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Clinical Efficacy Observation of a Jing Ethnic Prescription in Treating Chronic Atrophic Gastritis

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Abstract

Objective: To observe the clinical efficacy of a Jing ethnic prescription in treating chronic atrophic gastritis (CAG). **Methods:** A total of 182 CAG patients admitted to our hospital were randomly divided into a control group (91 cases) and a treatment group (91 cases) based on their admission order. The control group received conventional treatment, while the treatment group was treated with a Jing ethnic prescription. The clinical efficacy, changes in gastric mucosa-related indicators, and systemic inflammatory markers were compared between the two groups. **Results:** After treatment, the overall effective rate in the treatment group was higher than that in the control group, but the difference was not statistically significant ($P > 0.05$). The levels of trefoil factor 2 (TFF2) in the gastric mucosa increased, and the levels of nuclear factor-kappa B (NF-κB) decreased in both groups. However, the improvement in these indicators was significantly better in the treatment group ($P < 0.05$). The serum levels of interleukin-6 (IL-6), interleukin-8 (IL-8), and high-sensitivity C-reactive protein (hs-CRP) were lower after treatment in both groups, and the levels in the treatment group were significantly lower than those in the control group ($P < 0.05$). **Conclusion:** The custom formula of the Jing ethnic group shows comparable clinical efficacy to conventional treatment for chronic atrophic gastritis (CAG), but it demonstrates significantly better effects in reducing systemic inflammatory responses. Specifically, the treatment group showed superior results in the following aspects compared to the control group: increased levels of TFF2, decreased levels of NF-κB, and reduced serum levels of IL-6, IL-8, and hs-CRP.

Keywords

Jing Ethnic Prescription, Chronic Atrophic Gastritis, Efficacy, Inflammatory Cytokines

1. Introduction

Chronic atrophic gastritis (CAG) refers to various chronic inflammatory lesions of the gastric mucosa caused by different etiologies. It is a common disease with a high prevalence among gastric disorders. The primary clinical manifestations of this condition include symptoms such as stomach pain, diarrhea, and weight loss. Some patients may also experience adverse symptoms like mucosal erosion, upper abdominal pain, hematemesis, and melena [1]. Due to the prolonged and persistent nature of CAG, there is a high risk of intestinal metaplasia, which can lead to precancerous lesions or even cancer in the stomach, necessitating vigilance [2]. Currently, symptomatic management is the primary treatment principle for CAG, including protecting the gastric mucosa and eradicating *Helicobacter pylori*. Multiple studies have shown that while conventional Western drug treatments can alleviate some symptoms, they often have poor long-term efficacy and a high recurrence rate [3]. Jing ethnic medicine is an important component of minority medicine in China, with a long history and rich practical experience. In the treatment of patients with chronic atrophic gastritis (CAG), Jing ethnic medicine has proposed a series of unique insights and methods. The custom formula of the Jing ethnic group aims to fundamentally improve patients' symptoms and signs by regulating the body's yin-yang balance, promoting the flow of meridians, and regulating qi and blood circulation. Based on this, the present study selected 182 patients with chronic atrophic gastritis to investigate the therapeutic effects of the Jing ethnic group's custom formula. The results are reported as follows.

2. Clinical Data and Methods

2.1. Case Selection

A total of 182 patients with chronic atrophic gastritis (CAG) who were hospitalized and treated at the Department of Spleen and Stomach Diseases, Fangchenggang Traditional Chinese Medicine Hospital, from July 2023 to July 2024, were selected. This study was approved by the Ethics Committee of Fangchenggang Traditional Chinese Medicine Hospital, and informed consent was obtained from all participants while they were fully conscious.

2.1.1. Inclusion Criteria

Western Medical Diagnosis Criteria: Patients meeting the diagnostic criteria for CAG as outlined in relevant literature [3].

Endoscopic Confirmation: Confirmed by endoscopy with findings of color changes in the gastric mucosa, glandular atrophy, and visible blood vessels.

Informed Consent: Patients and their families were informed and provided written consent.

2.1.2. Exclusion Criteria

1) Patients with severe cardiac, hepatic, or renal insufficiency: such as cardiac insufficiency Class III or above, liver function classified as Child-Pugh C, or renal function with a creatinine clearance rate < 30 mL/min;

2) Patients who have received other treatments within the past 3 months;

3) Patients with suspected malignancy;

4) Patients with drug allergies: those with a history of allergy to traditional Chinese medicine or Western medicine used in this study;

5) Patients who do not comply with medical advice: those unable or unwilling to adhere to the prescribed treatment regimen and follow-up requirements;

6) Pregnant or breastfeeding patients.

2.2. Case Grouping

All patients included in this study met the diagnostic criteria for chronic atrophic gastritis and were hospitalized. According to the principles of randomized controlled trials in prospective clinical studies, patients were numbered in the order of their inclusion and then randomly assigned to groups using statistical software. The random numbers assigned to each patient remained unchanged throughout the study.

The 182 patients were randomly divided into two groups:

Treatment Group: Received the Jing ethnic prescription.

Control Group: Received conventional treatment.

2.3. Treatment Protocols

2.3.1. Control Group Protocol

Conventional medications and treatments were administered based on the patient's condition:

For heartburn and acid reflux: Aluminum magnesium carbonate (Sichuan Chengdu Pharmaceutical Co., Ltd., Approval No.: H20058566) 10 mg per dose, 3 times/day.

For bloating, nausea, and vomiting: Mosapride citrate (Guangdong Anno Pharmaceutical Co., Ltd., Approval No.: H20203264) 5 mg per dose, 3 times/day.

For *Helicobacter pylori* (Hp) positive patients: Conventional symptomatic treatment plus quadruple antibiotic therapy:

Rabeprazole capsules (Guangdong Dongguang Pharmaceutical Co., Ltd., Approval No.: H20183466) 20 mg per dose, 1 time/day.

Clarithromycin tablets (Guangdong Dongguang Pharmaceutical Co., Ltd., Approval No.: H20183466) 0.5 g per dose, 2 times/day.

Amoxicillin (Au Mei Pharmaceutical Factory, Approval No.: HC20130014) 1.0 g per dose, 2 times/day.

Potassium citrate bismuth (Jichuan Pharmaceutical Group Co., Ltd., Approval

No.: H20043059) 0.6 g per dose, 2 times/day.

Duration of treatment: 14 days.

2.3.2. Treatment Group Protocol

In addition to the "Control Group Protocol," the treatment group received the Jing ethnic prescription. The composition and dosage of the herbs in the Jing ethnic prescription are as follows: Hai piao qiao (Cuttlefish Bone) 30 g, Wa leng zi (Calx Gastropodis) 30 g (to be decocted first), Mu li (Calx Ostreae) 30 g (to be decocted first), Ni ding (Sipunculus nudus) 25 g, Shan nai (Kaempferia galanga) 10 g, Tao jinniang gen (Myrtus communis root) 15 g, Nan mu pi (Phellodendron amurense bark) 15 g, Bai shao (Paeonia lactiflora root) 15 g.

Decoction method: Decoct in water and take orally, 1 dose/day, divided into 2 servings in the morning and evening. One course of treatment lasts 4 weeks, and a total of 3 courses of treatment will be administered.

2.4. Observation Indicators

2.4.1. Efficacy Evaluation

Clinical Cure: Symptoms and signs are basically eliminated, and the reduction in TCM syndrome score is ≥95%.

Significant Effect: Symptoms and signs are significantly relieved, and the reduction in TCM syndrome score is 95% > reduction ≥ 70%.

Effective: Symptoms and signs are somewhat relieved, and the reduction in TCM syndrome score is 70% > reduction ≥ 30%.

Ineffective: No change in symptoms and signs, and the reduction in TCM syndrome score is <30%, or the condition worsens.

2.4.2. Levels of TFF2 and NF-κB in Gastric Mucosa

Levels of TFF2 and NF-κB in the gastric mucosa were assessed using real-time quantitative PCR before and after treatment, following the instructions in the kit.

2.4.3. Levels of Inflammatory Cytokines

Levels of serum IL-6, IL-8, and hs-CRP were measured using ELISA before and after treatment.

2.5. Statistical Methods

Randomization was performed using a random number table to minimize selection bias. To reduce observer bias and its impact on the study results, a single-blind design was adopted. Data were analyzed using SPSS 23.0 statistical software. Independent t-tests and Chi-square (χ^2) tests were used to calculate differences between groups, with $p < 0.05$ considered statistically significant.

To ensure the statistical significance and clinical relevance of the study results, a power analysis was conducted. Based on data from previous studies, the expected effect size for the primary outcome measures (such as TFF2 levels in gastric mucosa, NF-κB levels, and serum levels of IL-6, IL-8, and hs-CRP) was moderate (Cohen's d = 0.5). Using G*Power software, it was determined that at least 91

patients per group were required to achieve 80% statistical power, with a significance level set at 0.05. The actual sample size was 91 patients per group, meeting the requirements for statistical power.

3. Trial Results

3.1. Comparison of Clinical Efficacy Between the Two Groups

The overall clinical effectiveness rate in the treatment group was higher than that in the control group, but the difference was not statistically significant (P > 0.05). See Table 1.

Table 1. Comparison of clinical efficacy between the two groups (Cases, n = 91).

Group	Clinical Cure	Significant Improvement	Improvement	Ineffective	Overall effectiveness Rate (%)
Treatment Group	28	39	14	10	89.01
Control Group	28	35	18	15	83.52

3.2. Comparison of TFF2 and NF-κB Levels in Gastric Mucosa before and after Treatment

After treatment, TFF2 levels in the gastric mucosa increased and NF-κB levels decreased in both groups. The TFF2 levels in the gastric mucosa of the treatment group were higher than those in the control group, while the NF-κB levels were lower (P < 0.05). See Table 2.

Table 2. Comparison of TFF2 and NF-κB Levels in Gastric Mucosa Before and After Treatment ($\overline{x} \pm s$).

Group	N	TFF2 (μg/L)		NF-κB (ng/L)	
		Pre-treatment	Post-treatment	Pre-treatment	Post-treatment
Treatment Group	91	0.36 ± 0.05	1.13 ± 0.05**	18.62 ± 4.16	8.46 ± 1.57**
Control Group	91	0.35 ± 0.04	0.93 ± 0.14**	18.18 ± 4.13	11.55 ± 1.90**

Note: Compared to Pre-treatment, **P < 0.001.

3.3. Comparison of Inflammatory Cytokine Levels before and after Treatment

After treatment, the levels of IL-6, IL-8, and hs-CRP were lower in both groups compared to before treatment, and the levels in the treatment group were significantly lower than those in the control group (P < 0.05). See Table 3.

4. Discussion

TFF2 is secreted and synthesized by the gastric antral mucosal epithelial cells and plays a protective role in the gastric mucosa. NF-κB regulates the expression of inflammatory factors at various stages and plays a crucial role during inflammation

Table 3. Comparison of inflammatory cytokine levels before and after treatment (ng/L).

Group	N	IL-6		IL-8		hs-CRP	
		Pre-treatment	Post-treatment	Pre-treatment	Post-treatment	Pre-treatment	Post-treatment
Treatment Group	29	7.60 ± 1.30	4.63 ± 0.95**	6.62 ± 1.56	4.46 ± 0.57**	11.12 ± 1.97	8.48 ± 1.84**
Control Group	31	7.81 ± 1.00	5.23 ± 0.74**	6.58 ± 1.73	5.55 ± 0.70**	11.26 ± 1.58	9.31. ± 1.42**

Note: Compared to Pre-treatment, **P < 0.001.

progression and tumor development. IL-6, IL-8, and hs-CRP are important indicators reflecting the body's inflammatory level [4]. This study observed changes in these indicators and found that after treatment, the TFF2 levels in the gastric mucosa of the treatment group were higher than those in the control group, while the levels of NF-κB, IL-6, IL-8, and hs-CRP were lower. This suggests that the application of the self-formulated liver-soothing and spleen-strengthening formula combined with Molo Dan in patients with CAG and liver depression and spleen deficiency is highly effective, not only protecting the gastric mucosa but also reducing the inflammatory response in patients.

The pathogenesis of CAG is not yet fully understood, but it is generally believed to be related to *Helicobacter pylori* [5]. Studies have shown [6] that eradicating *H. pylori* helps suppress the activity of inflammatory factors in the gastric mucosa of CAG patients, thereby delaying disease progression. *H. pylori* has the ability to resist stomach acid, making it easier to adhere to the gastric mucosa. Once successfully attached [7], *H. pylori* can secrete large amounts of inflammatory factors, continuously stimulating the gastric mucosa, leading to impaired barrier function and subsequent mucosal atrophy. Therefore, reducing the systemic inflammatory response in CAG patients may help improve the damage to the gastric mucosa and delay disease progression.

Despite the achievements of this study, several limitations exist that may affect the reliability and generalizability of the findings: Although we made efforts to control known confounding factors such as age, gender, and disease duration, there may still be unidentified or uncontrolled confounding factors, such as patients' dietary habits and lifestyle, which could influence the study results; Despite the use of a single-blind design, subjective factors from both patients and evaluators may still introduce some observer bias. Future studies could consider a double-blind design to further reduce the impact of bias; The follow-up period in this study was relatively short. Longer-term follow-up is needed in future research to assess the long-term efficacy and potential side effects of the Jing ethnic group's custom formula.

5. Conclusion

In conclusion, the application of the self-formulated liver-soothing and spleen-strengthening formula combined with Molo Dan in patients with CAG and liver depression and spleen deficiency is highly effective. It can improve clinical symptoms, reduce the severity of gastric mucosal lesions, and lower the body's inflammatory

response.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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