Radix Rehmanniae, Radix scrophulariae, Ophiopogon, peach kernel, almond, Angelica sinensis, raw rhubarb, cassia twig, Mirabilite powder, Membrane of Chickens Gizzard. When Professor Song adds or subtracts based on symptoms, if Qi deficiency is severe, add Astragalus membranaceus and Codonopsis pilosula; if the internal heat is severe, add trichosanthin and gypsum; if blood stasis is severe, add Salvia miltiorrhiza and safflower; if the qi stagnation is severe, add Fructus aurantii, banksia rose, and Semen Raphani; if insomnia is severe, add Semen Platycladi and polygala tenuifolia.

Modern pharmacological research on traditional Chinese medicine shows that rhubarb has a significant excitatory effect on the entire colonic electrical activity. Rhubarb not only significantly increases the frequency of colonic electrical activity but also promotes gastric juice secretion and gastrointestinal motility. Mirabilite powder contains sodium sulfate, which is not easily absorbed by the intestinal wall, causing a high osmotic state in the body and causing mechanical stimulation, thereby relieving bowel movements. The Peach kernel contains 45% fatty oil, which can improve

the lubricity of intestinal contents and mucosa, and has the effect of improving blood flow obstruction and blood flow disorders. Cinnamon twigs contain cinnamaldehyde, which can promote intestinal peristalsis and increase digestive function. Zengye Houxue Tang fundamentally adjusts the whole body's Yin and Yang, Qi, and blood according to the etiology and pathogenesis, which has an impact on many factors that cause diabetes constipation, so it has obvious efficacy in treating diabetes constipation.

3.2. Non-pharmacological treatment

The anxiety, depression, and other emotions caused by long-term constipation can lead to elevated levels of hormones such as adrenaline and glucagon, which can affect the control of blood sugar levels. And high blood sugar levels are the pathological basis for constipation. These two factors interact with each other, making constipation repeatedly persistent and difficult to treat [8]. Diabetes is a chronic lifelong disease, which is difficult to cure and requires lifelong medication. This brings tremendous mental pressure to patients. Constipation is the most common gastrointestinal symptom in patients with diabetes, and its therapeutic effect and psychological factors complement each other. To a certain extent, the different psychological states of patients affect their recovery from the disease [9]. Wang Qishi's "Li Xu Yuan Jian" believes that emotions are closely related to the heart and liver. The heart governs the gods, and the liver controls dispersion. The coordination of these two organs will make the spirit full and the emotions relaxed. Modern research has shown that patients' negative psychological emotions can affect the autonomic nervous system through the cerebral cortex, and can inhibit gastrointestinal peristalsis and the secretion of digestive fluids, leading to constipation [10-11]. Therefore, Professor Song attaches great importance to non-drug therapy and provides timely psychological counseling to patients, enabling them to have a relaxed and optimistic attitude.

In addition, reasonable eating habits also have an important impact on the control of blood sugar levels and the improvement of the defecation ability of diabetes patients. In clinical practice, Professor Song often advises patients to adjust their dietary structure reasonably. When choosing food, while ensuring easy digestion, it is important to pay attention to the reasonable combination of coarse and fine grains. Choose more coarse grains, such as corn flour, millet, buckwheat flour, red beans, etc. Coarse grains contain a high amount of organic matter, which is beneficial for stimulating the physiological peristalsis of the intestine and alleviating constipation. Nonstaple foods often use vegetables with high fiber content, such as radishes, leeks, celery, Chinese cabbage, rapeseed, etc. In this way, an increase in food residue through the intestines can lead to an increase in bowel movements [12]. Based on stable control of blood sugar levels, it is advisable to eat some fruits appropriately. Among them, oranges, apricots, tomatoes, and other fruits contain a lot of fiber, which is beneficial for relieving constipation. But it is important to pay attention to the distribution of total calories and correspondingly reduce the intake of some staple foods. At the same time, it is necessary to strengthen exercise, especially abdominal exercises and anal lifting exercises, to develop regular bowel habits.

4. Medical Case Example

Patient A, female, 51 years old. First visit on May 5, 2023, chief complaint: Dry mouth and fatigue for over 8 years, accompanied by difficulty in bowel movements for over 3 years. History of present illness: Eight years ago, without obvious cause, the patient experienced dry mouth, excessive drinking, fatigue, and weight loss. The patient was diagnosed with "type 2 diabetes" after checking the fasting blood glucose of 13 mmol/L and glycosylated hemoglobin of 9.8% in the local hospital. The current hypoglycemic drugs taken by patients are Metformin tablets (Glucophage) 0.5

g, 3 times daily; Acarbose Chewable Tablets 50mg, 3 times daily. The patient's blood sugar level is well controlled, with a range of 6.0-7.0 mmol/L for fasting blood sugar and 8-9 mmol/L for 2-hour postprandial blood sugar. Constipation began to appear 3 years ago, with dry stool and difficulty in excretion. Generally, defecation occurs once every 3-5 days, with a maximum of once every 7 days. The patient has previously taken an oral solution of lactulose and bifidobacteria (specific information is unclear), but there has been no significant improvement in symptoms. They now need to defecate through an enema. The current symptoms are dry mouth, excessive drinking, fatigue, weight loss, abdominal distension, and occasional abdominal pain. Fever in hands and feet, more pronounced at night. Loss of appetite, normal sleep, normal urination, and difficulty defecating. The tongue is purple and dark, the fur is white and greasy, and the veins are fine.

Traditional Chinese Medicine Diagnosis: Diabetes with constipation. Dialectically, it refers to Qi deficiency, Yin deficiency, and blood stasis. The treatment principle is to nourish Yin, increase body fluid, promote blood circulation and remove blood stasis, and clear the internal organs. Professor Song adds and subtracts from Zengye Houxue Tang. Radix Rehmanniae 18g, Radix scrophulariae 30g, Ophiopogon 12g, Fried peach kernel 15g, Almond 10g, Angelica sinensis 10g, Raw rhubarb(later) 9g, Cassia twig 6g, Mirabilite powder(take medicine in solution) 15g, Membrane of Chickens Gizzard 6g, Astragalus membranaceus 15g, Raw gypsum 15g, Fructus aurantii 10g. A total of 7 doses, 1 dose per day, decocted in 400ml of water and taken warm in the morning and evening. Advise patients to avoid spicy and stimulating foods and eat more coarse grains and vegetables.

2nd visit on May 12, 2023: After taking the above prescription, the patient complained of improved symptoms such as dry mouth, fatigue, and fever in the hands and feet compared to before. There is no significant improvement in appetite, normal urination, and normal sleep. Increased exhaust, but still needs to be defecated through an enema. The tongue is purple and dark, the fur is white and greasy, and the veins are fine. The patient's bowel movements did not improve significantly, so adjustments were made based on the above. Radix Rehmanniae 18g, Radix scrophulariae 30g, Ophiopogon 12g, Fried peach kernel 15g, Almond 10g, Angelica sinensis 10g, Raw rhubarb(later) 9g, Cassia twig 6g, Mirabilite powder(take medicine in solution) 15g, Membrane of Chickens Gizzard 6g, Astragalus membranaceus 15g, Raw gypsum 15g, Fructus aurantii 10g, Cistanche deserticola 15g, Thick Magnolia officinalis 15g, Yu Liren 15g. A total of 7 doses, 1 dose per day, decocted in 400ml of water and taken warm in the morning and evening. Advise patients to take medication on time, relax, and strengthen exercise.

3rd visit on May 19, 2023: After taking the medication, the patient reported significant improvement in symptoms such as dry mouth, fatigue, and fever in the hands and feet compared to before. The patient's appetite has improved compared to before. Constipation has significantly improved compared to before, and there is no need for an enema to assist bowel movements. The tongue is purple-red, the fur is white, and the veins are fine. Adjust the dosage of Huangqi to 30g based on the original formula and continue taking it for 7 days. Advise patients to exercise reasonably and pay attention to their diet.

4th visit on May 26, 2023: The patient reported normal appetite and bowel movements and no other discomfort symptoms. To consolidate the therapeutic effect, instruct the patient to continue taking the above prescription for 2 weeks. Advise patients to continue maintaining good dietary and exercise habits, and to monitor blood sugar levels.

Note: The patient is a middle-aged female with an 8-year history of diabetes. In the prescription, radix scrophulariae nourishes Yin and increases body fluids; Peach kernel promotes blood circulation and dispels blood stasis, both of which are monarch medicines. Radix Rehmanniae and Ophiopogon increase body fluids and moisten excessive heat. Raw rhubarb and mirabilite powder can alleviate heat in the body and relieve bowel movements. Angelica sinensis can nourish blood,

promote blood circulation, and moisten the intestines. Almonds can clear the Lung Qi. Almonds and peach kernels work together to regulate the body's Qi and blood, both of which are ministerial drugs. Cassia twigs can improve blood flow and meridian blockade. Cassia twig not only helps peach kernels better function but also alleviates the harmful effects of mirabilite powder and rhubarb. The membrane of Chickens Gizzard protects the stomach and slows down the harsh effects of other drugs. The use of the above drugs together will have the effects of nourishing Yin, increasing body fluid, promoting blood circulation and resolving stasis, clearing the internal organs, and reducing heat. At the second visit, the patient's symptoms of constipation did not improve significantly. Professor Song believes that long-term constipation can worsen blood stasis and Qi stagnation, and patients have a shorter period of taking medication. Therefore, Professor Song increased the dosage of blood-activating drugs and Qi-promoting drugs based on the original formula. At the third visit, the patient's symptoms of constipation significantly improved, so fine-tuning the original formula is necessary to consolidate the therapeutic effect. The patient has a long course of disease and a complex pathogenesis. In addition to Qi deficiency and Yin deficiency, there are also various symptoms such as obstructed Qi in the organs, Qi stagnation, and blood stasis. Professor Song emphasized the pathogenesis and key points of medication from a holistic perspective, thus achieving good therapeutic effects.

5. Conclusions

The pathogenesis of diabetes constipation has not been fully clarified. At present, it is generally believed that diabetes constipation is related to autonomic neuropathy, gastrointestinal disorders, eating habits, intestinal morphology, and dynamics, and other factors [13-14]. In clinical practice, Western medicine mainly focuses on symptomatic treatment. Based on controlling blood sugar, blood pressure, and blood lipids to meet standards, Western medicine often uses enemas, gastrointestinal motility-promoting drugs, neurotrophic drugs, and nerve repair drugs. Alternatively, methods such as increasing dietary fiber can be used. For patients with stubborn constipation, Western medicine applies intestinal moisturizers, laxatives, etc. The above treatment methods can have a short-term effect on relieving symptoms, but they have significant adverse reactions and cannot fundamentally solve the problem. At the same time, symptoms are prone to recurring after stopping medication, and the long-term efficacy is not good [15].

Through years of clinical experience, Professor Song created Zengye Houxue Tang. Zengye Houxue Tang fundamentally adjusts the whole body's Yin, Yang, Yi, and blood according to the etiology and pathogenesis, and it has an impact on many factors that cause diabetes constipation. Therefore, Zengye Houxue Tang has obvious efficacy in the treatment of diabetes constipation.

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