

Research Progress of Traditional Chinese Medicine in the Treatment of Functional Constipation in Children

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Abstract: Constipation is one of the common diseases in children. Functional constipation is commonly used in clinic. Due to the physiological characteristics of children's "tender viscera, inflated qi, vitality and rapid development" and the pathological characteristics of "easy to develop, rapid transmission", constipation has a high incidence and recurrence among children. At present, the main purpose of Western medicine is to treat pediatric constipation to solve symptoms. The method is relatively simple and the long-term effect is not good. Traditional Chinese medicine believes that although the site of pediatric constipation is in the intestine, it is closely related to the five viscera. Clinically, it takes conditioning the function of children's organs as the core. There are a variety of treatment methods such as oral traditional Chinese medicine decoction, pediatric massage, acupoint application, traditional Chinese medicine enema, etc. It is good at analyzing the etiology and pathogenesis from children's physiological and pathological characteristics, so as to distinguishing syndromes and treatment, and achieving real "accounter-made according to people's conditions", and the clinical effect is remarkable clinical effect. In recent years, many doctors in traditional Chinese medicine have been studying the clinical treatment of children's functional constipation. The latest research progress is reviewed as the ultimate goal of how to make the curative effect long-term and reduce the recurrence rate.

1. Etiology and pathogenesis

There are many clinical classifications of constipation, and each classification has its own unique characteristics and potential pathogenesis. Functional constipation is a common subtype, which is very common in childhood. Its incidence rate is 9.5% [1]. Its diagnostic standard is that children at least 4 years old meet the following two or more criteria. When it lasts At least 1 month: (1) Children are at least 4 years old and defecate in the toilet twice a week or less. (2) Children have a stool incontinence attack at least once a week. (3) Children have a history of excessive willful fecal retention. (4) A history of pain or difficulty in defecation in children. (5) Children have a history of blocking the toilet with a large number of feces or large diameter faeces in the rectum [2]. Therefore, the number of defecation in children is reduced and difficult, mostly accompanied by dry fecal knots or abdominal distension and abdominal pain, without any obvious structural or organic causes. Long-

term constipation can lead to children's irritability, lack of concentration, defecation pain, reduced sleep quality and other discomforts, invisibly occupy the energy and time of children and relatives, and over time, resulting in psychological and life pressure. The main causes of functional constipation in children include unreasonable dietary intake, poor defecation habits, and psychological factors. Constipation in traditional Chinese medicine is dominated by functional constipation, which refers to defecation disorder characterized by functional changes without obvious organic lesions. It is more common in clinic, accounting for more than 90% of pediatric constipation, and the incidence of pediatric constipation is gradually increasing [3]. At present, for children's functional constipation, Western medicine is mostly oral stool softeners or probiotics. Most children have a high recurrence rate after stopping medication, easy to form dependence, and poor long-term curative effect. At present, no systematic and effective treatment has been formed. Finding a safer and more effective treatment is of great clinical significance for improving the quality of life of children and their families.

2. General prevention and control principles

Cultivate children's healthy eating behaviors from the aspects of dietary structure and dining environment. Children are trained to defecate so that they can focus on defecation and keep defecation sensitive. Proper exercise can strengthen the physique and improve intestinal peristalsis and constipation symptoms. When defecation is blocked, parents should patiently encourage, appease and guide the child [4] to relax and thus reduce the impact of functional constipation on children's psycho-behavioral development and social adaptability [5]. Parents' parenting attitude will affect children's defecation function. Parents and medical personnel need to cooperate to achieve the best treatment effect. If necessary, it is recommended that mental health service institutions cooperate with treatment. In addition, cellulose can promote gastrointestinal peristalsis, which is conducive to gastrointestinal emptying; its water capacity is high, and after replenishing water, the feces can fully absorb water and become soft.

3. Etiology and pathogenesis of traditional Chinese medicine

Ancient Chinese medicine has a long history and rich treatment experience in the understanding of pediatric constipation. From the *Xiao Er Wei Sheng Zong Wei Lun Fang*, it discussed "secrets" and "Incompairy" in the Song Dynasty, the "Incubation Secrets" was classified as "secret" and "falsecret". In the Chinese Medical Journal in 1919, the name of "Pediatric Constipation" appeared. Ancient doctors' understanding of the etiology and pathogenesis of pediatric constipation has developed with time and practice: (1) During the Sui and Tang Dynasties, doctors believed that pediatric constipation was mainly caused by the following three points: heat downward shift, qi stagnation disorder or stagnation. (2) During the Song, Jin and Yuan Dynasties, doctors believed that Sanjiao fever hit the large intestine, which consumed fluid, and the intestinal tract was moisturized, resulting in dry and astringent stool. (3) During the Ming and Qing Dynasties, doctors' cognition of pediatric constipation became more and more mature, and a pediatric constipation diagnosis and treatment system based on deficiency syndrome differentiation was initially formed: heat, food accumulation, qi stagnation and blood deficiency as the main pathogenesis and common syndromes, and temporary syndromes were more inclined to be cautious. Syndrome differentiation pay attention to weighing priorities, and combining internal and external treatment [6]. Most doctors of past dynasties believe that the heat of the viscera is the main cause of constipation in children. Therefore, the internal treatment method is mainly based on laxative heat and gasification, and the deficiency syndrome is mainly based on nourishing blood and moistening the intestines. At the same time, it has also gradually derived special Chinese medicine external treatment methods such as as acupoint application, pediatric massage, and traditional Chinese medicine enema. Since ancient times, it has

been improved, and the curative effect of traditional Chinese medicine in treating constipation in children has continuously gained social attention and clinical recognition.

4. Internal treatment of traditional Chinese medicine

4.1. Discussion and treatment of viscera

Traditional Chinese medicine believes that children's constipation is located in the large intestine, mainly because of their abnormal conduction function, which is closely related to the internal organs. Children's spleen and stomach are weak. In addition, they do not know how to control their appetite, and it is difficult to conduct the stool down [7]. Therefore, it is easy to accumulate food and heat, and cause constipation of spleen and stomach heat. Some scholars [8] believe that weak spleen and stomach transportation function is the main cause of constipation. The clinical application of diarrhea yellow powder and flavor can regulate the level of gastrointestinal hormone in children, improve the level of neurotransmitters in children, and have a significant effect on the treatment of constipation in children with spleen and stomach fever, which is worth clinical promotion. Professor Wang Yinglin's clinical experience in treating children's constipation is mainly to strengthen the spleen and flatten the liver, clear the lungs and moisten the intestines, not only for the purpose of defecation, but also to summarize his experience and make good use of the five elements of "grass, wood, melon, vine, fruit, soil" (licorice, papaya, hook vine, orange, Fulong liver) to promote children's spleen luck and improve intestinal peristalsis [9]. He conducted a control trial study of 198 children with functional constipation and found that Shugan Jianpi prescription is more effective in the treatment of functional constipation in children with liver depression and spleen deficiency than wheat cellulose granules in the near future [10]. Accurate syndrome differentiation analysis of the etiology. Soothing the liver can regulate qi and stagnation, strengthening the spleen can benefit Qi and digestion. For most children with congenital spleen and stomach weakness, it can effectively reduce the long-term recurrence rate. Professor Chi Huaji's clinical use of single medicine to treat children's constipation has a miraculous effect, giving full play to the effect of white art to benefit qi, spleen and stomach. Its medicinal properties can moisten and dry, and have a two-way effect on children's constipation, and take into account the two-way effect of taking into account the specimen. He uses single-flavored white art to invigorate the temper, moisten the intestines to improve the gastrointestinal function of children, and use traditional Chinese medicine "large quantity and specialized" Practice in clinical practice and achieve reliable therapeutic effect [11].

4.2. Treatment of Qi and Blood Liquid

Professor Liang Baoyi believes that qi-machine disorder is the main pathogenesis of constipation in children. The treatment principle is based on three focal points, focusing on qi regulation, innovatively put forward the pulmonary-spleen-intestinal axis perspective to analyze and treat children's constipation, and formulate their own qi-regulating secret prescriptions (bitter almonds, platycodon, atractylodes, atractylodes, five-fingered peaches, Laizi, Houpu, Shengdihuang, liquorice, etc.) to promote children's lung temper and reduce intestinal qi smoothly, and treat constipation symptoms [12]. Through animal experiments and modeling to study the process of pediatric constipation, it is confirmed that the empirical prescription (Astragalus 24 g, atractylodes 24 g, angelica 12 g, Maidong 12 g, Shengdi 12 g, Xuanseng 12 g, fire kernel 6 g, tangerine peel 6 g, Cistanche 12 g, liquorice 3 g) can effectively repair the stem cell factor signaling function of gas deficiency children's constipation and promote intestinal peristalsis, thus improving children's constipation symptoms [13]. Yuan Zhenhua et al. [14] proposed that "qi and opportunity loss, conduction disorder" is the core pathogenesis of pediatric constipation, emphasizing the "peasing

method". He believes that Zengli Decoction has a significant effect of "and its fluid" in the treatment of children's functional constipation by nourishing yin and moistening the intestines. It expands a new perspective of clinical treatment of functional constipation in children. On the basis of reconciliation, it is based on cis-conductive stagnation, which not only does not hurt its origin but also regulates the intestinal function of children. Chronic constipation in children with a long course of disease is mainly due to insufficient qi, weak conduction, and dry excrement caused by deficiency of fluid. Therefore, the treatment should pay attention to "nourishing qi and deficiency, and nourishing blood and yin". Some scholars have clinically formulated their own constipation prescriptions (Atractylodes, five-fingered peach, prince ginseng, black dates, Yanshan dogwood meat, Laizi, betel nut, tangerine peel, thick simple, calamus, persimmon, liquorice, etc.) in the treatment of chronic constipation in children [15], which is worth popularizing.

5. External treatment of traditional Chinese medicine

Traditional Chinese medicine believes that the pathogenesis of constipation in children are weak and real. The diet is irregular, the spleen and stomach are damaged, and the qi-machine lift disorders, which leads to constipation. Loss of emotions, loss of liver qi, abnormal qi operation, resulting in disorders of the dysfunction of the stomach and constipation, which is the second. The viscera has heat, and the heat burns the saliva, causing the stool to be dry, shaped like sheep excrement, so it causes constipation, which is the third. Children's congenital deficiency, or acquired loss of nourishment, resulting in deficiency of qi and blood, weak transportation, and constipation, this is the fourth. External treatment of traditional Chinese medicine includes massage, acupuncture, acupoint application, medicinal bath, ear acupoints, etc., which have significant advantages such as high safety and less adverse reactions, and are widely used in clinic.

5.1. Massage method

Massage refers to a doctor's special operation on a specific site, which can greatly reduce the patient's pain, which is the purpose and advantage of massage treatment [16]. Traditional Chinese medicine believes that massage, as a natural remedy without the toxic and side effects of drugs, can dredge the qi of the organs and strengthen the organs, and have a significant effect on the treatment of constipation, making it more acceptable to children and parents. Studies have shown that clinical massage techniques to treat constipation in children are mostly differentiated, and different acupuncture points and techniques are selected according to different syndrome types. Clinically commonly used children's special acupuncture points are abdomen, spine and turtle tail. Clinicians mostly treat the Shi Mi with acupoints such as large intestine, six parts, seven bones, and yangchi, and treat the Xu Mi with acupoints such as spleen meridians, Tianshu, and Zusanli [17]. In the Li Yanfeng's study of massage treatment of intestinal damp-heat children with constipation [18], 85 children were randomly divided into two groups, control group: lactose treatment, and stopping the drug after the symptoms of constipation disappeared. The treatment group used massage treatment. The method was to clear the large intestine, massage the abdomen, transport water into the soil, and knead Tianshu and other acupuncture points. Comparing the efficacy of the two groups, the total efficiency of the treatment group was 95.35%, compared with 78.57% of the control group, which had a significant curative effect. After research, it was found that massage techniques can be used to regulate organs and qi machines, improve gastrointestinal function, so as to eliminate symptoms and signs and reduce treatment pain.

5.2. Acupuncture therapy

As an ancient traditional therapy, acupuncture and moxibustion has the characteristics of remarkable curative effect and convenient application, and is widely used in clinical practice. The four suture points are commonly used to treat children's constipation. The main operation method is to prick the rhabdiline of the proximal lateral interphalangeal joint and bleed. Studies have found that 60 children with gastric heat and intestinal dryness were treated once every 3 days, 2 times for 1 course of treatment, with an efficiency of 95% [19]. In addition, Wang Yuxia [20] selected Zhigou, Tianshu, Zusanli and other acupuncture points according to human conditions, and applied the method of acupuncture without leaving a needle, with a total efficiency of 87.5%. It can be seen that acupuncture has obvious advantages in the treatment of constipation in children.

5.3. Acupoint application

Acupoint application is one of the main treatment methods of external treatment of traditional Chinese medicine. It stimulates specific acupuncture points and promotes drugs to penetrate into the skin for absorption and metabolism, so as to enter the body to play a pharmacological role. Acupoint application has a significant curative effect in the clinical treatment of children's constipation. Because children's skin is delicate and the skin permeability is good, it is more conducive to drugs to stimulate acupuncture points through the skin. Clinically, drugs with the effect of laxative stagnation and ventilation are used to treat children's constipation [21]. Because acupoint application does not require oral medicine and does not require restrictions on the movement of children, it has good compliance and is widely used. Lan Ying [22] Self-made defecative acupoint application has achieved remarkable curative effect in the treatment of children's constipation in the Spring equinox. Because acupoint application does not require oral medicine and does not need to restrict the movement of children, it has good compliance and is widely used. Lan Ying [22] Self-made defecation patches have achieved significant results in treating children's constipation during the vernal equinox. It can effectively improve the symptoms of children's constipation and correct children's gastrointestinal indicators by applying self-made spleen-strengthening drugs (Rhubarb 12 g, white cardamom 10 g, patchouli 9 g, Cangy 6 g, Fructus Aurantii 9 g, clove 15 g and other powder and paste) to Shenque, Tianshu, and has good safety. She conducted a clinically controlled observation study on children's breast stagnation constipation, and compared with spleen laxative patch (rhubarb 21 g, Houpu 24 g, aurium 21 g, Atractylodes 21 g, betel nut 21 g, wood fragrance 12 g, hawthorn 18 g, patchouli 15 g, bitter almond 15 g, grinding into the end, sesame oil paste applied to Shenque, Zhonghu, Tianshu) and lactic fructose oral liquid. The results confirmed that although the curative effect of the two are very little, the clinical effect of the two is better in improving abdominal distension and abdominal pain, not thinking about diet and other secondary diseases [23]. Subsequently, she divided 120 cases of children with spleen deficiency and qi weakness into the control group and observation group according to the random number table method. The study found that the effect of astragalus soup granules mixed with vinegar mixed into a paste and applied to the Shenque acupoint is more therapeutic and safer than oral lactose. This method accurately identified and achieved the good effect of "strengthening the spleen, helping digestion, benefiting qi and helping smoothing" therapeutic effect [24].

5.4. Traditional Chinese medicine enema

Traditional Chinese medicine enema is an external treatment method that is rapidly absorbed by injecting the permeability of the semi-permeable membrane of the intestinal wall by injecting traditional Chinese medicine liquid from the anus through the injection syringe and enema tube.

Traditional Chinese medicine enema is effective and safe in the treatment of constipation in children, which can not only solve the difficulty of oral medication in children, but also avoid side effects such as drug absorption through the liver. Jiang Piying's self-made "Huo Mi prescription" (fire sesame kernel 12 g, Shengdihuang 12 g, Xuanseng 10 g, stir-fried Fructus Aurantii 9 g, Houpu 9 g, melon kernels 10 g, atractylodes 10 g, white peony 10 g, stir-fried Laizi 10 g, liquorice 6 g) enema can eliminate food stagnation, moisten the intestines and relieve constipation, which is reliable for the treatment of children's internal heat constipation [25]. For children's constipation, it is in the stage of food and heat accumulation, the traditional Chinese medicine enema method is often direct and efficient for real heat evidence, but such treatment methods mostly need the assistance of children's families to be completed to ensure the effective time of the enema retention.

5.5. Traditional Chinese Medicine Bath

Traditional Chinese medicine bath has a long tradition and is extensive and profound. It is mainly to soak the medicine in warm water, soak a certain part of the body, and use the water temperature to stimulate the absorption of drugs, so as to achieve the purpose of treating diseases. Shao Juan [26] In the treatment of 60 cases of children's constipation, she adopted the treatment of traditional Chinese medicine bubble bath. The thistle, raw rhubarb, locust flower, and whole melon were decocted into medicinal juice. First, the anus was smoked, and then bathed for 15 to 30 minutes, 1-2 times a day, and 96.7% received good curative effect. The medicinal bath can warmly stimulate the meridians and acupuncture points of the feet and even the whole body, so as to achieve the purpose of vasodilation, promote the peristalsis of the bladder muscle and gastrointestinal tract, enhance the function of various organs, make the circulation of qi and blood smoother, and thus improve the symptoms of constipation [27]. Compared with traditional Chinese medicine decoction, there are fewer adverse reactions in medicinal baths and low cost, which is more acceptable to parents and can be popularized clinically.

5.6. Ear acupoint

As early as the Huangdi Neijing, there was a record of ear points: "The ear, the gathering of the meridians", "the ear, the official of the kidney." The Li Zheng An Mo Yao Su believes: "The ear beads belong to the kidney, the ear wheel belongs to the spleen, the upper wheel of the ear belongs to the heart, the skin and flesh of the ear belongs to the lungs, and the jade building on the back of the ear belongs to the liver." Traditional Chinese medicine believes that the five viscera qi and blood can react to the ear, so pressing the ear acupoint can regulate each viscera and qi machine and dredge the meridians. Liu Yin [28] randomly divided 60 children with constipation into the control group and the treatment group. The control group was treated with Simo decoction oral liquid, and the treatment group pressed Wang Biuxing's seeds on the anus, large intestine, liver, spleen, lungs, Sanjiao and other acupoints, pressed 3 to 5 times a day, 15-30 s per acupuncture point each time, 6 d was 1 course of treatment, a total of 2 courses of treatment. Results, the total efficiency of the treatment group (96.67%) was better than that of the control group (86.67%). Ear acupoint therapy is widely recognized as a painless and non-traumatic method.

5.7. Combined treatment

The commonly used methods in clinic are mainly the combination of acupoint application and massage, and the research has obvious advantages. Ye Yiran et al. [29] 60 cases of constipation in children with spleen and kidney deficiency were treated with drugs in Shenque acupoint and combined with massage. Specific method: The control group is mainly lactose oral liquid, once a day,

15 mL each time. The treatment group evenly mixed the auranus shell, rhubarb, hawthorn, atractylodes, party ginseng, and prince ginseng into fine powder, and made it into a paste on the Shenque acupoint. It was replaced once every 12 hours. At the same time, the seven bones were pushed down and the large intestine was cleared, and the two-way foot three miles was clicked twice a day. Results The total treatment efficiency of the treatment group was 96.67%, and that of the control group was 76.67%. The difference was statistically significant. It can be seen that the combination of the two methods is more effective than monotherapy. In addition to acupuncture joint massage, acupuncture combined acupuncture and joint massage and ear acupuncture joint massage are also widely used. Zhao Keyi et al. [30] selected 80 cases of children with spasmodic cerebral palsy, heat and internal knot constipation, which were randomly divided into two groups. The control group was given 1.5 g of bifidobacterium quadruple live bacteria tablets and taken orally. The treatment group used double-sided Zhangmen, Shimen, Qihai and Zhongluping to supplement the diarrhea acupuncture method. After acupuncture, take both sides Zhangmen, Shimen, Qihai, Zhonglu and Shenque acupoints for treatment. The specific drugs are: 20g each of Huangqi, Qishi, Rhubarb and Laizi, which lasts for 6 hours. Both groups were treated with 1 course of treatment per week and 4 courses of treatment. Results The defecation interval score, stool trait score and other treatment groups were higher than the control group. Zhang Lijin and others [31] randomly divided 100 children with constipation into two groups. The observation group used ear acupoints to press the large intestine, stomach acupoints, constipation points and other acupoints, and combined with Shen's spleen transporting intestinal method, once a day for 2 consecutive weeks. In the control group, wheat cellulose granules were given, and the course of treatment was the same as above. Results The observation group showed an effective rate of 42%, an effective rate of 24%, and an inefficient of 10%. The show efficiency of the control group is 14%, the efficiency is 31%, and the efficiency is 12%. To sum up, the combination of different treatments can produce unexpected results clinically, which is worth learning from.

6. Brief summary

Pediatric constipation is not only an intestinal disease, but also a disease of the five internal organs[32]. Traditional Chinese medicine pays attention to the overall concept of the five viscera for clinical diagnosis and treatment. According to children's physique and symptoms, the symptoms are treated with both symptoms and root causes [33]. Children are the body of immature yin and yang, and their diet is difficult to restrain themselves, and it is difficult to express oversaturation or hunger. In addition, they are vulnerable to the invasion of the childish body by external evils, which affects the calmness of the yin and yang of the five organs, which in turn leads to abnormal transmission function of the intestinal viscera, which makes it difficult to retain feces and form children's functional constipation. At present, Western medicine treats functional constipation in children mainly with osmotic diarrhea, various probiotics, and drugs that promote intestinal power. The long-term efficacy is average, drug reliance is easy to occur, and the clinical recurrence rate is high. Traditional Chinese medicine treatment of children's functional constipation focuses on internal and external combination and overall treatment, with reliable long-term efficacy and small side effects [34]. Traditional Chinese medicine has a long history in treating pediatric constipation and has a relatively complete and mature diagnosis and treatment system. However, at present, traditional Chinese medicine lacks big data support for the diagnosis and treatment of children's functional constipation and the promotion of multi-center prospective research, which needs to be further studied and innovated by clinicians.

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