

Original Research

AURICULAR ELECTROACUPUNCTURE FOR FUNCTIONAL GASTROINTESTINAL DISORDERS: A PRELIMINARY STUDY AT THE DEPARTMENT OF TRADITIONAL MEDICINE, THONG NHAT HOSPITAL

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ABSTRACT: This study was conducted to evaluate the therapeutic efficacy and safety of electro-auricular acupuncture in the treatment of functional gastrointestinal disorders, as classified by Traditional Medicine. Thirty patients with digestive disorders were enrolled and received daily electro-auricular acupuncture for 14 consecutive days. Symptom severity was assessed at baseline D0, D7, and D14 using a standardized questionnaire. In the excess pattern group, a statistically significant improvement was observed in certain symptoms by day 7 (abdominal pain, $p=0,04$; borborygmus/bloating, $p=0,008$), with most symptoms showing marked reduction by day 14 ($p<0,05$). For the deficiency pattern group, most symptoms demonstrated significant improvement primarily at D14 ($p<0,05$); however, specific symptoms such as "sallow complexion/cold limbs" and "fatigue/poor appetite" showed improvement only at this later time point. The treatment was well-tolerated, and no serious adverse events were reported. Minor, self-limited side effects included pain at insertion (10%), mild bleeding (6,7%), and needle faint (3,3%). The findings suggest that electro-auricular acupuncture is an effective intervention for improving the symptoms of digestive disorders in both excess and deficiency patterns and possesses a favorable safety profile.

Keywords: electro-auricular acupuncture, functional gastrointestinal disorders, traditional medicine.

1. INTRODUCTION

The increasing pace of modern life and rising work-related stress have increasingly highlighted the role of psychological factors in the onset and progression of gastrointestinal diseases [1]. Functional Gastrointestinal Disorders (FGIDs) are a group of chronic or recurrent digestive conditions characterized by persistent symptoms without discernible structural lesions on endoscopy or routine laboratory tests. Diagnosis is primarily based on the Rome IV criteria, which encompass common disorders such as irritable bowel pattern, functional dyspepsia, and functional constipation or diarrhea [2]. The pathogenesis of FGIDs results from a complex interplay between the gut-brain axis, visceral hypersensitivity, gastrointestinal motility disorders, low-grade inflammation, alterations in the gut microbiota, and psychosocial factors [3], [4]. This multifactorial nature makes FGIDs prone to recurrence, difficult to treat definitively, and significantly impacts the patient's quality of life [1], [5].

In Traditional Medicine, manifestations similar to FGIDs, particularly chronic or alternating diarrhea, loose or undigested stools, bloating, and spasmodic abdominal pain, are classified under the category of "Tiết Tả" (chronic diarrhea). Unlike acute infectious diarrhea, Traditional medicine's "Tiết Tả" is typically chronic and recurrent, linked to functional disharmony of the internal organs (Spleen, Stomach, Liver, Kidney), and influenced by climate, diet, and emotional state [6].

Electro-auricular acupuncture is a therapeutic technique that involves stimulating acupoints on the auricle with a low-frequency electrical current. Physiologically, the auricle is connected to the vagus nerve and central sensory pathways, and its stimulation can modulate the parasympathetic nervous system, alleviate visceral pain, improve gut motility, reduce stress, and regulate low-grade inflammation [7], [8]. In traditional medicine, the selection of auricular points based on pattern differentiation (Sympathetic, Stomach, Rectum, Liver, Spleen, Shenmen...) helps to strengthen the Spleen, harmonize the Stomach, soothe the Liver, and calm the mind, aligning with the pathogenesis of FGIDs [6]. Recent studies have confirmed the efficacy of

both acupuncture and auricular therapy for FGIDs [9], [10], [11]. However, there is a paucity of data on electro-auricular acupuncture in Vietnam. This method is simple, safe, and low-cost, making it suitable for implementation at traditional medicine healthcare facilities. Therefore, this study was conducted to provide an initial evaluation of the efficacy and safety of electro-auricular acupuncture in treating digestive disorders at the Department of Traditional Medicine, Thong Nhat Hospital.

2. MATERIALS AND METHODS

2.1. Study design

An open-label, single-arm, preliminary intervention study conducted from January–June 2025 at the Department of Traditional Medicine, Thong Nhat Hospital

2.2. Study Participants

Patients presenting to the Department of Traditional Medicine were diagnosed with functional digestive disorders. Patients were classified by traditional medicine syndromes: excess patterns: cold-dampness, damp-heat, food retention and deficiency patterns: spleen–stomach deficiency, spleen–kidney yang deficiency, liver–stomach disharmony.

- Inclusion Criteria: Participants aged 18 to 80 years presenting with symptoms such as abdominal pain (which may be dull, intermittent, or colicky), loose stools, alternating soft and hard stools, abdominal distension, difficulty in passing flatus, or constipation, without evidence of any organic gastrointestinal diseases, not currently using medications related to gastrointestinal disorders, and willing to participate in the study.

- Exclusion Criteria: Individuals with a history of serious cardiovascular, cerebrovascular, hepatic, renal, hematopoietic, gastrointestinal, or psychiatric diseases were excluded from the study.

2.3. Study Methods

A total of 30 patients diagnosed with functional digestive disorders at the Department of Traditional Medicine, Thong Nhat Hospital (Ho Chi Minh City, Vietnam) between January and July 2025 were recruited for this study. All

participants underwent clinical assessment and syndrome differentiation according to traditional medicine theory to classify the condition as either an excess pattern (Shi) or a deficiency pattern (Xu), based on which an appropriate auricular acupoint protocol was selected.

For excess patterns (including Cold-Dampness, Damp-Heat, and Food Retention syndromes), the auricular points used were Sympathetic, Stomach, Large intestine and Liver. For deficiency patterns (including Spleen–Stomach Deficiency, Spleen–Kidney Yang Deficiency, and Liver–Stomach Disharmony), the points selected were Yidan, Liver, Shenmen, and Sympathetic [2].

Treatment was administered once daily, five days per week, for a total duration of 14 consecutive days. The treatment efficacy was evaluated using a symptom-based questionnaire with binary (yes/no) responses at baseline (D0), day 7 (D7), and day 14 (D14). Any adverse events, including pain, bleeding, local infection, or needling syncope, were documented.

Figure 1. Location of auricular acupoints applied in the study [12].

2.4. Data Analysis

Statistical analyses were performed using SPSS version 20.0.

2.5. Ethical Considerations

Ethical approval was obtained from the Ethics Committee of Thong Nhat Hospital under decision number 338/2025/CN-BVTN-HĐDD, dated 28/04/2025.

3. RESULTS

3.1. Characteristics of the study sample

Table 1. Demographic and clinical characteristics of study participants

Characteristics	Value	%
Age	45,2 ± 13,1	
Gender		
Male	12	40
Female	18	60

BMI (kg/m2)	23,1 ± 3,4	
Comorbidities		
Hypertension	8	26,7
Diabetes mellitus	5	16,7
Dyslipidemia	6	20,0
Anxiety disorder	4	13,3
None	12	40,0
Pattern type (Traditional medicine)		
Excess pattern	16	53,3
Deficiency pattern	14	46,7

The study participants were primarily of working age, with a higher proportion of females than males. The average BMI was within the normal range. Approximately 60% of the participants had a pre-existing medical condition, most commonly hypertension, dyslipidemia, and diabetes. The distribution of pattern patterns was balanced between excess and deficiency patterns.

Table 2. Characteristics of Traditional Medicine pattern types

Pattern types	n	% within group	% of total sample
Excess pattern (n=16)			
Cold-dampness	6	37,5	20,0
Damp-heat	6	37,5	20,0
Food retention	4	25,0	13,3
Deficiency pattern (n=14)			
Spleen-Stomach deficiency	6	42,9	20,0
Spleen-Kidney Yang deficiency	5	35,7	16,7
Liver-Stomach disharmony	3	21,4	10,0

In the excess pattern group, cold-dampness and damp-heat patterns accounted for similar proportions (20%), while food retention was less common (13,3%). In the deficiency pattern group, spleen-stomach deficiency was the most frequent (20,0%), followed by spleen-kidney yang deficiency (16,7%) and liver-stomach disharmony (10,0%).

3.2. Efficacy of auricular electroacupuncture for functional gastrointestinal disorders

Table 3. Efficacy of auricular electroacupuncture for FGIDs

Characteristics	D0	D7	D14
Excess pattern (n=16)	n (p-value compared with Day 0)*		
Abdominal pain	14	5 (0,04)	2 (0,016)
Frequent diarrhea	13	5 (0,00)	1 (0,00)
Bloating	11	4 (0,008)	1 (0,031)
Nausea / Anal burning sensation	9	3 (0,00)	1 (0,008)
Deficiency pattern (n=14)			
Loose or undigested stools	10	4 (0,031)	1 (0,04)
Postprandial abdominal distension	8	2 (0,031)	1 (0,016)
Sallow complexion / Cold extremities	7	3 (0,125)	1 (0,031)
Fatigue and poor appetite	9	4 (0,063)	1 (0,008)

*: McNemar test

In the excess pattern, most symptoms improved after 7 and 14 days of treatment compared with baseline ($p<0,05$). In the deficiency pattern, the majority of symptoms decreased after 14 days ($p<0,05$); however, some symptoms such as diarrhea and postprandial abdominal distension did not show significant improvement at Day 7 ($p>0,05$) but reached statistical significance at Day 14.

Table 4. Adverse events during the study

Symptoms	n	%
Pain at the acupuncture site	3	10,0
Minor bleeding	2	6,7
Vasovagal reaction	1	3,3

Adverse events were mild and transient: local pain in 3 patients (10%), minor bleeding in 2 (6.7%), and vasovagal syncope (fainting) in 1 (3.3%). No infections or serious adverse events occurred.

4. DISCUSSION

The mean age of participants was 45.2 ± 13.1 years, mostly within the working-age group, which is at higher risk for functional gastrointestinal disorders (FGIDs). Females accounted for 60%, consistent with previous reports showing higher FGID prevalence in women (1.5–2 times that of men) due to hormonal and visceral sensitivity differences [5]. The mean BMI was 23.1 ± 3.4 kg/m², within the normal Asian range, although one-third were overweight (BMI ≥ 23.0). Higher BMI is often associated with more frequent reflux, bloating, and dyspeptic symptoms [13]. Comorbidities were present in 60% of participants, mainly hypertension (26.7%), dyslipidemia (20%), and type 2 diabetes (16.7%). These conditions, especially with higher BMI, may aggravate digestive symptoms through altered motility and low-grade inflammation [14]. Anxiety/depression was found in 13.3%, supporting the role of psychological factors in FGIDs [15].

The distribution of syndrome types was relatively balanced: excess (53.3%) and deficiency (46.7%). Among excess patterns, Cold-Dampness and Damp-Heat each accounted for 37.5%, and Food Retention for 25%. Among deficiency patterns, Spleen–Stomach Deficiency was most common (42.9%), followed by Spleen–Kidney Yang Deficiency (35.7%) and Liver–Stomach Disharmony (21.4%). These findings align with clinical observations that excess patterns predominate in acute or new-onset cases, while deficiency patterns are frequent in chronic or debilitated patients [9].

After 14 days of treatment, major symptoms significantly improved in both the excess and deficiency groups, with noticeable changes from day 7 onward. This finding aligns with recent meta-analyses supporting the effectiveness of auricular acupoints in FGIDs [7]. The therapeutic effect may be explained by the multidimensional mechanisms of auricular electroacupuncture. Stimulation of auricular vagal branches transmits

afferent signals to the nucleus tractus solitarius, modulating visceral sensory and autonomic centers in the brain. This process enhances parasympathetic activity, reduces sympathetic overactivation, and improves gastrointestinal motility and secretion. Moreover, vagal stimulation activates the anti-inflammatory reflex by reducing proinflammatory cytokines (TNF- α , IL-6) and attenuating HPA axis hyperactivity, contributing to better sleep and mood regulation. The integration of Traditional Medicine's organ-regulating effects with modern neuro-immune modulation explains the efficacy of auricular electroacupuncture in both excess and deficiency patterns, highlighting its clinical potential for chronic, recurrent FGIDs [9], [10], [11].

According to Traditional Medicine, symptoms that are slow or do not improve are mostly deficiency symptoms, indicating a decline in Yang Qi in the body. Although acupuncture helps regulate Qi and Blood circulation, it cannot fully restore depleted Yang Qi; therefore, cold-deficiency symptoms tend to improve slowly. To enhance treatment outcomes, warming and tonifying methods should be combined—such as moxibustion to warm the meridians and restore Yang Qi, herbal therapy to tonify Qi and Blood, and dietary therapy to support energy and nourishment [16].

No serious adverse events occurred. Mild and transient effects included pain at the needling site (10%), minor bleeding (6.7%), and needling syncope (3.3%), consistent with previous studies [9], [10], [11].

Significance and limitations: Auricular electroacupuncture appears safe and effective in improving FGID symptoms in both excess and deficiency patterns. The findings support its potential mechanisms via neuro-immune and brain-gut regulation. However, the small sample size, short duration, and lack of control group limit generalization and warrant further trials.

5. CONCLUSION

Auricular electroacupuncture demonstrates efficacy and safety in alleviating digestive symptoms across traditional medicine excess and deficiency patterns, offering preliminary clinical

evidence that warrants further validation in larger, controlled trials.

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