

Research Progress on Integrated Traditional Chinese and Western Medicine in the Treatment of Functional Dyspepsia

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Abstract: *Functional dyspepsia (FD) is one of the most common functional gastrointestinal disorders in clinical practice. It is characterized by chronic and recurrent upper abdominal pain or discomfort, with clinical symptoms including epigastric pain, epigastric burning, early satiety, and postprandial fullness. Currently, there is no specific medication for FD. Western medicine primarily employs acid suppression, gastric mucosal protection, promotion of gastrointestinal motility, and eradication of *Helicobacter pylori* (Hp) as main treatment approaches. In recent years, integrated traditional Chinese and Western medicine therapy has demonstrated advantages in the clinical management of this condition and achieved favorable outcomes. Therefore, this article provides an overview of the treatment methods for functional dyspepsia from both traditional Chinese and Western medical perspectives, aiming to offer theoretical support for clinical management of FD.*

Keywords: Functional dyspepsia, Integrated traditional Chinese and Western medicine treatment, Research progress.

1. Introduction

FD is one of the most common clinical functional gastrointestinal disorders. It is characterized by chronic and recurrent upper abdominal pain or discomfort, with main symptoms including epigastric pain, epigastric burning, early satiety, and postprandial fullness. According to the Rome IV diagnostic criteria, a diagnosis of FD requires the presence of one or more of these symptoms for at least six months, with no structural abnormalities detected in the digestive system through examinations such as gastroscopy, abdominal ultrasound, and *Helicobacter pylori* (Hp) testing, thereby ruling out related organic diseases. Additionally, the symptoms must have been present within the last three months. Based on the Rome IV criteria, FD can be classified into two subgroups: postprandial distress syndrome (PDS) and epigastric pain syndrome (EPS) [1], which may overlap. Global epidemiological surveys indicate that the incidence of FD is increasing annually, with a worldwide prevalence ranging from 15% to 25% [2]. Currently, Western medical treatments mainly include prokinetic agents, acid suppressants, neuromodulators, digestive enzymes, and psychotropic medications [3]. Although these drugs can alleviate symptoms to some extent, they often exhibit significant individual variability in efficacy, notable side effects, and a high relapse rate after discontinuation, severely affecting patients' quality of life. In recent years, traditional Chinese medicine (TCM) has shown favorable clinical efficacy and prognosis in treating FD based on its etiology and pathogenesis, although the treatment cycle is relatively long. In recent years, integrated traditional Chinese and Western medicine has increasingly become a trend in the treatment of FD, combining the strengths of both approaches to achieve complementary advantages in clinical practice [4].

2. Modern Medicine's Understanding and Treatment of Functional Dyspepsia

2.1 Etiology and Pathogenesis of FD

The etiology and pathogenesis of FD are complex and not yet fully understood. Growing evidence suggests that FD does not result from a single factor but rather from the interaction of multiple physiological abnormalities, including environmental, dietary, infectious, emotional, psychological, and genetic factors. Recent studies have identified several key elements contributing to the development of FD, such as gastrointestinal motility disorders, shortened or absent Phase III (strong contraction period) of the migrating motor complex (MMC), reduced antral motility index, gastric electrical rhythm disturbances, visceral hypersensitivity, low-grade inflammation of the duodenal mucosa, gastrointestinal secretory dysfunction, bile acid malabsorption, *Helicobacter pylori* infection, and dysregulation of the brain-gut axis. Additionally, gastrointestinal microbial imbalances and psychosocial factors may further exacerbate symptoms [5].

2.2 Western Medicine Treatment

2.2.1 General Treatment

The primary goals of FD treatment are to alleviate symptoms and improve patients' quality of life. Fundamental approaches include dietary modification, lifestyle adjustments, and emotional regulation. Many FD patients exhibit meal-related symptoms such as early satiety, postprandial bloating, and epigastric pain. Therefore, food types and eating behaviors often contribute to triggering or worsening symptoms. Studies have shown that spicy, high-fat, high-carbohydrate, or gluten-rich foods, as well as coffee and alcohol, may induce or exacerbate FD symptoms [6]. Additionally, individual differences in subjective food perception, eating speed, and dietary habits are also associated with symptom occurrence. Thus, it is recommended that patients adopt an eating pattern characterized by frequent small meals and reduce the intake of spicy, acidic, high-fat, and gluten-containing foods, which may help improve clinical symptoms of FD.

2.2.2 Prokinetic Therapy

Western medicine treatment for FD follows an individualized approach. For patients with PDS, prokinetic agents are often selected. These drugs enhance gastrointestinal motility by stimulating smooth muscle contraction in the digestive tract, thereby improving symptoms related to gastric dysmotility. Based on their mechanisms of action, prokinetic agents can be classified into three categories: dopamine receptor antagonists, 5-hydroxytryptamine (5-HT) receptor agonists, and motilin receptor agonists. Dopamine receptor antagonists, such as metoclopramide and domperidone, represent the first generation of prokinetic agents. They primarily work by blocking dopamine receptors in the gut, thereby counteracting dopamine-mediated inhibitory effects and enhancing gastrointestinal peristalsis. Motilin receptor agonists directly act on motilin receptors located on smooth muscle, inducing contractions and promoting gastrointestinal motility. 5-HT receptor agonists include cisapride, mosapride, and tegaserod. Studies have demonstrated that mosapride effectively promotes gastric emptying, improves gastric accommodation and motility, and is widely recognized in modern medicine as an effective treatment for FD [7]. However, due to significant cardiotoxic effects associated with cisapride and tegaserod, their clinical use has declined.

2.2.3 Acid Suppression

Acid-suppressive therapy aims to protect the gastric mucosa by reducing gastric acid secretion, thereby maintaining normal gastrointestinal function. Patients with EPS are generally treated with acid suppressants, primarily proton pump inhibitors (PPIs) and histamine H₂ receptor antagonists. Among these, PPIs are more effective than H₂ receptor antagonists when the predominant symptoms are epigastric pain or burning [8].

2.2.4 H. pylori Eradication

H. pylori infection can contribute to the development of FD through various mechanisms, including increased gastric acid secretion, inflammatory responses, elevated levels of vasoactive intestinal peptide and calcitonin, leading to excessive acid production, gastrointestinal mucosal injury, and delayed gastric emptying [9]. Clinical observations have shown that incorporating H. pylori eradication therapy into individualized treatment regimens can significantly improve symptoms such as belching, acid reflux, bloating, nausea, vomiting, and epigastric pain, indicating its beneficial role in the clinical management of FD [10].

2.2.5 Neuromodulators

In recent years, neuromodulators—including low-dose antidepressants, anxiolytics, antipsychotics, and visceral analgesics—have been recognized as a therapeutic option for FD. These agents work by increasing the concentration of monoamine neurotransmitters in synaptic clefts. Amitriptyline, a tricyclic antidepressant (TCA), is primarily used for anxiety and depression but is also employed in treating functional gastrointestinal disorders. Its mechanism involves central neuromodulation via effects on serotonin and norepinephrine, altering gastrointestinal motility and reducing

visceral sensitivity. However, TCAs lack selectivity and are associated with adverse effects such as hypotension and constipation, leading to poor tolerability [11]. Deanxit, a modern antidepressant combination consisting of flupentixol and melitracen, exerts synergistic effects through dual mechanisms: flupentixol promotes dopamine synthesis and release, while melitracen inhibits the reuptake of serotonin and norepinephrine. The combination not only enhances antidepressant and anxiolytic efficacy but also reduces the incidence of adverse drug reactions [12].

2.2.6 Histamine Receptor Antagonists

Recent evidence suggests that mucosal inflammation, particularly involving eosinophils (EOS) and mast cells (MC), plays a significant role in the pathogenesis of FD. Biopsies from FD patients have revealed infiltrations of EOS and MC, along with increased levels of histamine and tryptase, confirming the involvement of immune responses in FD development [13]. The combined use of histamine receptor antagonists has been shown to significantly reduce EOS counts and alleviate inflammatory responses. Therefore, clinical application of histamine or leukotriene receptor blockers may help improve symptoms in FD patients.

3. Advances in Traditional Chinese Medicine's Understanding and Treatment of Functional Dyspepsia

3.1 Ancient Physicians' Understanding of FD Etiology and Pathogenesis

Although the term “functional dyspepsia” does not appear in ancient Chinese medical texts, its diagnosis is primarily based on clinical symptoms. If PDS is the main manifestation, it is classified as “pi man” (fullness and stuffiness), often referred to as “wei pi” (gastric fullness) due to its primary location in the stomach. If EPS dominates, it is diagnosed as “wei wan tong” (epigastric pain) [14]. “Wei wan tong” was first documented in Lingshu·Evil Qi Zangfu Morphology: “Those with stomach disease experience abdominal distension and pain in the stomach region near the heart”. “Pi man” was first described by Zhang Zhongjing in Treatise on Cold Damage: “Fullness without pain is referred to as pi”. Suwen Bingji Qiyi Mingji recorded: “If the spleen fails to transport qi to the stomach, stagnation occurs, resulting in pi.” Yixue Zhengzhuan stated: “The cause of the disease often stems from dietary indulgence... coupled with consumption of cold and raw foods, leading to gradual damage over time... hence resulting in epigastric pain.” This indicates that dietary irregularities impair the spleen and stomach, leading to dysfunction in transportation and reception, stagnation of fluids, and qi blockage, causing pain. Treatise on the Spleen and Stomach noted: “Worry leads to qi stagnation, mild pain beneath the mid-abdominal skin, fullness in the epigastrium, and loss of appetite,” suggesting that liver qi stagnation invading the spleen can cause disease. Additionally, Suwen·Sishi Ci Ni Cong Lun mentioned: “Excess in Taiyin causes flesh numbness and cold in the interior; deficiency leads to spleen obstruction,” indicating that weakness of the Taiyin spleen qi and dampness stagnation contribute to spleen disorders. Thus, ancient texts largely attribute FD to external pathogens, diet, emotions, and constitutional spleen

deficiency, collectively leading to impaired spleen-stomach function, qi stagnation, and disruption of middle jiao harmony.

3.2 Modern Physicians' Understanding of FD Etiology and Pathogenesis

Building on ancient theories, contemporary physicians have developed unique insights into FD based on clinical practice. The FD expert consensus [15] proposes that the disease results from emotional disorders, overexertion, innate constitutional weakness, dietary irregularities, and external pathogen exposure. External pathogens such as cold, heat, and dampness can invade the stomach, causing qi stagnation; dietary irregularities lead to food retention and damage to the spleen and stomach, resulting in gastric qi congestion; anxiety and anger impair liver dispersion, leading to liver qi invading the stomach and disrupting descent, potentially causing qi stagnation and blood stasis; spleen-stomach deficiency weakens transportation and transformation, leading to qi stagnation or middle jiao yang deficiency, all of which contribute to the disease. Ye Bai suggests [16] that spleen-stomach deficiency is the foundation of FD, while phlegm, dampness, and blood stasis are contributing factors. These elements often interact, ultimately causing dysfunction in intake and transportation. Treatment should be staged, emphasizing “moving middle jiao qi and prioritizing ascent-descent.” Thus, FD is closely related to spleen-stomach deficiency. Zhang Liping believes the disease arises from spleen deficiency and liver depression, leading to qi stagnation, food retention, and phlegm-stasis, which cause excess symptoms [17]. Shan Weiwei [18] attributes FD to emotional distress and dietary irregularities, resulting in stubborn “dampness putrefaction” and qi-blood obstruction causing fullness and pain. This illustrates that FD pathogenesis revolves around disordered ascent-descent of spleen-stomach qi. While ancient physicians emphasized external pathogens, emotions, diet, and constitutional deficiency as key factors, modern physicians highlight a deficiency-excess complex: deficiency refers to spleen-stomach weakness, while excess includes liver qi stagnation and food retention affecting spleen-stomach function.

3.3 Traditional Chinese Medicine Treatment

3.3.1 Internal Therapies

Numerous clinical studies demonstrate that TCM effectively alleviates FD-related symptoms with unique advantages. The latest expert consensus categorizes FD into five primary patterns [15]: spleen deficiency with qi stagnation, liver-stomach disharmony, spleen-stomach dampness-heat, spleen-stomach deficiency cold (weakness), and cold-heat complexity. Classical formulas, refined through centuries of clinical practice, remain highly effective. Modern physicians continue to apply these ancient prescriptions with significant success in treating FD. Chu Chenghai et al. [19] randomized 90 FD patients into two groups: a control group treated with trimebutine maleate tablets, and a treatment group receiving modified Banxia Xiexin Decoction (Pinellia Heart-Draining Decoction). The control group's effectiveness rate was 82.22%, while the treatment group achieved 95.56%, a

statistically significant difference ($\chi^2=4.050$, $P=0.044$), indicating Banxia Xiexin Decoction's significant effect on FD. Peng Shuling et al. [20] randomized 100 FD patients into a control group treated with domperidone and a treatment group receiving modified Chaihu Shugan Powder (Bupleurum Liver-Soothing Powder). The treatment group's total effectiveness rate was 90.0%, significantly higher than the control group's 68.0% ($P<0.05$), demonstrating the formula's efficacy for FD with liver-stomach disharmony. Advancements in TCM research have increasingly validated the efficacy of experienced physicians' self-designed formulas. Huang Zhenqin et al. [21] randomized 60 FD patients with spleen deficiency and qi stagnation into a control group receiving conventional Western medicine and a treatment group receiving self-designed Xiangsu Liqui Decoction (Cyperus and Perilla Qi-Regulating Decoction). After four weeks, the treatment group's total effectiveness rate was 90.0%, higher than the control's 70.0% ($P<0.05$). The treatment group also showed significantly greater reduction in TCM symptom scores ($P<0.05$). Wu Gang et al. [22] randomized 60 FD patients into a control group treated with domperidone and lansoprazole, and a treatment group receiving self-designed Chaishao Longmu Liu Mo Decoction. The treatment group's total effectiveness rate was 96.67%, higher than the control's 76.67% ($P<0.05$), indicating the formula's significant effect on FD.

3.3.2 External Therapies

Traditional Chinese medicine offers a rich system of external therapies beyond oral herbal medicine. Recent years have seen growing evidence supporting the efficacy of external treatments for FD. Among these, acupuncture plays a vital role by stimulating acupoints, unblocking meridians, and activating the body's vital qi to harmonize qi-blood, yin-yang, and visceral function. Zhou Li et al. [23] randomized 100 FD patients into an electro-acupuncture group (selecting Zhongwan, Zusanli, and Taichong points) and a Western medicine group. The electro-acupuncture group's marked effectiveness rate was 68.09%, compared to 46.67% in the drug group. The acupuncture group also showed greater decreases in serum gastrin and increases in motilin, suggesting acupuncture may enhance gastrointestinal function by regulating gut hormones. Liu Zhixia et al. [24] treated FD with acupuncture at primary points (Qimen, Zhongwan, Liangmen, Zusanli, Pishu, Weishu) to soothe the liver and enhance motility, combined with secondary points (Guanyuan, Quchi, Hegu, Tianshu). The effectiveness rate was 94.00%, significantly higher than the Western medicine group's 76.00%, confirming acupuncture's definite efficacy for FD. Additionally, therapies such as acupoint catgut embedding (providing sustained stimulation), tuina massage (e.g., abdominal rubbing, acupoint pressing), acupoint application, auricular acupressure, moxibustion, and acupoint injection are widely used in clinical practice due to their simplicity, effectiveness, and low cost.

4. Advances in Integrated Traditional Chinese and Western Medicine for Functional Dyspepsia

Integrated traditional Chinese and Western medicine treatment for FD is not merely a combination of herbs and

drugs but an organic fusion based on a thorough understanding of both medical systems. The core principle is “integrating disease differentiation with pattern differentiation, and holism with locality” to achieve optimal therapeutic outcomes. Bai Lu et al. [25] randomized 90 FD patients into an observation group receiving Chaihu Shugan Pill (Bupleurum Liver-Soothing Pill) combined with quadruple viable bacteria tablets, and a control group receiving mosapride citrate tablets. The observation group showed better outcomes in reducing orocecal transit time, improving clinical symptoms, and enhancing quality of life. While the control group showed no significant change in intestinal flora, the observation group exhibited increased bifidobacteria and lactobacilli, and decreased enterobacteria, enterococci, and yeast, indicating that the integrated approach corrects gut microbiota disorders and promotes motility, outperforming prokinetic drugs alone in symptom relief and quality of life. Wu Jutong’s Systematized Identification of Warm Diseases includes Sanren Decoction, which clears heat, eliminates dampness, and promotes qi movement. Xu Ronghui et al. [26] used Sanren Decoction combined with mosapride to treat FD, achieving better improvement in epigastric pain, distension, belching, and poor appetite compared to the control group, without increasing adverse reactions, demonstrating significant efficacy and safety. Wang Hongbo et al. [27] randomized 101 FD patients into a control group treated with mosapride and domperidone, and a treatment group receiving additional Jianpi Shugan Decoction (Spleen-Fortifying Liver-Soothing Decoction). The treatment group showed higher plasma substance P, motilin, and gastrin levels, lower TCM symptom scores and adverse reaction rates, and a higher total effectiveness rate ($P < 0.05$). This indicates that integrated therapy significantly improves efficacy for FD with liver-stomach disharmony, enhances gastrointestinal hormone levels, promotes emptying, improves clinical symptoms, and reduces adverse reactions.

In summary, integrated traditional Chinese and Western medicine outperforms Western medicine alone. Its advantages are manifested in three aspects: firstly, synergistic enhancement, as traditional Chinese and Western medicine act on different targets to exert complementary therapeutic effects; secondly, toxicity reduction and sustained efficacy, with Chinese herbal medicine mitigating the adverse reactions of Western drugs and reducing recurrence rates through holistic regulation; thirdly, mind-body harmonization, integrating TCM methods for soothing the liver and relieving depression with Western anti-anxiety concepts to comprehensively regulate brain-gut axis function.

5. Conclusion

This article systematically reviews advances in traditional Chinese and Western medicine for treating FD. Modern medicine recognizes FD’s association with gastrointestinal motility disorders, visceral hypersensitivity, brain-gut axis dysfunction, duodenal low-grade inflammation, and *H. pylori* infection. Clinical treatments primarily include prokinetics, acid suppressants, digestive enzymes, and anti-anxiety / depression drugs. While these alleviate some symptoms, limitations include variable efficacy, significant side effects, and high recurrence rates. Traditional Chinese medicine categorizes FD as “pi man” or “wei wan tong,” with “liver

depression and spleen deficiency” as the core pathogenesis—highly consistent with the modern “brain-gut axis” theory. Treatment emphasizes pattern differentiation, with classical formulas (e.g., Banxia Xiexin Decoction, Chaihu Shugan Powder) and self-designed prescriptions proving effective. External therapies like acupuncture and tuina also play important roles by regulating brain-gut interaction and improving motility and sensory function. Integrated traditional Chinese and Western medicine demonstrates significant advantages. By combining disease and pattern differentiation, and integrating TCM therapies such as herbs and acupuncture with Western symptomatic treatment, it enhances symptom control, improves quality of life, reduces adverse reactions, and lowers recurrence risk, embodying the holistic concept of “addressing both root and branch, harmonizing mind and body.” Future efforts should further elucidate the mechanisms of integrated therapy, use modern technology to explore the multi-target mechanisms of Chinese herbal formulas and pattern essences, advance large-sample, multi-center, high-quality clinical research, and gradually establish standardized guidelines for integrated FD diagnosis and treatment, providing patients with optimal care strategies.

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