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Research Progress on Acupuncture Treatment for Chronic Constipation

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Abstract: ***The prevalence of chronic constipation is on the rise, significantly impacting patients' quality of life and work efficiency. Acupuncture therapy, with its advantages of convenience, safety, and holistic regulation, has become an important clinical intervention for this condition and is increasingly widely applied. This paper systematically reviews clinical research literature on acupuncture treatment for chronic constipation over the past decade, focusing on acupoint combination patterns, distinctive acupuncture and moxibustion techniques (such as ear acupoint seed therapy, acupoint injection, floating needles, and subcutaneous needle implantation), and explorations of efficacy mechanisms (such as regulating gastrointestinal motility, visceral sensitivity, and brain-gut axis function). The aim is to comprehensively present the current research progress and clinical application status, providing evidence-based evidence and reference ideas for optimizing acupuncture clinical practice protocols and further exploring its mechanisms of action.***

Keywords: Acupuncture, Habitual constipation, Clinical, Research progress**.**

1. Introduction

Chronic constipation refers to symptoms such as fewer than three bowel movements per week, difficulty defecating, or hard, dry stools lasting for more than six months [1]. Epidemiological data show that due to various social factors, the overall prevalence of chronic constipation among adults in China is as high as 10.9% [2]. Although chronic constipation is not life-threatening, it increases the risk of developing other systemic diseases and may even trigger cancer. Prolonged chronic constipation significantly reduces patients' quality of life, and habitual constipation, due to its prolonged course, causes particularly significant distress for patients. Modern medical research on the treatment of habitual constipation has made significant progress, with acupuncture therapy emerging as a focal point of clinical attention due to its notable advantages, including diverse methods, safety and efficacy, low economic burden, and proven therapeutic effects, offering patients a promising treatment option.

2. Introduction to Habitual Constipation

2.1 Understanding Traditional Chinese Medicine

Many ancient Chinese medical texts have mentioned concepts similar to chronic constipation, such as “spleen constriction” in the Jingyue Quanshu and “yin constipation” and “yang constipation” in the Shanghan Lun, which can be used to explain modern-day chronic constipation. Acupuncture treatment for constipation was already documented in the Ling Shu: Miscellaneous Diseases chapter, which states, "Abdominal distension, difficulty defecating, abdominal swelling, and pain radiating to the chest and throat, shortness of breath, and restlessness, treat the Foot Shaoyin meridian“; ”Abdominal distension, undigested food, abdominal rumbling, and inability to defecate, treat the Foot Taiyin meridian“; ”Chest pain, abdominal distension, restlessness, and difficulty defecating, treat the Foot Taiyin meridian." The *Zhen Jiu Jia Yi Jing* and *Zhen Jiu Da Cheng* and other acupuncture medical texts throughout history have accumulated rich treatment experience. According to traditional Chinese medicine [3], constipation is caused by impaired transmission function of the large intestine. Additionally, abnormalities in the functions of other organs, such as impaired spleen transformation, impaired stomach harmonization and descent, and kidney yang deficiency, can also lead to large intestine dysfunction and constipation. The treatment of constipation in traditional Chinese medicine should be based on the patient's symptoms and the nature of the condition (deficiency or excess). Excessive constipation is often caused by pathogenic factors, and the fundamental principle of treatment is to eliminate these factors. For heat-induced constipation, purgation is used; for cold-induced constipation, warming is employed; and for qi-induced constipation, qi regulation is applied. Deficient constipation is often caused by deficiencies in yin, yang, qi, and blood. In cases of deficiency, tonification is used, and for dry, hard stools, moistening methods are commonly employed.

2.2 Modern Medical Understanding

Chronic constipation is also referred to as slow-transit constipation in modern medicine [4]. Patients do not have organic lesions, but rather functional constipation caused by factors such as abnormalities in the intestinal nervous system, gastrointestinal motility, Cajal interstitial cells, extraintestinal nerves, and smooth muscle. In clinical practice, the primary treatment method for this condition in Western medicine is surgical subtotal colectomy, supplemented by establishing a healthy dietary structure, including increasing dietary fiber intake, increasing fluid intake and physical activity, and developing the habit of regular bowel movements. Concurrently, the misuse of laxatives should be avoided, and psychological support therapy should be strengthened. While this approach can alleviate constipation symptoms, the efficacy is not ideal, and recurrence is common.

2.3 Imaging Diagnosis

Chronic constipation is widely recognized by scholars both domestically and internationally as a relatively complex

condition involving multiple disciplines such as neurology, musculoskeletal issues, and constitutional factors. Imaging studies play a crucial role in the diagnostic process by assisting physicians in assessing the severity of constipation, reflecting intestinal dilation and peristalsis, and providing a more intuitive and dynamic diagnostic basis. For example, defecography can illustrate changes in the anal-rectal pelvic floor muscles during defecation, thereby determining whether outlet obstruction-type constipation is present. Secondly, barium enema X-ray examinations can reflect intestinal motility and are commonly used to diagnose organic intestinal lesions, such as intestinal tumors, inflammation, and spasm. Additionally, MRI examinations have high resolution for soft tissues, enabling clear visualization of intestinal wall and mucosal lesions. In summary, imaging examinations play a crucial role in the diagnosis and treatment of chronic constipation, helping physicians comprehensively understand the morphology, structure, and function of the intestines, thereby developing more effective treatment plans.

3. Application of Special Acupuncture Techniques in the Treatment of Constipation

3.1 Conventional Acupuncture Therapy

Liu Ying [5] classified constipation patients into two major categories: deficiency and excess. The primary acupoints used were Zhangmen, Wushu, and Weidao. For deficiency-type constipation, additional acupoints such as Qihai, Zusanli, and Guanyuan were used, with a focus on tonifying techniques. For excess-type constipation, additional acupoints such as Quchi, Zhigou, and Taichong were used, with a focus on dispersing techniques, yielding good therapeutic effects. Ding Yanhong et al. [6] divided 33 patients with functional constipation into the He-Mu-Shu group, using the acupoints Qu Chi, Shang Ju Xu, Tian Shu, and Da Chang Shu as primary points for acupuncture treatment using the He-Mu-Shu point combination method. After obtaining the qi, a balanced tonification and dispersion technique was applied. Thirty patients in the medication group were also administered oral moxibustion citrate tablets. After four weeks of treatment, the He Mu Yu group had an average of 4.02 ± 1.45 bowel movements per week, while the medication group had 2.85 ± 1.51 bowel movements per week. Additionally, the stool consistency of the He Mu Yu group was better than that of the medication group. Ding Shuqing [7] divided the acupoints into two groups and alternated acupuncture between them. One group included the Tian Shu, Da Heng, Fu Jie, Qi Hai, Guan Yuan, Zu San Li, Shang Ju Xu, and Zhi Gou acupoints. The other group included the Da Chang Shu, Shen Shu, Ba Liao, and Si Shen Cong acupoints. Results: 15 cases were cured, 6 cases improved, and 6 cases were effective. Zhang Jiliang [8] selected 31 elderly patients with constipation and divided them into two groups. The drug treatment group was treated with Fruit Guide Tablets and Sesame Seed Moistening Intestine Pills, while the other group received acupuncture at the main acupoints of Tianshu, Pishu, Dàichángshu, and Zusanli, along with additional massage therapy. In the acupuncture and massage group, 1 out of 15 patients showed no improvement after treatment, resulting in an overall effective rate of 93.3%. The drug therapy group had an effective rate of 75.0%. Shao Wenchao [9] selected 30 patients with functional constipation for the treatment group and 30 for the control group. The control group received conventional Western medication combined with acupuncture therapy. The other group selected acupoints based on the brain-gut axis theory for acupuncture treatment. In addition to the acupoints included in the control group (Tianshu, Zusanli, and Shangjuxu), the main acupoints in the treatment group included Zhongwan, Shenmen, and Sishencong. After treatment, the constipation and anxiety symptoms of all 30 patients improved. The treatment group achieved an effective rate of 83.3%, which was higher than that of the control group.

3.2 Floating Needle Therapy

Tan Yi et al. [10] randomly divided 60 patients with functional constipation into a treatment group that received floating needle therapy and a control group that received traditional acupuncture therapy. The treatment group received floating needle therapy on the affected muscles in the abdomen and inner thighs. The control group used the main acupoints of Tianshu, Zhigou, Shuidao, Guilai, and Fenglong, with the technique of dispersion. The overall efficacy rate in the treatment group was 86.7%, significantly higher than the 73.3% in the control group. Wang Chongmin et al. [11] selected 30 cases in the treatment group for floating needle therapy and 30 cases in the control group for conventional acupuncture therapy, targeting acupoints such as Zhongwan, Xiawan, Qihai, and Guanyuan, with the technique of equal tonification and dispersion applied after obtaining the qi. In the treatment group, 13 cases were cured, 9 cases showed significant improvement, and 5 cases showed improvement, with a total effective rate of 90.0%; in the control group, 9 cases were cured, 10 cases showed significant improvement, and 6 cases showed improvement, with a total effective rate of 83.3%. The results suggest that floating needle therapy is highly effective in treating functional constipation, outperforming the control group, and warrants further study. Dou Xibin et al. [12] treated 25 patients with functional constipation using floating needle therapy, achieving an efficacy rate of 88% after two weeks and 96% after four weeks.

3.3 Intradermal Needle Therapy

Dong Jiake [13] selected 32 patients with clinical constipation and administered intradermal needle therapy at the left abdominal acupoint. Among the 32 patients, 29 defecated within 24 hours after needle insertion, achieving an overall efficacy rate of 90.6%. Bai Junxia [14] selected 56 young and middle-aged patients with habitual constipation for the observation group and control group. The control group took oral mosapride citrate tablets, while the observation group received intradermal needle therapy at the large intestine shu and tian shu acupoints in addition to the oral medication. The control group showed 15 cases of marked improvement and 11 cases of improvement, with a total effective rate of 92.86%; the observation group had 9 cases of marked improvement and 9 cases of improvement, with a total effective rate of 64.28%.

3.4 Acupoint Injection Therapy

Yadong et al. [15] administered Astragalus injection solution into acupoints such as Tianshu, Dàichángshū, Tàichōng, and

Nèiguān for 36 patients with qi deficiency-type slow-transit constipation in the treatment group. The therapeutic efficacy was superior to that of the control group treated with conventional acupuncture, with overall efficacy rates of 83.3% and 66.7%, respectively. Zhao Yan [16] treated 46 patients with functional constipation collected from the outpatient clinic using acupoint injection of vitamin B_1 injection solution or 0.9% NaCl injection solution. The acupoints selected for injection were Zhongwan, Tianshu, Fuji, Shangjuxu, and positive reaction points on the abdomen. Results: Among the 46 patients, 26 were cured, 18 showed improvement, with an overall efficacy rate of 95.65%. Acupoint injection is safe, convenient, effective, and cost-effective, making it suitable for contemporary society and highly valuable for clinical application.

3.5 Acupoint Implantation Therapy

Li Hui et al. [17] selected 90 patients with functional constipation and evaluated the efficacy of acupoint implantation therapy. Disposable implantation needles were used to insert absorbable catgut sutures into acupoints such as Tianshu, Zhongwan, Zusanli, and Shangjuxu, followed by suturing and compression bandaging. The results showed that 21 patients achieved complete recovery in the short term, 52 patients showed improvement, with an overall efficacy rate of 81.11%. Liu Yang et al. [18] used a randomized grouping method to divide 60 patients with functional constipation into groups and observed the therapeutic effects. The control group selected the three acupoints around the navel (Tianshu, Guanyuan, and Zhongwan) for acupuncture thread implantation and observed the therapeutic effects. Results showed that 25 patients had significant improvement, 3 patients had improvement, with a total effective rate of 93.3%; the control group used conventional acupuncture therapy, with the same acupoint selection method as the control group. After obtaining the qi sensation upon needle insertion, the needles were retained for 20 minutes. Results showed that 15 patients had significant improvement, 7 patients had improvement, with a total effective rate of 73.3%. A total of 90 patients with functional constipation were selected, and acupoint thread implantation therapy was used to evaluate its efficacy. Disposable acupuncture needles were used to insert absorbable catgut sutures into the Tianshu, Zhongwan, Zusanli, and Shangjuxu acupoints, followed by suturing and compression bandaging. The results showed that 21 patients achieved complete remission in the short term, 52 patients showed improvement, with an overall efficacy rate of 81.11%. Liu Yang et al. [18] used a randomized grouping method to divide 60 patients with functional constipation into groups and observed the therapeutic effects. The control group received acupuncture at the three umbilical acupoints (Tianshu, Guanyuan, and Zhongwan) and observed the therapeutic effects. The results showed that 25 patients had significant improvement, 3 patients had improvement, and the overall effective rate was 93.3%; the control group received conventional acupuncture therapy, with the same acupoint selection method as the control group. After obtaining the qi sensation upon needle insertion, the needles were retained for 20 minutes. The results showed that 15 patients had significant improvement, 7 patients had improvement, with a total effective rate of 73.3%. The results indicate that acupuncture thread implantation at the three umbilical acupoints can significantly improve various symptoms in patients with functional constipation, with sustained efficacy, and the medium- and long-term efficacy is superior to acupuncture therapy.

3.6 Ear Acupuncture with Bean Therapy

Tong Yao et al. [19] recruited 50 patients with chronic colonic transit constipation, divided into an experimental group and a control group. The control group received laxative medication, while the experimental group underwent massage therapy at the Hegu, Zhongwan, Tianshu, Daxiong, Qihai, Zusanli, Dàichángshū, and Shénquè acupoints, combined with ear acupuncture seed therapy at the endocrine, large intestine, and spleen acupoints. Among the 25 patients in the control group, 13 showed no improvement, while 6 in the experimental group showed no improvement. The overall efficacy rates were 48.0% and 76.0%, respectively. Zhu Hongxia [20] selected 60 patients each for the control group and the observation group. The observation group received conventional drug therapy (mosapride tablets, polyethylene glycol 4000 powder). In addition to conventional drug therapy, the observation group also received ear acupoint seed therapy and massage. Massage was performed on the ear acupoints of the stomach, sympathetic, and endocrine systems, twice daily. Ear acupoint seed therapy used Wang Buliu seeds fixed with ear patches on the rectum, large intestine, and subcortical acupoints, with self-massage four times daily. After treatment, the observation group showed a greater degree of relief in constipation symptoms compared to the control group, with more weekly instances of complete spontaneous bowel movements, improved quality of life, faster restoration of normal bowel function, a higher rate of normal bowel function restoration, and a lower recurrence rate than the control group.

4. Exploring the Mechanism of Action: Regulating the Neuroendocrine-Immune Network to Improve Gastrointestinal Motility and Visceral Sensitivity

Impaired gastrointestinal motility and secretory dysfunction serve as the key pathophysiological foundations of chronic constipation. Effectively correcting these dysregulated states is a critical component of acupuncture therapy's efficacy. Acupuncture demonstrates significant therapeutic efficacy in regulating gastrointestinal function. Its mechanism of action involves multidimensional precise regulation of the neuroendocrine-immune network, thereby achieving significant improvements in gastrointestinal motility and visceral sensitivity, with both depth and breadth in scientific implications. In terms of neural regulation, acupuncture exerts its effects through bidirectional regulation of the autonomic nervous system. For example, acupuncture at points such as Zusanli (ST36) can stimulate the vagus nerve, promoting the release of acetylcholine, thereby enhancing gastrointestinal smooth muscle contraction and glandular secretory function; simultaneously, acupuncture can inhibit excessive sympathetic nerve excitation, reducing norepinephrine secretion, and ensuring the normal progression of gastrointestinal motility [22]. Additionally, acupuncture has regulatory effects at the neurotransmitter and modulator levels, promoting the secretion of brain-gut peptides (such as motilin

and substance P) [23], enhancing gastrointestinal motility and emptying functions, and improving abnormal gastrointestinal sensation and motor functions by regulating serotonin levels [24-25]. From the perspective of the central nervous system, acupuncture stimulation signals are transmitted to the central nervous system, where they are integrated and processed in multiple brain regions such as the insula and prefrontal cortex, thereby adjusting central regulation of gastrointestinal function and reshaping visceral sensitivity [26]. In terms of endocrine regulation, acupuncture can regulate the secretion of various gastrointestinal hormones. For example, acupuncture can promote gastrin secretion [23], enhancing gastric digestive function; simultaneously, by regulating the levels of glucagon and insulin [27], it maintains stable blood glucose levels, thereby indirectly influencing gastrointestinal function. Additionally, acupuncture can modulate the hypothalamic-pituitary-adrenal axis (HPA axis) [21], normalizing hormone secretion under stress conditions to prevent gastrointestinal dysfunction caused by hormonal imbalances. In terms of immune regulation, acupuncture enhances the activity of lymphocytes and macrophages, regulates the balance of immune factors, reduces pro-inflammatory factor levels in patients with inflammatory bowel disease, and increases the secretion of anti-inflammatory factors [21]. Additionally, acupuncture strengthens the intestinal mucosal immune barrier function, increases the secretion of secretory immunoglobulin A, and maintains intestinal microecological balance, thereby exerting a protective effect on the gastrointestinal system [28].

5. Discussion

In reviewing the literature on acupuncture treatment for chronic constipation, it is evident that the three acupoints of the Yangming Stomach Meridian—Tianshu, Shangjuxu, and Dàichángshù—are the most frequently selected acupoints in acupuncture therapy [29]. The Inner Canon states: “Tianshu is located at the junction of heaven and earth, and its role in distinguishing between clear and turbid substances is evident.” The Tianshu acupoint is the shu point where the qi of the Yangming Large Intestine Meridian congregates in the abdomen, and it is the mu point of the large intestine [30]. It can unblock the qi of the patient's Hand Yangming Large Intestine Meridian and can be used alone or in combination with the Dàichángshū acupoint, known as the shu-mu point combination. Shangjuxu belongs to the Stomach Meridian of the Foot-Yangming and is the point where the essence of the large intestine merges with the Stomach Meridian of the Foot-Yangming, i.e., the lower conjunction point. The Suwen states, “To treat the viscera, treat its conjunction point,” therefore, acupuncture at Shangjuxu is frequently used in the treatment of constipation. Dà Cháng Shū is the back Shu point of the large intestine, where the essence and qi of the large intestine are channeled into the back. It is often used in combination with Tiān Shū to achieve the effect of normalizing the rise and fall of viscera qi [31]. The combination of these three points can regulate the Triple Energizer, normalize viscera qi, and facilitate the expulsion of waste. Other frequently used points include Zú Sān Lǐ and Zhī Gōu. The Classic of Acupuncture and Moxibustion, Volume 9, states, “For abdominal discomfort, use Zusanli. If there is excess, drain it; if there is deficiency, tonify it.” This indicates that Zusanli is a major acupoint for treating constipation. Zusanli is the point where the Qi of the Stomach Meridian of the Foot-Yangming enters the abdomen and penetrates the viscera. Stimulating this point can harmonize the spleen and stomach, tonify Qi, and regulate the middle jiao [32]. Acupuncture at the Zhigou acupoint [33] can regulate the Qi mechanism of the Triple Energizer, promote the smooth flow of viscera Qi, and facilitate the descent of body fluids, thereby restoring the physiological functions of the large intestine. Other acupoints such as Zhongwan, Qihai, Shenshu, and Fuju can be selected based on the patient's specific condition.

Through data analysis and organization, the commonly used filiform needle technique [34] in clinical practice has a relatively large amount of clinical data, while other methods such as acupoint implantation, thread implantation, and injection are less common, and the relatively novel floating needle technique is even rarer. Additionally, clinical data indicate that the combined use of multiple methods [35] yields better outcomes than single-method treatment. For example, Mao Zhanchun et al. [36] administered oral Bu Zhong Yi Qi Tang combined with acupuncture therapy to 45 elderly patients with functional constipation in the observation group. After treatment, the patients' bowel movement frequency, difficulty in defecation, and stool consistency were superior to those in the control group treated with lactulose. Clinically, a combination of multiple treatment regimens may be considered.

6. Summary and Outlook

Future research should be advanced in a coordinated manner across three dimensions: mechanism deepening, evidence-based reinforcement, and precision practice, to establish an innovative research framework for acupuncture treatment of chronic constipation. In terms of mechanism exploration, systems biology should be used as the core tool to integrate multi-omics data such as transcriptomics, proteomics, metabolomics, microbiomics, and epigenomics, mapping the dynamic network diagram of acupuncture effects, precisely identifying key regulatory nodes (such as hub genes, characteristic metabolites, and functional microbiota), and revealing the molecular logic of multi-target synergistic effects; Simultaneously, focus on the brain-gut axis as the core regulatory network to deeply analyze the activation mechanisms of the vagus nerve pathway and its central effects, the functional reorganization of key neural circuits such as the insula-prefrontal cortex, and the regulatory effects of gut microbiota metabolites (e.g., short-chain fatty acids, tryptophan derivatives) on brain signals, elucidating the bidirectional communication patterns between the “gut-brain” and “brain-gut” axes regulated by acupuncture, and expand research on emerging targets such as intestinal stem cells, intestinal glial cells, and intestinal endocrine cells to enrich the cellular biological basis of acupuncture effects.

Evidence-based medical research needs to be further improved in terms of quality and efficiency, with a focus on conducting large-scale, rigorous, randomized controlled trials with a multi-center, large sample size (≥500 cases), and long-term follow-up (≥1 year) design, using “complete remission rate” as the primary endpoint to systematically evaluate the long-term efficacy and safety of acupuncture; Simultaneously explore objective evaluation systems based

on fecal microbial characteristics, blood metabolic profiles (such as serotonin and short-chain fatty acid levels), and neuroimaging biomarkers (such as functional magnetic resonance imaging brain activation patterns) to address the limitations of subjective symptom scoring and achieve early prediction and precise quantification of efficacy; Additionally, through factorial or adaptive designs, compare the efficacy of different acupoint combinations, stimulation parameters (e.g., electroacupuncture frequency, moxibustion duration), and treatment frequencies to identify the most cost-effective regimen, providing high-level evidence for clinical decision-making.

In terms of precision acupuncture practice, a multidimensional patient stratification model should be established that integrates traditional Chinese medicine syndrome differentiation (e.g., heat-type constipation, qi-type constipation), modern subtypes (e.g., Rome IV classification), and biomarkers (e.g., genetic polymorphisms, microbiota characteristics) to achieve individualized precision interventions based on the principles of "same syndrome, different treatment" and "different syndromes, same treatment"; Develop artificial intelligence-assisted systems using machine learning algorithms to build efficacy prediction models based on massive clinical data, assisting in optimizing acupoint prescriptions, stimulation parameters, and treatment schedules to enhance the scientific rigor of clinical decision-making; simultaneously explore combined intervention strategies guided by the "disease-syndrome integration" approach, such as combining cognitive behavioral therapy for constipation caused by abnormal brain-gut interaction, or using probiotics for constipation caused by dysbiosis, to maximize treatment benefits through multimodal interventions. Additionally, international collaboration should be strengthened to promote global consensus on acupuncture research paradigms, facilitate their inclusion in international clinical guidelines, and ultimately achieve breakthroughs across the entire chain from basic research to clinical translation, thereby highlighting the unique value of acupuncture therapy.

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