Cancer Screening and Prevention **2025** vol. 4(2) | 67–78
DOI: 10.14218/CSP.2025.00009

Consensus

The Second Beijing Consensus on Holistic Integrative Medicine for the Management of *Helicobacter pylori*-associated "Disease-Syndrome"

Guibin Yang[1#], Shuo Feng[2#], Jianxiang Liu[3], Fulian Hu[3*] and The National Consensus Group on Holistic Integrative Medicine for the Management of *Helicobacter pylori*-associated "Disease-Syndrome"

[1]Department of Gastroenterology, Aerospace Center Hospital, Beijing, China; [2]Center for Evidence-Based Medicine, Guang'anmen Hospital South Campus, China Academy of Chinese Medical Sciences, Beijing, China; [3]Department of Gastroenterology, Peking University First Hospital, Beijing, China

Received: April 25, 2025 | **Revised:** May 23, 2025 | **Accepted:** June 13, 2025 | **Published online:** June 30, 2025

Abstract

Helicobacter pylori (H. pylori) infection plays a pivotal role in gastric carcinogenesis and poses a significant burden on global public health. Eradicating *H. pylori* infection is an important strategy for the primary prevention of gastric cancer but remains a challenge. This consensus, an update of The First Beijing Consensus on Holistic Integrated Medicine (HIM) Combining Traditional Chinese with Western Medicine for the Management of *Helicobacter pylori*-associated "Disease-Syndrome" released in 2018, aims to further incorporate the HIM perspective and the latest research advances into the management of *H. pylori*-associated "disease-syndrome". Forty-three experts from 29 medical institutions were selected to vote and reach a consensus. The consensus consists of five sections addressing 19 key questions with corresponding statements. These cover the current status and challenges of managing *H. pylori* infection in China, refractory *H. pylori* infection, the role of HIM in *H. pylori* management, holistic and individualized assessment/treatment for refractory infections, and the integration of traditional Chinese medicine in treating *H. pylori*-associated "disease-syndrome". Finally, three therapeutic schemes for traditional Chinese medicine in treating *H. pylori*-associated "disease-syndrome" were proposed. Taken together, this consensus incorporates the principles of HIM along with advanced medical knowledge and clinical practice into individualized treatment strategies. It is recommended as a guideline for the management of *H. pylori*-associated "disease-syndrome" in China.

Introduction

Helicobacter pylori (H. pylori), which currently infects 43.9% of adults and 35.1% of children globally,[1] and 42.6% of adults and 27.0% of children in mainland China,[2] is a major cause of gastritis, peptic ulcer disease, gastric mucosa-associated lymphoid tissue lymphoma, and gastric cancer.[3] Eradication of *H. pylori* infection is associated with a reduced incidence of gastric cancer and precancerous lesions and is therefore recommended as an important strategy for the primary prevention of gastric cancer.[4,5] Several eradication regimens, mainly comprising an acid-inhibiting agent, such as a proton pump inhibitor (PPI), along with one or more antibiotics, including amoxicillin, metronidazole, and clarithromycin, have been recommended for the treatment of *H. pylori* infection.[6–10] However, both primary and acquired antibiotic resistance are associated with eradication failure and represent significant challenges in the management of *H. pylori* infection.[11] Moreover, the high incidence of adverse events related to the recommended antibiotics, especially when used at high doses, often results in poor tolerance and compliance, further contributing to treatment failure.[12,13] Therefore, modification or optimization of current regimens is necessary to ensure both effective *H. pylori* eradication and symptom improvement.

Holistic integrated medicine (HIM), proposed and promoted by Prof. Daiming Fan,[14] regards the human body as a holistic entity. It integrates the most advanced knowledge and theories from various medical fields, combines the most effective therapeutic modalities across specialties, and tailors treatments according to the patient's social, environmental, and psychological context.[14] This medical system has since been developed and applied in clinical practice.[15–17] In 2018, The First Beijing Consensus on Holistic Integrated Medicine

Keywords: *Helicobacter pylori*; Holistic integrative medicine; Traditional Chinese medicine; Disease-syndrome; Expert consensus; Holistic and individualized assessment/treatment.

***Correspondence to:** Fulian Hu, Department of Gastroenterology, Peking University First Hospital, Beijing 100034, China. Tel: +86-10-83572211, E-mail: djjyhu@163.com

[#]These authors contributed equally to this work.

How to cite this article: Yang G, Feng S, Liu J, Hu F. The Second Beijing Consensus on Holistic Integrative Medicine for the Management of *Helicobacter pylori*-associated "Disease-Syndrome". *Cancer Screen Prev* 2025;4(2):67–78. doi: 10.14218/CSP.2025.00009.

Combining Traditional Chinese with Western Medicine for the Management of *Helicobacter pylori*-associated "Disease-Syndrome" introduced the integration of traditional Chinese medicine (TCM) principles,[18] specifically syndrome differentiation, into Western antibiotic therapy, offering a unique perspective for managing *H. pylori* infection and its related conditions. In this context, the term "*H. pylori*-associated disease-syndrome" was formally introduced. That consensus proposed a holistic, individualized treatment strategy, including a novel treatment pathway for refractory *H. pylori* infection based on HIM theory, and has made a notable contribution to the prevention and control of *H. pylori*-associated "disease-syndrome" in China.

Over the past six years, substantial progress has been made in both the theory and clinical practice of combining traditional Chinese and Western medicine in the treatment of *H. pylori* infection. This progress has laid a strong foundation for enhancing the evidence base and feasibility of integrated approaches to managing *H. pylori*-associated "disease-syndrome". The 2023 White Paper on *Helicobacter pylori* Infection Prevention and Control in China systematically outlined the etiology, epidemiology, disease burden, current diagnostic and treatment landscape, and proposed prevention and control strategies.[19] It also emphasized the importance of integrating traditional Chinese and Western medicine in the management of *H. pylori*-associated "disease-syndrome". Accordingly, the National Consensus Group convened in Beijing and developed The Second Beijing Consensus on Holistic Integrative Medicine for the Management of *Helicobacter pylori*-associated "Disease-Syndrome".[20] This updated consensus aims to further integrate HIM principles and the latest research findings into the management of *H. pylori*-associated "disease-syndrome". It is expected to serve as comprehensive, evidence-based, and systematic guidance for applying HIM, combining traditional Chinese and Western medicine for the management of *H. pylori* infection in clinical practice.

Methodology of consensus development

The consensus development conference method was adopted,[21] where experts participating in the voting reached agreement on statements and evidence related to clinical issues through meetings. This consensus was achieved through two face-to-face meetings. The first meeting involved open and free discussions on the draft, focusing mainly on whether the *questions and statements* were consistent, the evidence was sufficient, the expression was clear, and the intervention was practical. Following this, the National Consensus Group revised the draft. At the second meeting, reports from the National Consensus Group on each statement were presented, and after thorough discussion, agreement was reached through a secret ballot.

A purposive sampling method was employed to select experts from 29 medical institutions across cities, including Beijing, Nanjing, Xi'an, Changsha, and Zhengzhou. Experts were required to have more than 10 years of clinical experience in *H. pylori* management. The voting took place on August 31, 2024, in Beijing, with 43 experts participating: 36 in Western medicine, six in TCM, and one in methodology. Experts independently submitted their votes.

The criteria for agreement followed the American College of Physicians' methods for guideline/consensus development.[22] Voting results were categorized as strong agreement, conditional agreement, or no agreement. A threshold of 75% agreement among eligible voters was required to approve a statement; this applied equally to both conditional and strong agreement. If the threshold was not met, the statement could be further discussed, revised, and voted on again, or removed from the manuscript. Votes were cast anonymously during the meeting to avoid bias.

Part 1: Management of *H. pylori* infection in China: Current status and challenges

Question 1: Currently, the 14-day bismuth-containing quadruple therapy is the mainly recommended regimen for H. pylori eradication both domestically and internationally. How should this regimen be understood and applied in clinical practice?

Statement 1: Although the 14-day bismuth-containing quadruple therapy is currently recommended as the first-line regimen,[6,23] when choosing antibiotics and treatment duration, particular attention should be paid to the local prevalence of antibiotic resistance in *H. pylori*, which varies among individuals and regions.[24–26] The combination of Chinese herbal medicine can not only improve the eradication rate but also help alleviate symptoms and reduce adverse drug reactions, potentially shortening the duration of antibiotic therapy (refer to Statements 12–14).[27,28]

Agreement: 100% (Strong).

Question 2: What is the perspective on the dual therapy consisting of high-dose acid suppression and amoxicillin for H. pylori eradication?

Statement 2: The high-dose dual therapy is characterized by its simplicity and good adherence. The Sixth National Consensus on Management of *H. pylori* Infection in 2022 recommends it as a first-line and rescue option in China.[23] However, this regimen is not considered first-line treatment in the Maastricht VI consensus due to the high dose of amoxicillin.[6] Instead, dual therapy may be considered as an alternative in special circumstances, such as after first-line treatment failure or in areas with high antibiotic resistance rates.[6] Although amoxicillin is relatively safe, dosage restrictions are necessary to minimize the risk of adverse drug reactions, especially in elderly patients, children, and those with renal insufficiency.

Agreement: 100% (Strong).

Question 3: Why is the eradication rate of H. pylori infection gradually declining?

Statement 3: The reasons for *H. pylori* eradication failure are multifaceted, including non-standard treatment, inappropriate therapeutic regimens for individual patients, poor compliance, and primary and acquired antibiotic resistance in *H. pylori*.[29–33] Among these, antibiotic resistance is the most important factor.[34,35] Therefore, avoiding antibiotic resistance is key to improving eradication rates.[36] Standardized antibiotic use is critically important at the population level, and susceptibility-guided therapy (*i.e.*, selecting antibiotics to which the infecting *H. pylori* strains are susceptible) at the individual level is crucial in preventing a rapid increase in antibiotic resistance.[26,37]

Agreement: 100% (Strong).

Question 4: Can the eradication rate of H. pylori infection be improved by extending treatment duration or increasing antibiotic dosage?

Statement 4: To improve eradication rates, treatment durations for *H. pylori* have gradually increased from 7 days to 10 days and now to 14 days.[38,39] Can the duration be extended further? Currently, both national and international guidelines recommend treatment courses no longer than 14 days. Can antibiotic doses be increased? To date, increased dosing is recommended only for metronidazole in salvage therapy, optimized to 1.6 g/day to overcome resistance.[8,36,40] However, extended treatment duration or increased antibiotic dosages inevitably lead to more adverse drug reactions.[7,41]

Agreement: 91% (Strong).

Question 5: Does repeated treatment of H. pylori infection affect the gut microbiota?

Statement 5: In patients undergoing repeated antibiotic treatment for *H. pylori* infection, gut bacteria susceptible to the antibiotics used will diminish, while bacteria with primary and acquired resistance will proliferate, leading to altered bacterial proportions and gut dysbiosis.[42–46] Consequently, some patients may develop gastrointestinal symptoms.

Agreement: 100% (Strong).

Part 2: Refractory *H. pylori* infection

Question 6: How should the consensus on the management of H. pylori infection be appropriately understood and followed?

Statement 6: The national and international consensuses published in recent years play an important guiding role in clinical practice; however, the recommended therapies must be modified or adjusted according to individual characteristics and local conditions, underpinning personalized treatment.[36,47] For patients with repeated eradication failures, treatment regimens should be based on local data regarding *H. pylori* resistance to recommended antibiotics as well as the patient's specific conditions.[48] Given the increasingly high resistance rates of *H. pylori*, directly copying or strictly following the consensus is no longer suitable in China, even for patients undergoing their first *H. pylori* eradication therapy. Therefore, a personalized regimen should be considered for first-line eradication therapy, summarized by the phrase "the first battle is the decisive one".[49]

Agreement: 100% (Strong).

Question 7: How to understand refractory H. pylori infection?

Statement 7: The national and international consensuses,[6,8–10] which reflect the majority of expert views, provide fundamental principles for managing *H. pylori* infection. However, these principles do not apply to all patients; a small number still experience repeated failures despite strict adherence to the consensus. Such patients are classified as having refractory *H. pylori* infection.[50]

Agreement: 100% (Strong).

Question 8: What is refractory H. pylori infection?

Statement 8: The American College of Gastroenterology Guideline introduced the concept of persistent *H. pylori* infection, defined as eradication failure after one or more attempts.[40] Refractory *H. pylori* infection is defined as eradication failure after two or more attempts with standard treatment.[51,52] Considering that recommended regimens for *H. pylori* treatment also include salvage therapy, this consensus defines refractory *H. pylori* infection by the following criteria[50]: (1) failure to eradicate *H. pylori* after treatment with regimens recommended by the consensus at least twice (*i.e.*, repeated eradication failures); (2) each treatment course lasts 10–14 days, with at least one course lasting 14 days; and (3) each treatment is fully completed according to consensus requirements.

Agreement: 100% (Strong).

Question 9: What is the principle for the holistic individualized treatment of refractory H. pylori infection?

Statement 9: The basic principle is the implementation of individualized treatment, guided by the following rules[34,47,50]:

1. A Choose antibiotics to which *H. pylori* does not, or is less likely to, develop resistance, such as amoxicillin, furazolidone, and tetracycline, based on the individual and geographic region;
2. For patients who have previously received any two or all of the above-mentioned antibiotics but still experience treatment failure, susceptibility-guided therapy is recommended;
3. For patients with repeated failures who still require *H. pylori* eradication, a holistic individualized assessment should be conducted prior to strategic integrative and precision treatment.[53]

Agreement: 97% (Strong).

Question 10: How to conduct the holistic individualized assessment for patients with multiple failures in H. pylori eradication?

Statement 10: The holistic individualized assessment is a prerequisite for empirical treatment and a foundation for individualized therapeutic strategies. The assessment should include:

1. Evaluation of gastric mucosal lesions such as chronic atrophic gastritis, intestinal metaplasia, and typical hyperplasia;
2. Identification of reasons for eradication failure, including antibiotic resistance, poor compliance, allergies to used antibiotics, or unhealthy lifestyle habits;
3. Presence of serious somatic diseases or other influencing factors;
4. Presence of gut dysbiosis caused by repeated treatment;
5. Allergy to penicillin;
6. Gastrointestinal symptoms potentially affecting compliance;
7. Inappropriate regimen or timing of previous treatment;
8. Morphological changes of *H. pylori*.[54,55] Evidence shows that chronic colonization of the gastric body by *H. pylori* may cause mucosal atrophy, resulting in hypochlorhydria, and *H. pylori* may transform from its helical shape to a spherical coccoid form, which is extremely difficult to eradicate[54,56];
9. Other factors, such as host CYP2C19 gene polymorphisms affecting PPI metabolism, *H. pylori* strain type and virulence, drug-drug interactions, and poor lifestyle habits.

Agreement: 100% (Strong).

Part 3: Role of HIM in the management of *H. pylori* infection

Question 11: Is there experimental evidence confirming the bacteriostatic or bactericidal effects of TCM on H. pylori? What are the underlying mechanisms?

Statement 11: *In vitro* and animal studies have revealed that Chinese herbal products, including whole herbs, herbal extracts, herbal compounds, or mucosal protectants containing herbs, have definite bacteriostatic or bactericidal effects against *H. pylori* strains, including antibiotic-resistant ones.[57,58] The underlying mechanisms may include inhibition of functional protein synthesis,[59] disruption of bacterial cell structure,[60] inhibition of biofilm formation,[61,62] suppression of virulence factor release,[59] reduction of adhesion,[63] modulation of immune response,[64,65] reduction of inflammatory factor release,[66–68] regulation of gastric microecology,[69] and enhancement of the antibacterial activity of antibiotics.[70]

Agreement: 100% (Strong).

Question 12: Is there evidence confirming that TCM can help eradicate H. pylori infection and relieve H. pylori-associated symptoms?

Statement 12: Several multicenter randomized and parallel controlled clinical trials have demonstrated that combining TCM with triple or quadruple therapy significantly improves eradication rates and reduces adverse drug reactions associated with these

therapies.[71–75] Patients with previous *H. pylori* eradication failure also benefit from TCM combination therapy, achieving successful eradication and symptom relief.[76–78] Therefore, given the current high antibiotic resistance rates in *H. pylori*, combining TCM with triple or quadruple therapy is considered an optimal approach for treating *H. pylori* infection and associated "disease-syndrome".

Agreement: 100% (Strong).

Question 13: Is TCM-containing quadruple therapy (herbal medicine combined with PPI-based triple therapy) as effective as bismuth-containing quadruple therapy?

Statement 13: Multicenter randomized and parallel controlled clinical trials have shown that, for initial and rescue treatment of *H. pylori*-associated chronic gastritis, TCM-containing quadruple therapies are comparably effective to bismuth-containing quadruple therapies in terms of *H. pylori* eradication (effect ratio 0.96, 95% confidence interval (CI) 0.89–1.03) and improvement of dyspeptic symptoms (including abdominal distension and belching; heterogeneity in outcome assessment precluded meta-analysis). However, TCM-containing therapies significantly reduce adverse drug reactions (relative risk: 0.44, 95% CI 0.23–0.84).[79–82]

Agreement: 94% (Strong).

Question 14: Will TCM-containing therapies shorten the duration of antibiotic administration for the treatment of H. pylori infection and associated "disease-syndrome"?

Statement 14: A nationwide multicenter randomized controlled clinical trial reported that 10-day bismuth-containing quadruple therapy combined with herbal medicine as rescue eradication therapy not only shortened the duration of antibiotic use but also achieved an ideal eradication rate (92.1% for per-protocol analysis and 90.0% for intention-to-treat analysis).[83] Therefore, integrating traditional Chinese and Western medicine can shorten the course of antibiotic treatment.

Agreement: 97% (Strong).

Question 15: Is 14-day bismuth-containing quadruple therapy combined with TCM superior to 14-day bismuth-containing quadruple therapy alone in terms of eradication rate?

Statement 15: Clinical studies have confirmed that the eradication rate of 14-day bismuth-containing quadruple therapy combined with TCM is superior to that of the therapy alone (relative risk: 2.58, 95% CI 1.68–3.93).[84–88] For example, Banxia Xiexin Decoction vs. bismuth-containing quadruple therapy: odds ratio (OR) = 1.63, 95% CI 1.16–2.15; Lian-Pu Decoction vs. bismuth-containing quadruple therapy: OR = 1.52, 95% CI 1.02–2.06. Moreover, the combination also significantly reduces adverse events (OR = 0.08, 95% CI 0.04–0.17).

Agreement: 100% (Strong).

Part 4: Holistic individualized assessment/treatment for refractory *H. pylori* infection

Question 16: For patients with repeated eradication failures, should anti-H. pylori therapy be paused (the so-called "braking")? How should we understand and manage "braking"?

Statement 16: After repeated eradication failures, *H. pylori* may temporarily develop antibiotic resistance, which is not only due to coccoid transformation but also related to mechanisms such as genetic mutations, increased efflux pump activity, and biofilm formation. By "braking" for a period, *H. pylori* may decrease or even lose resistance and regain susceptibility to antibiotics through adjustments in metabolic pathways or the expression of resistance genes.[89–93] This adaptive recovery is central to the "braking" theory. Braking helps the bacterium to re-thrive and potentially regain antibiotic susceptibility, thereby increasing the success rate of subsequent treatments, while also restoring the gastrointestinal microenvironment. In addition to "braking", patients with repeated eradication failures should undergo a holistic individualized assessment (refer to Statements 9 and 10), as illustrated in Figure 1. Specifically, adequate preparation for the next *H. pylori* eradication therapy should be performed (refer to Statement 16),[47,50,94] followed by standard anti-*H. pylori* therapy.

Agreement: 100% (Strong).

Question 17: How to achieve holistic individualized treatment for "disease-syndrome" associated with refractory H. pylori infection?

Statement 17: Holistic individualized treatment for refractory *H. pylori* infection-associated diseases, including "disease-syndrome", is stage-targeted and comprehensive under the guidance of the state-target differentiation strategy. TCM emphasizes state regulation, which focuses on improving symptoms and signs by restoring the body's internal stability. In *H. pylori* infection, herbal medicine is used to enhance the body's resistance and improve overall health through methods such as "spleen" and "stomach" conditioning, heat-clearing, detoxification, and promoting blood circulation. Western medicine focuses on targeting the pathogen directly with drugs to quickly and effectively treat the infection. Together, TCM's overall conditioning and Western medicine's precise efficacy complement each other, making treatment more individualized and systematic. The following steps are recommended for holistic individualized treatment of the "disease-syndrome" associated with refractory *H. pylori* infection:

1. Regulation before treatment: Prior to formal treatment, herbal medicines or probiotics are used to condition and improve the body's internal environment. The goal is to enhance immune function and prevent secondary antibiotic resistance in *H. pylori.* For example, patients with "dampness-heat syndrome" of the "spleen" and "stomach" can use heat-clearing and dampness-dispelling herbs such as *Scutellaria baicalensis* and *Poria cocos* to help restore normal function.
2. Concurrent treatment with traditional Chinese and Western medicine: This includes individualized antibiotic eradication therapy. During treatment, herbal medicine can enhance the eradication effect of Western medicine and reduce antibiotic adverse reactions.
3. Consolidation with TCM after treatment: After eradication therapy, herbal medicine continues for consolidation, and probiotics may be used for patients with dysbiosis. This stage aims to improve overall symptoms and quality of life.

Agreement: 94% (Strong).

Question 18: How to understand and apply the novel treatment path with non-antibiotic drugs for H. pylori infection and associated "disease-syndrome"?

Statement 18: There are two treatment paths for *H. pylori* infection[27]: one is direct bactericidal action by antibiotics; the other involves non-antibiotic drugs that inhibit or eliminate *H. pylori* by modulating inflammatory factors, enhancing the mucosal barrier, altering the gastric microenvironment, and weakening *H. pylori* adhesion and colonization in the stomach (Statement 10). The novel treatment path refers to the rational application of non-antibiotic

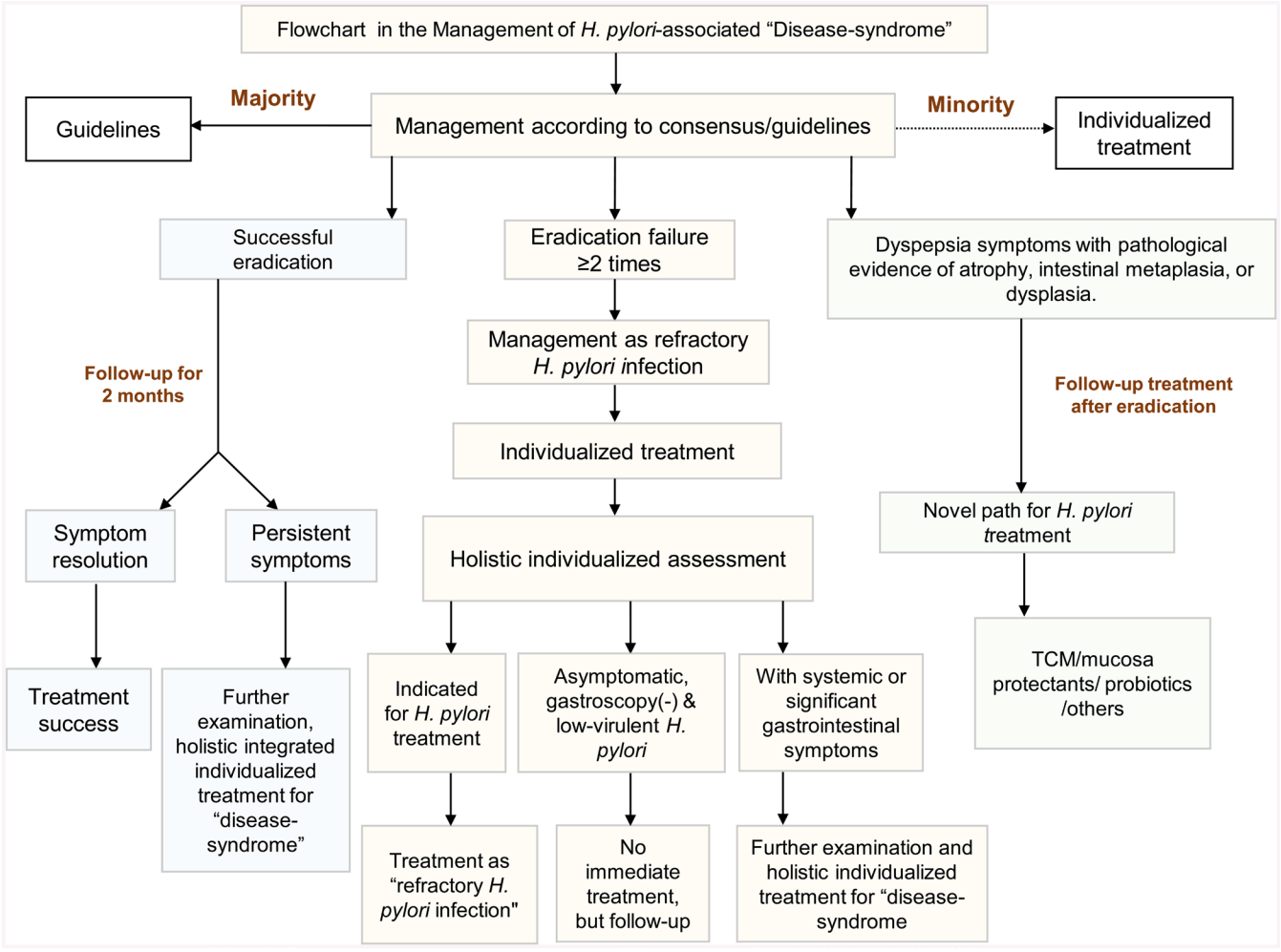

Fig. 1. Flowchart in the management of Helicobacter pylori-associated "disease-syndrome" (original work). TCM, traditional Chinese medicine.

agents such as Chinese herbal products, probiotics, and mucosal protectants in managing *H. pylori* infection.[27] Previous clinical trials have shown that TCM-containing triple or quadruple therapies increase eradication rates and reduce adverse drug reactions (refer to Statements 12–14). Additionally, herbal medicine-based formulas have demonstrated efficacy in *H. pylori* eradication, indicating the clinical prospects of TCM in treatment.[95–98] It is recommended to use Chinese patent medicines (CPMs) with confirmed clinical efficacy or herbal products based on "syndrome differentiation", with or without probiotics. Commonly used non-antibiotic Chinese herbal medicines include CPMs such as Jinghua Weikang capsule, Wenweishu granule, Yangweishu granule, Weifuchun capsule, and Morodan pill,[71,81–83,99–101] herbal formulas such as Banxia Xiexin decoction, and those targeting "dampness-heat".[102] Probiotics, as a monotherapy, can achieve *H. pylori* eradication in a small proportion of patients; the clinical efficacy depends on specific *H. pylori* strains and probiotic dosages.[103,104] Some probiotics (such as *Lactobacillus reuteri* and *Saccharomyces boulardii*) or mucosal protectants combined with standard therapies improve eradication rates and reduce adverse reactions.[67,105–112] More extensive research is needed to confirm their effectiveness and clarify underlying mechanisms.

Agreement: 97% (Strong).

Part 5: Integration of TCM in the treatment of *H. pylori*-associated "disease-syndrome"

Question 19: How to integrate differentiation of both disease and syndrome, and treat H. pylori-associated "disease-syndrome" considering both clinical manifestations and pathological nature?

Statement 19: "Syndrome differentiation" serves as the bridge between theory and clinical practice and is a crucial therapeutic step in TCM. Currently, treatment based on the combination of "disease-syndrome" and "syndrome differentiation" is the fundamental principle for TCM treatment of *H. pylori* infection and its associated diseases. "Syndrome differentiation" is an individualized treatment procedure that determines the TCM syndrome type according to clinical manifestations, including symptoms, signs, tongue, and pulse characteristics of each patient. Based on this, different CPMs or herbal formulas are prescribed. The efficacy of TCM mainly arises from holistic regulation,[95,113] and some Chinese herbal products also exhibit direct bacteriostatic or bactericidal effects against *H. pylori*.[57] Therefore, TCM can improve clinical symptoms and the quality of life of patients with *H. pylori* infection.

Table 1. Characteristics of the "syndrome of spleen-stomach dampness-heat"

Identification elements	Clinical manifestations			
Main symptoms (essential)	Upper abdominal stuffiness-fullness or pain	Dry mouth or bitter taste		
Secondary symptoms (two or more contained)	Dry mouth without a desire to drink	Inappetence	Nausea or vomiting	Yellow urine
Tongue sign (for reference)	Red tongue with yellow and thick coating			

Table 2. Characteristics of the "syndrome of spleen-stomach deficiency (weakness or cold)"

Identification elements	Clinical manifestation				
Main symptoms (essential)	Upper abdominal stuffiness-fullness or dull pain	Preference for warmth and pressure			
Secondary symptoms (two or more contained)	Spitting clear saliva	Inappetence	Fatigue and tiredness	Failing to warmth in hands and feet	Sloppy diarrhea
Tongue sign (for reference)	Pale tongue with teeth-marked margins and white coating				

Principles of "syndrome differentiation" and treatment

H. pylori infection is classified under *pathogenic-qi* in TCM. According to the theory, "where *pathogenic-qi* gathers, there is *healthy-qi* deficiency; when *healthy-qi* is sufficient inside the body, pathogenic factors cannot invade". Thus, the fundamental treatment principle for *H. pylori*-associated "disease-syndrome" is to reinforce *healthy-qi* and eliminate pathogenic factors. "Syndrome differentiation" and treatment should be based on the "deficiency or excess" condition; that is, tonification for deficiency, purgation for excess, and combined tonification and purgation for deficiency-excess complex patterns. Deficiency primarily results from "spleen deficiency", where *healthy-qi* should be reinforced by fortifying the "spleen" and harmonizing the "stomach". The excess condition mainly presents as "dampness-heat", so treatment focuses on dispelling dampness and clearing heat.[114]

Classification of "syndrome differentiation" and treatment

H. pylori-associated "disease-syndrome" can be classified as: "syndrome of spleen-stomach dampness-heat", "syndrome of spleen-stomach deficiency (weakness or cold)", and "syndrome of cold-heat complex".

"Syndrome of spleen-stomach dampness-heat"

The characteristics of "syndrome of spleen-stomach dampness-heat" are summarized in Table 1.

The treatment should focus on dispelling dampness and clearing heat.

The recommended formula is Lian-Pu decoction,[115,116] originating from the *Treatise of Cholera*, containing: *Magnolia Officinalis* (Hou Po, 10 g), *Rhizoma Coptidis* (Huang Lian, 5 g), *Acorus Tatarinowii* (Shi Chang Pu, 10 g), *Rhizoma Pinellia (*Fa Ban Xia, 9 g), *Sojae Praepatum* (Dan Dou Chi, 10 g), *Fructus Gardenia* (Zhi Zi, 10 g), and *Rhizome Phragmites* (Lu Gen, 15 g).

"Syndrome of spleen-stomach deficiency" (weakness or cold)

The characteristics of "syndrome of spleen-stomach deficiency (weakness or cold)" are summarized in Table 2.

The treatment should focus on fortifying the spleen and harmonizing the stomach.

The recommended formula is *Xiangsha-Liujunzi decoction*,[117] from the *Treatise on Famous Formulas Past and Present*, containing: *Radix Aucklandiae* (Mu Xiang, 6 g), *Fructus Amomi* (Sha Ren, 3 g, decoct later), *Citri Reticulatae* (Chen Pi, 10 g), *Rhizoma Pinellia* (Fa Ban Xia, 9 g), *Radix Codonopsis* (Dang Shen, 15 g), *Atractylodes Macrocephala* (Bai Zhu, 10 g), *Poria cocos* (Fu Ling, 10 g), and *Radix Glycyrrhiza* (Zhi Gan Cao, 6 g).

"Syndrome of cold-heat complex"

The characteristics of the "syndrome of cold-heat complex" are summarized in Table 3.

The treatment should focus on "pungent opening and bitter descending" to harmonize the *healthy-qi* of the spleen and stomach, using pungent warm herbs to ascend and bitter cold herbs to descend. This combination disperses obstruction and restores *healthy-qi* flow.

The recommended formula is Banxia Xiexin decoction,[118] from the *Treatise on Cold Damage Diseases*, containing: *Rhizoma Pinellia* (Fa Ban Xia, 9 g), *Radix Scutellaria* (Huang Qin, 10 g), *Rhizoma Coptis* (Huang Lian, 5 g), *Rhizoma Zingiberis* (Gan Ji-

Table 3. Characteristics of the "syndrome of cold-heat complex"

Identification elements	Clinical manifestation			
Main symptoms (essential)	Upper abdominal stuffiness-fullness or pain, worsened by cold	Dry mouth or bitter taste		
Secondary symptoms (two or more contained)	Inappetence	Nausea or vomiting	Bowel sounds	Sloppy diarrhea
Tongue sign (for reference)	Pale tongue with yellow coating			

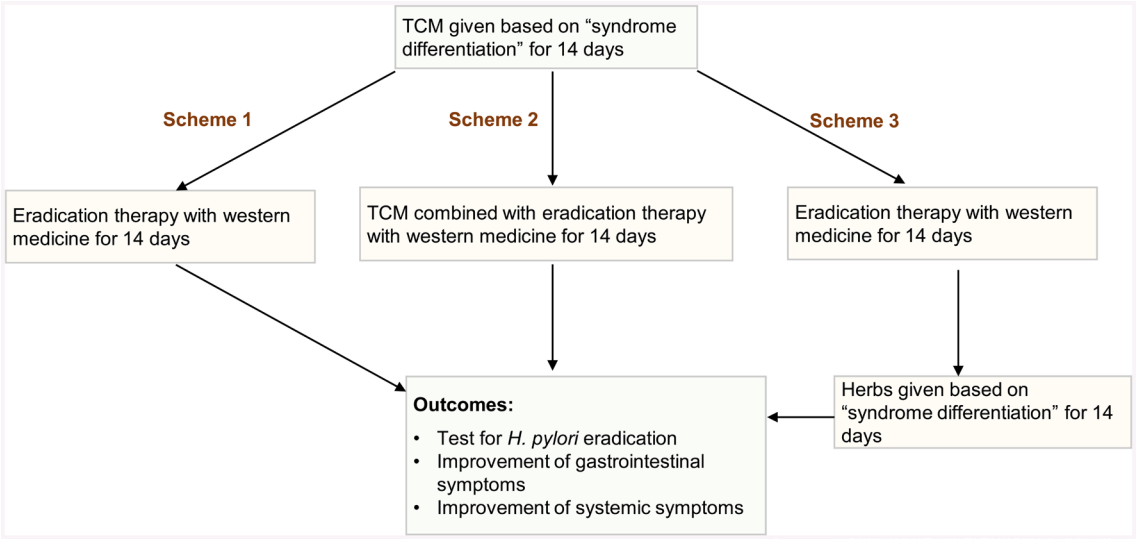

Fig. 2. Recommended schemes for traditional Chinese medicine (TCM) in the management of "disease-syndrome" associated with refractory *Helicobacter pylori* infection (original work).

ang, 10 g), *Radix Glycyrrhiza* (Zhi Gan Cao, 6 g), *Radix Codonopsis* (Dang Shen, 15 g), and *Fructus Jujube* (Da Zao, 6 g).

Recommended schemes for TCM in the management of *H. pylori*-associated "disease-syndrome"

Three schemes are recommended for TCM in managing *H. pylori*-associated "disease-syndrome", especially in refractory cases (Fig. 2). The recommended TCM course based on "syndrome differentiation" before and after *H. pylori* eradication therapy with Western medicine is 14 days, but it should be adjusted according to the patient's individual clinical situation.

Agreement: 100% (Strong).

Discussion

This consensus integrates multiple treatment methods from both traditional Chinese and Western medicine under the principle of HIM. It was developed in accordance with the AGREE II checklist. A panel of gastroenterology experts with extensive experience in managing *H. pylori* infection reached consensus on how to conduct holistic individualized assessment and treatment, as well as how to apply novel treatment approaches using non-antibiotic drugs for *H. pylori* infection and *H. pylori*-associated "disease-syndrome". Additionally, this consensus classifies three types of syndrome differentiation representing the characteristics of pathological factors and the patient's self-condition.

Epidemiological studies show that the pathological factors in primary *H. pylori* infection mainly involve dampness-heat in the "spleen and stomach",[119] corresponding to an excess condition. However, with the decreasing eradication rates, deficiency or cold conditions gradually emerge.[120] In refractory *H. pylori* infection, repeated use of antibiotics and heat-clearing herbs may damage the healthy-qi of the "spleen and stomach". At this stage, the physical condition changes into a mixture of excess and deficiency, or cold and heat. Therefore, among the above-mentioned three types of *H. pylori*-associated disease-syndrome, the *"Syndrome of cold-heat complex"* may account for the majority of refractory *H. pylori* infections. Research has revealed that the tongue manifestations in refractory cases are characterized by a deep red color combined with white coating, or a pale color with thick yellow coating.[121] These opposite features of tongue body and coating correspond to the *Syndrome of cold-heat complex*, confirming the coexistence of pathogenic and deficiency factors. In contrast, primary *H. pylori* infection more commonly presents with a bright red tongue and yellow greasy coating,[122] characteristic of the *Syndrome of spleen-stomach dampness-heat*, which is mainly attributed to pathogenic factors. Tongue images for the three types of *H. pylori*-associated disease-syndrome are shown in Figure 3.

The host's own physical condition and immune status, such as immunosuppressive features, significantly influence susceptibility and prognosis in *H. pylori* infection.[123] Eradication rates are lower in patients with high Immunoglobulin E levels.[124] Serum interleukin levels in patients with failed eradication are significantly lower than in patients with successful eradication or untreated individuals.[125,126] However, whether differences in eradication rates caused by these individual factors relate to tongue appearance characteristics remains unknown and requires future research.

As for the limitations of this consensus, from an evidence-based medicine perspective, some original studies included had relatively low methodological quality, resulting in potential bias and less robust evidence confidence. Few high-quality studies have focused on herbal formulas, and most available clinical trial evidence on *H. pylori* eradication currently centers on Chinese patent drugs. Additionally, due to the diversity of intervention measures and heterogeneity in meta-analysis, we did not apply the GRADE approach.

Nevertheless, the working group believes that the advantage of a consensus is that it can precede research evidence. As a comprehensive therapeutic approach based on syndrome differentiation, standardized interventions in clinical trials may not be suitable for TCM and could suppress its curative effects, which are better demonstrated in real-world practice. For easier understanding and simplified classification, we provided three types of syndrome differentiation and proposed herbal formula treatment plans for each. Based on practical experience, some less common syndrome types, such as *blood stasis obstruction syndrome*, were not included. Combined with epidemiological investigations of *H. pylori*-

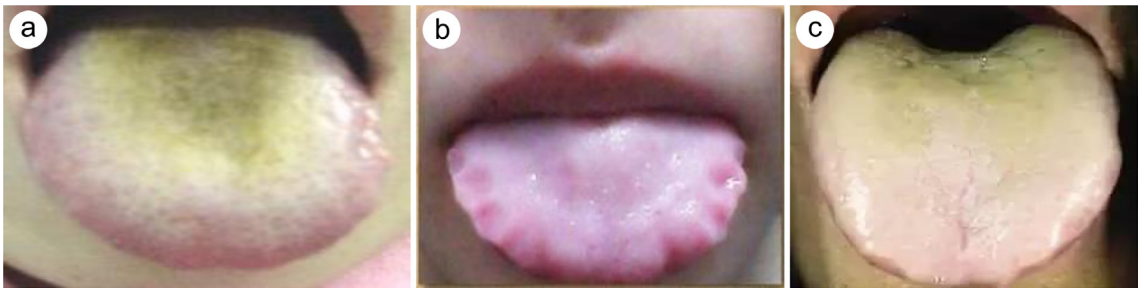

Fig. 3. Tongue images of the three types of *Helicobacter pylori*-associated "disease-syndrome". (a) Syndrome of spleen-stomach dampness-heat, red tongue with yellow and thick coating; (b) Syndrome of spleen-stomach deficiency, pale tongue with teeth-marked margin and white coating; (c) Syndrome of cold-heat complex, pale tongue with yellow coating.

related syndromes, we believe the syndrome types recommended in this consensus cover most disease conditions.

Acknowledgments

This consensus is organized by the following institutions: Beijing Medical Association, National Medical Journal of China, Gastroenterology Branch of China Association of Chinese Medicine, Gastroenterology Professional Committee of the World Federation of Chinese Medicine Societies, Gastroenterology Professional Committee of China Association of Integrative Medicine, *Chinese Journal of Integrated Traditional and Western Medicine on Digestion*, *Chinese Journal of Gastroenterology and Hepatology*, *Chinese Journal of Microecology*, China *H. pylori* Information Center, and China Health Promotion Foundation. We especially thank Dr. Harry Hua-Xiang Xia of Medjaden Inc. for the revision of this consensus manuscript.

Funding

None.

Conflict of interest

The authors have no conflict of interest related to this publication.

Author contributions

Study concept and design (GY, FH), drafting of the manuscript (SF), critical revision of the manuscript for important intellectual content (JL), voting and recommendation providing in consensus development (The National Consensus Group on Holistic Integrative Medicine for the Management of Helicobacter pylori-associated "Disease-Syndrome"). All authors have made significant contributions to this study and have approved the final manuscript.

Members of the National Consensus Group

Members of the drafting group: Guibin Yang (Department of Gastroenterology, Aerospace Center Hospital), Shuo Feng (Center for Evidence-Based Medicine, Guang'anmen Hospital South Campus, China Academy of Chinese Medical Sciences), Jianxiang Liu (Department of Gastroenterology, Peking University First Hospital), Hui Ye (Department of Traditional Chinese and Integrated Medicine, Peking University First Hospital), Wen Gao (Department of Gastroenterology, Peking University First Hospital), Hong Cheng (Department of Gastroenterology, Peking University First Hospital), and Yanan Gong (Institute for Infectious Disease Prevention and Control, Chinese Center for Disease Control and Prevention). Experts for the recommendations (in alphabetical order by surname): Ye Chen (Department of Gastroenterology, Shenzhen Hospital of Southern Medical University, Shenzhen); Hong Cheng (Department of Gastroenterology, Peking University First Hospital, Beijing); Meihua Cui (Department of Gastroenterology, Aerospace Center Hospital, Beijing); Xinhong Dong (Department of Gastroenterology, Peking University First Hospital, Beijing); Liping Duan (Department of Gastroenterology, Peking University Third Hospital, Beijing); Daiming Fan (Department of Gastroenterology, Xijing Hospital of Air Force Military Medical University, Xi'an); Guijian Feng (Department of Gastroenterology, Peking University People's Hospital, Beijing); Shuo Feng (Center for Evidence-Based Medicine, Guang'anmen Hospital South Campus, China Academy of Chinese Medical Sciences, Beijing); Wen Gao (Department of Gastroenterology, Peking University First Hospital, Beijing); Hengjun Gao (Institute of Digestive Diseases, Tongji Hospital of Tongji University, Shanghai); Ying Han (The Seventh Medical Center of PLA General Hospital, Beijing); Fulian Hu (Department of Gastroenterology, Peking University First Hospital, Beijing); Kaiyu Ji (Department of Gastroenterology, Jiai Health Care, Beijing); Yan Jia (The Seventh Medical Center of PLA General Hospital, Beijing); Hong Li (Infectious Diseases Center, West China Hospital of Sichuan University, Chengdu); Jiansheng Li (Department of Gastroenterology, The First Affiliated Hospital of Zhengzhou University, Zhengzhou); Xiaoyu Li (Department of Gastroenterology, Aerospace Center Hospital, Beijing); Yan Li (Department of Gastroenterology, Shengjing Hospital of China Medical University, Shenyang); Fangxun Liu (Department of General Medicine, Peking University International Hospital, Beijing); Jianxiang Liu (Department of Gastroenterology, Peking University First Hospital, Beijing); Hong Shen (Department of Gastroenterology, Jiangsu Province Hospital of Chinese Medicine, Nanjing); Jianqiu Sheng (The Seventh Medical Center of PLA General Hospital, Beijing); Zhaojin Sun (Tsinghua University Hospital, Beijing); Xudong Tang (Institute of Spleen and Stomach Diseases, Xiyuan Hospital, China Academy of Chinese Medical Sciences, Beijing); Guigen Teng (Department of Gastroenterology, Peking University First Hospital, Beijing); Bangmao Wang (Department of Gastroenterology, Tianjin Medical University General Hospital, Tianjin); Huahong Wang (Department of Gastroenterology, Peking University First Hospital, Beijing); Jiangbin Wang (Department of Gastroenterology, The Third Bethune Hospital of Jilin University, Changchun); Weihong Wang (Department of Gastroenterology, Peking University First Hospital, Beijing); Canxia Xu (Department of Gastroen-

terology, The Third Xiangya Hospital of Central South University, Changsha); Meihua Xu (Department of Gastroenterology, Xiangya Hospital of Central South University, Changsha); Guibin Yang (Department of Gastroenterology, Aerospace Center Hospital, Beijing); Zhiping Yang (Xijing Hospital of Digestive Diseases, Air Force Medical University, Xi'an); Hui Ye (Department of Traditional Chinese and Integrated Medicine, Peking University First Hospital, Beijing); Guiying Zhang (Department of Gastroenterology, Xiangya Hospital of Central South University, Changsha); Guoxin Zhang (Department of Gastroenterology, First Affiliated Hospital with Nanjing Medical University, Nanjing); Jianzhong Zhang (Institute for Infectious Disease Prevention and Control, Chinese Center for Disease Control and Prevention, Beijing); Shengsheng Zhang (Digestive Center, Beijing Hospital of Traditional Chinese Medicine, Capital Medical University, Beijing); Wandai Zhang (Institute of Digestive Diseases, Nanfang Hospital, Southern Medical University, Guangzhou); Xuezhi Zhang (Department of Traditional Chinese and Integrated Medicine, Peking University First Hospital, Beijing); Zhenyu Zhang (Department of Gastroenterology, Nanjing First Hospital, Nanjing); Pengyuan Zheng (Department of Gastroenterology, The Fifth Affiliated Hospital of Zhengzhou University, Zhengzhou); Xiaoli Zheng (Department of Gastroenterology, Beijing Hospital, Beijing).

References

[1] Chen YC, Malfertheiner P, Yu HT, Kuo CL, Chang YY, Meng FT, *et al*. Global Prevalence of Helicobacter pylori Infection and Incidence of Gastric Cancer Between 1980 and 2022. Gastroenterology 2024;166(4):605–619. doi:10.1053/j.gastro.2023.12.022, PMID:38176660.

[2] Xie L, Liu GW, Liu YN, Li PY, Hu XN, He XY, *et al*. Prevalence of Helicobacter pylori infection in China from 2014-2023: A systematic review and meta-analysis. World J Gastroenterol 2024;30(43):4636–4656. doi:10.3748/wjg.v30.i43.4636, PMID:39575409.

[3] Reyes VE. Helicobacter pylori and Its Role in Gastric Cancer. Microorganisms 2023;11(5):1312. doi:10.3390/microorganisms11051312, PMID:37317287.

[4] Pan KF, Li WQ, Zhang L, Liu WD, Ma JL, Zhang Y, *et al*. Gastric cancer prevention by community eradication of Helicobacter pylori: a cluster-randomized controlled trial. Nat Med 2024;30(11):3250–3260. doi:10.1038/s41591-024-03153-w, PMID:39079993.

[5] Liu Z, Xu H, You W, Pan K, Li W. Helicobacter pylori eradication for primary prevention of gastric cancer: progresses and challenges. J Natl Cancer Cent 2024;4(4):299–310. doi:10.1016/j.jncc.2024.06.006, PMID:39735441.

[6] Malfertheiner P, Megraud F, Rokkas T, Gisbert JP, Liou JM, Schulz C, *et al*. Management of Helicobacter pylori infection: the Maastricht VI/Florence consensus report. Gut 2022;71(9):gutjnl-2022-327745. doi:10.1136/gutjnl-2022-327745, PMID:35944925.

[7] Katelaris P, Hunt R, Bazzoli F, Cohen H, Fock KM, Gemilyan M, *et al*. Helicobacter pylori World Gastroenterology Organization Global Guideline. J Clin Gastroenterol 2023;57(2):111–126. doi:10.1097/MCG.0000000000001719, PMID:36598803.

[8] Ding SZ, Du YQ, Lu H, Wang WH, Cheng H, Chen SY, *et al*. Chinese Consensus Report on Family-Based Helicobacter pylori Infection Control and Management (2021 Edition). Gut 2022;71(2):238–253. doi:10.1136/gutjnl-2021-325630, PMID:34836916.

[9] Liu WZ, Xie Y, Lu H, Cheng H, Zeng ZR, Zhou LY, *et al*. Fifth Chinese National Consensus Report on the management of Helicobacter pylori infection. Helicobacter 2018;23(2):e12475. doi:10.1111/hel.12475, PMID:29512258.

[10] Du Y, Zhu H, Liu J, Li J, Chang X, Zhou L, *et al*. Consensus on eradication of Helicobacter pylori and prevention and control of gastric cancer in China (2019, Shanghai). J Gastroenterol Hepatol 2020;35(4):624–629. doi:10.1111/jgh.14947, PMID:31788864.

[11] Kim SY, Chung JW. Best Helicobacter pylori Eradication Strategy in the Era of Antibiotic Resistance. Antibiotics (Basel) 2020;9(8):436. doi:10.3390/antibiotics9080436, PMID:32717826.

[12] Huguet JM, Ferrer-Barceló L, Suárez P, Barcelo-Cerda S, Sempere J, Saracino IM, *et al*. Role of compliance in Helicobacter pylori eradication treatment: Results of the European Registry on H. pylori management. United European Gastroenterol J 2024;12(6):691–704. doi:10.1002/ueg2.12569, PMID:38685613.

[13] Luzko I, P Nyssen O, Moreira L, Gisbert JP. Safety profile of Helicobacter pylori eradication treatments: literature review and updated data of the European Registry on Helicobacter pylori management (Hp-EuReg). Expert Opin Drug Saf 2024;23(5):553–564. doi:10.1080/14740338.2024.2338245, PMID:38557327.

[14] Fan D. Holistic integrative medicine: toward a new era of medical advancement. Front Med 2017;11(1):152–159. doi:10.1007/s11684-017-0499-6, PMID:28044221.

[15] Lian B, Yu PF, Yang B, Wang SQ, Li MB, Zhao QC. Management of radiation-induced intestinal injury: from the multi-disciplinary team to holistic integrative management. Chin J Gastrointest Surg 2023;26(10):922–928. doi:10.3760/cma.j.cn441530-20230709-00241.

[16] Fan D, China Institute for Development Strategy of Holistic Integrative Medicine. Holistic Integrative Medicine Declaration. Front Med 2024;18(5):938–940. doi:10.1007/s11684-024-1105-3, PMID:39300010.

[17] Yin X, Lai Y, Zhang X, Zhang T, Tian J, Du Y, *et al*. Targeted Sonodynamic Therapy Platform for Holistic Integrative Helicobacter pylori Therapy. Adv Sci (Weinh) 2025;12(2):e2408583. doi:10.1002/advs.202408583, PMID:39535366.

[18] National Consensus Group on Holistic Integrated Traditional Chinese and Western Medicine for Helicobacter pylori. National Consensus on Holistic Integrated Medicine Combining Traditional Chinese with Western Medicine for the Management of Helicobacter pylori-associated Disease-Syndrome. Natl Med J China 2018;98(26):2066–2072. doi:10.3760/cma.j.issn.0376-2491.2018.26.002.

[19] Zhang JZ. Interpretation of key points from the White Paper on Helicobacter pylori Infection Prevention and Control in China. Chin J Integr Tradit West Med Dig 2024;32(4):279–282. doi:10.3969/j.issn.1671-038X.2024.04.02.

[20] The National Consensus Group on the Integration of Traditional Chinese and Western Medicine for Helicobacter pylori. Expert consensus on integrative medicine for Helicobacter pylori related "Diseases and Syndromes" in China (2024 Edition). Chin J Microecol 2024;36(11):1328–1335. doi:10.13381/j.cnki.cjm.202411013.

[21] Nguyen Wenker T, Peng FB, Emelogu I, Mallepally N, Kanwal F, El-Serag HB, *et al*. The Predictive Performance of Contemporary Guideline Recommendations for Helicobacter pylori Testing in a United States Population. Clin Gastroenterol Hepatol 2023;21(7):1771–1780. doi:10.1016/j.cgh.2022.10.009, PMID:36270616.

[22] Qaseem A, Kansagara D, Lin JS, Mustafa RA, Wilt TJ, Forciea MA, *et al*. The Development of Clinical Guidelines and Guidance Statements by the Clinical Guidelines Committee of the American College of Physicians: Update of Methods. Ann Intern Med 2019;170(12):863–870. doi:10.7326/M18-3290, PMID:31181568.

[23] Zhou L, Lu H, Song Z, Lyu B, Chen Y, Wang J, *et al*. 2022 Chinese national clinical practice guideline on Helicobacter pylori eradication treatment. Chin Med J (Engl) 2022;135(24):2899–2910. doi:10.1097/cm9.0000000000002546, PMID:36579940.

[24] Savoldi A, Carrara E, Graham DY, Conti M, Tacconelli E. Prevalence of Antibiotic Resistance in Helicobacter pylori: A Systematic Review and Meta-analysis in World Health Organization Regions. Gastroenterology 2018;155(5):1372–1382.e17. doi:10.1053/j.gastro.2018.07.007, PMID:29990487.

[25] Liou JM, Wu MS, Lin JT. Treatment of Helicobacter pylori infection: Where are we now? J Gastroenterol Hepatol 2016;31(12):1918–1926. doi:10.1111/jgh.13418, PMID:27088632.

[26] Ma Q, Li H, Liao J, Cai Z, Zhang B. Tailored therapy for Helicobacter pylori eradication: A systematic review and meta-analysis. Front Pharmacol 2022;13:908202. doi:10.3389/fphar.2022.908202, PMID:36160444.

[27] Hu FL. New path on Helicobacter pylori infection treatment. Natl Med J China 2012;92(10):649–651. doi:10.3760/cma.j.issn.0376-2491.2012.10.001.

[28] Hu FL. Current Focus and Progress in Helicobacter pylori Research. Chin J Gastroenterol 2015;20(12):705–707. doi:10.3969/j.issn.1008-7125.2015.12.001.
[29] Kotilea K, Mekhael J, Salame A, Mahler T, Miendje-Deyi VY, Cadranel S, *et al*. Eradication rate of Helicobacter Pylori infection is directly influenced by adherence to therapy in children. Helicobacter 2017;22(4):e12383. doi:10.1111/hel.12383, PMID:28303625.
[30] Gao W, Cheng H, Hu F, Li J, Wang L, Yang G, *et al*. The evolution of Helicobacter pylori antibiotics resistance over 10 years in Beijing, China. Helicobacter 2010;15(5):460–466. doi:10.1111/j.1523-5378.2010.00788.x, PMID:21083752.
[31] Kotilea K, Iliadis E, Nguyen J, Salame A, Mahler T, Miendje Deyi VY, *et al*. Antibiotic resistance, heteroresistance, and eradication success of Helicobacter pylori infection in children. Helicobacter 2023;28(5):e13006. doi:10.1111/hel.13006, PMID:37402147.
[32] Aumpan N, Issariyakulkarn N, Mahachai V, Graham D, Yamaoka Y, Vilaichone RK. Management of Helicobacter pylori treatment failures: A large population-based study (HP treatment failures trial). PLoS One 2023;18(11):e0294403. doi:10.1371/journal.pone.0294403, PMID:38033026.
[33] Moghadam MT, Chegini Z, Norouzi A, Dousari AS, Shariati A. Three-Decade Failure to the Eradication of Refractory Helicobacter pylori Infection and Recent Efforts to Eradicate the Infection. Curr Pharm Biotechnol 2021;22(7):945–959. doi:10.2174/1389201021666200807110849.
[34] Hu FL. Analysis of the Reasons for the Failure of Helicobacter pylori Eradication and Treatment Strategies. Modern Interventional Diagnosis and Treatment in Gastroenterology 2010;15(2):108–112. doi:10.3969/j.issn.1672-2159.2010.02.013.
[35] Hong TC, El-Omar EM, Kuo YT, Wu JY, Chen MJ, Chen CC, *et al*. Primary antibiotic resistance of Helicobacter pylori in the Asia-Pacific region between 1990 and 2022: an updated systematic review and meta-analysis. Lancet Gastroenterol Hepatol 2024;9(1):56–67. doi:10.1016/S2468-1253(23)00281-9, PMID:37972625.
[36] Hu FL. Several issues on the importance of eradication therapy for Helicobacter pylori infection. Natl Med J China 2013;93(44):3489–3490. doi:10.3760/cma.j.issn.0376-2491.2013.44.001.
[37] Nyssen OP, Espada M, Gisbert JP. Empirical vs. Susceptibility-Guided Treatment of Helicobacter pylori Infection: A Systematic Review and Meta-Analysis. Front Microbiol 2022;13:913436. doi:10.3389/fmicb.2022.913436, PMID:35774456.
[38] Hu FL. The rational use of antibiotics in the treatment of Helicobacter pylori infection should be emphasized. Natl Med J China 2020;100(30):2321–2323. doi:10.3760/cma.j.cn112137-20200324-00922.
[39] Yuan Y, Ford AC, Khan KJ, Gisbert JP, Forman D, Leontiadis GI, *et al*. Optimum duration of regimens for Helicobacter pylori eradication. Cochrane Database Syst Rev 2010;(1):CD008337. doi:10.1002/14651858.CD008337.
[40] Chey WD, Howden CW, Moss SF, Morgan DR, Greer KB, Grover S, *et al*. ACG Clinical Guideline: Treatment of Helicobacter pylori Infection. Am J Gastroenterol 2024;119(9):1730–1753. doi:10.14309/ajg.0000000000002968, PMID:39626064.
[41] Li BZ, Threapleton DE, Wang JY, Xu JM, Yuan JQ, Zhang C, *et al*. Comparative effectiveness and tolerance of treatments for Helicobacter pylori: systematic review and network meta-analysis. BMJ 2015;351:h4052. doi:10.1136/bmj.h4052, PMID:26290044.
[42] Suzuki S, Kusano C, Horii T, Ichijima R, Ikehara H. The Ideal Helicobacter pylori Treatment for the Present and the Future. Digestion 2022;103(1):62–68. doi:10.1159/000519413, PMID:34662879.
[43] Yap TW, Gan HM, Lee YP, Leow AH, Azmi AN, Francois F, *et al*. Helicobacter pylori Eradication Causes Perturbation of the Human Gut Microbiome in Young Adults. PLoS One 2016;11(3):e0151893. doi:10.1371/journal.pone.0151893, PMID:26991500.
[44] Hsu PI, Pan CY, Kao JY, Tsay FW, Peng NJ, Kao SS, *et al*. Helicobacter pylori eradication with bismuth quadruple therapy leads to dysbiosis of gut microbiota with an increased relative abundance of Proteobacteria and decreased relative abundances of Bacteroidetes and Actinobacteria. Helicobacter 2018;23(4):e12498. doi:10.1111/hel.12498, PMID:29897654.
[45] Chen J, Zhang Y, Min H, Zhi J, Ma S, Dong H, *et al*. Dynamic changes in the gut microbiota after bismuth quadruple therapy and high-dose dual therapy for Helicobacter pylori eradication. Helicobacter 2024;29(2):e13077. doi:10.1111/hel.13077, PMID:38682268.
[46] Sjomina O, Vangravs R, Ļeonova E, Poļaka I, Pūpola D, Čivkulis K, *et al*. Clarithromycin-containing triple therapy for Helicobacter pylori eradication is inducing increased long-term resistant bacteria communities in the gut. Gut 2023;73(7):gutjnl-2023-329792. doi:10.1136/gutjnl-2023-329792, PMID:37364984.
[47] Hu FL. On the "consensus" on Helicobacter pylori infection and "individualized treatment". Natl Med J China 2016;96(4):241–243. doi:10.3760/cma.j.issn.0376-2491.2016.04.001.
[48] Liu WZ. Interpretation of "Management of Helicobacter pylori Infection: Maastricht V/Florence Consensus Report". Gastroenterology 2016;21(10):577–584. doi:10.3969/j.issn.1008-7125.2016.10.001.
[49] Zhong Z, Zhan B, Xu B, Gao H. Achieving Helicobacter pylori eradication in the primary treatment requires a deep integration of personalization and standardization. Helicobacter 2022;27(5):e12916. doi:10.1111/hel.12916, PMID:35939537.
[50] Hu FL. Principles and strategies for the management of refractory Helicobacter pylori infection. Natl Med J China 2017;97(10):721–723. doi:10.3760/cma.j.issn.0376-2491.2017.10.001.
[51] Losurdo G, D'Abramo FS, Piazzolla M, Rima R, Continisio A, Pricci M, *et al*. Second-line Therapy for Helicobacter Pylori Eradication: State of the Art. Mini Rev Med Chem 2022;22(19):2430–2437. doi:10.2174/1389557522666220325153832, PMID:35339174.
[52] Xu X, He C, Zhu Y. Treatment of refractory Helicobacter pylori infection: A new challenge for clinicians. Front Microbiol 2022;13:998240. doi:10.3389/fmicb.2022.998240, PMID:36329840.
[53] Hu FL. Interpretation of the principles and strategies for the treatment of Helicobacter pylori infection from the perspective of integrative medicine. Natl Med J China 2019;99(20):1521–1522. doi:10.3760/cma.j.issn.0376-2491.2019.20.001.
[54] Cheng T, Boneca IG. The shapeshifting Helicobacter pylori: From a corkscrew to a ball. Mol Microbiol 2024;121(2):260–274. doi:10.1111/mmi.15218, PMID:38173305.
[55] Ierardi E, Losurdo G, Mileti A, Paolillo R, Giorgio F, Principi M, *et al*. The Puzzle of Coccoid Forms of Helicobacter pylori: Beyond Basic Science. Antibiotics (Basel) 2020;9(6):293. doi:10.3390/antibiotics9060293, PMID:32486473.
[56] Smolka AJ, Schubert ML. Helicobacter pylori-Induced Changes in Gastric Acid Secretion and Upper Gastrointestinal Disease. Curr Top Microbiol Immunol 2017;400:227–252. doi:10.1007/978-3-319-50520-6_10, PMID:28124156.
[57] Li J, Cheng H, Gao W, Hu FL. Study on the in vitro antibacterial activity of different Chinese medicine extracts against drug-resistant strains of Helicobacter pylori. Modern Chinese Clinical Medicine 2015;2:21–28. doi:10.3969/j.issn.2095-6606.2015.02.006.
[58] Li L, Meng F, Zhu S, Guo S, Wang Y, Zhao X, *et al*. Efficacy and Safety of Wei Bi Mei, a Chinese Herb Compound, as an Alternative to Bismuth for Eradication of Helicobacter pylori. Evid Based Complement Alternat Med 2018;2018:4320219. doi:10.1155/2018/4320219, PMID:29636776.
[59] Liu S, Sun Y, Li W, Yu H, Li X, Liu Z, *et al*. The antibacterial mode of action of allitridi for its potential use as a therapeutic agent against Helicobacter pylori infection. FEMS Microbiol Lett 2010;303(2):183–189. doi:10.1111/j.1574-6968.2009.01877.x, PMID:20030729.
[60] Peng C, Sang S, Shen X, Zhang W, Yan J, Chen P, *et al*. In vitro anti-Helicobacter pylori activity of Syzygium aromaticum and the preliminary mechanism of action. J Ethnopharmacol 2022;288:114995. doi:10.1016/j.jep.2022.114995, PMID:35032584.
[61] Lin MM, Yang SS, Huang QY, Cui GH, Jia XF, Yang Y, *et al*. Effect and mechanism of Qingre Huashi decoction on drug-resistant Helicobacter pylori. World J Gastroenterol 2024;30(24):3086–3105. doi:10.3748/wjg.v30.i24.3086, PMID:38983958.
[62] Zhang Y, Hou Y, Ye H, Wang X, Zhang X, Yu J. Transcending antibiotic resistance: The potential of mass Galla chinensis et camelliae Fermentata to Dismantle Helicobacter pylori biofilms and enhance antibiotic activity. J Ethnopharmacol 2024;334:118594. doi:10.1016/j.jep.2024.118594, PMID:39032662.
[63] Liu M, Gao H, Miao J, Zhang Z, Zheng L, Li F, *et al*. Helicobacter pylori infection in humans and phytotherapy, probiotics, and emerging therapeutic interventions: a review. Front Microbiol 2023;14:1330029.

doi:10.3389/fmicb.2023.1330029, PMID:38268702.
[64] Mo L, Pi MJ, Wu CR, Guo CX. Effect of Xiaoxie Xie Xin Tang and its dismantling on the expression of CD4 and CD8 in mouse gastric mucosa infected with Helicobacter pylori. J Hunan Univ Chin Med 2006;26(1):8–15. doi:10.3969/j.issn.1674-070X.2006.01.004.
[65] Yan X, Kita M, Minami M, Yamamoto T, Kuriyama H, Ohno T, *et al*. Antibacterial effect of Kampo herbal formulation Hochu-ekki-to (Bu-Zhong-Yi-Qi-Tang) on Helicobacter pylori infection in mice. Microbiol Immunol 2002;46(7):475–482. doi:10.1111/j.1348-0421.2002.tb02721.x, PMID:12222933.
[66] Shih YT, Wu DC, Liu CM, Yang YC, Chen IJ, Lo YC. San-Huang-Xie-Xin-Tang inhibits Helicobacter pylori-induced inflammation in human gastric epithelial AGS cells. J Ethnopharmacol 2007;112(3):537–544. doi:10.1016/j.jep.2007.04.015, PMID:17537603.
[67] Han Z, Li Y, Kong Q, Liu J, Wang J, Wan M, *et al*. Efficacy of bismuth for antibiotic-resistant Helicobacter pylori strains eradication: A systematic review and meta-analysis. Helicobacter 2022;27(6):e12930. doi:10.1111/hel.12930, PMID:36156332.
[68] Sathianarayanan S, Ammanath AV, Biswas R, B A, Sukumaran S, Venkidasamy B. A new approach against Helicobacter pylori using plants and its constituents: A review study. Microb Pathog 2022;168:105594. doi:10.1016/j.micpath.2022.105594, PMID:35605740.
[69] Cai R, Xiao XY, Yin KK, Tan ZJ, Guo KX, Li S. The effects of Wujigu decoction on gastric microbiota and enzymes in Helicobacter pylori-infected gastritis mice. Chin J Microeco 2015;27(3):249–252. doi:10.13381/j.cnki.cjm.201503001.
[70] Liu W, Liu Y, Zhang XZ, Li N, Cheng H. In vitro bactericidal activity of Jinghua Weikang Capsule and its individual herb Chenopodium ambrosioides L. against antibiotic-resistant Helicobacter pylori. Chin J Integr Med 2013;19(1):54–57. doi:10.1007/s11655-012-1248-y, PMID:23275015.
[71] Chen SY, Gao H, Li F, Tu CT, Ding LX, Hu FL. Evaluation of the therapeutic effect of triple therapy combined with Wenshen Shu or Yangwei Shu in the eradication of Helicobacter pylori infection in patients with gastric ulcer. Chin J Dig 2011;31(2):126–129. doi:10.3760/cma.j.issn.0254-1432.2011.02.016.
[72] Ma PP, Meng LN, Wang MT, Jin HF, Fan YH, Zha AS, *et al*. A multicenter randomized controlled study of sequenced quadruple therapy with Bismuth in the treatment of first-time patients with Helicobacter pylori infection and accompanying digestive symptoms taking Jinghua Weikang Capsule. Natl Med J China 2021;101(26):2060–2065. doi:10.3760/cma.j.cn112137-20210305-00563.
[73] Wang TT, Zhang YM, Zhang XZ, Cheng H, Hu FL, Han HX, *et al*. The effect of Jinghua Weikang Capsule combined with PPI triple therapy on Helicobacter pylori-positive chronic atrophic gastritis: a multicenter randomized controlled clinical study. Natl Med J China 2013;93(44):3491–3495. doi:10.3760/cma.j.issn.0376-2491.2013.44.002.
[74] Han ST, Chen J, Tian XD, Liu QQ, Liu TJ, Zhou ZH. Randomized, double-blind, multicenter parallel control clinical trial of Qirui Weishu Capsules on chronic superficial gastritis with erosion, damp heat and stasis syndrome. World Chinese Medicine 2022;17(10):1435–1439. doi:10.3969/j.issn.1673-7202.2022.10.015.
[75] Dong XH, Hu FL, Li SR, Yang ZX, Ye JX, Wang SX, *et al*. Clinical Study of Triple Therapy with Sanjiuweitai in Treating Peptic Ulcer and Eradication of Helicobacter pylori. Chinese Journal of New Drugs 2002;11(6):476–479. doi:10.3321/j.issn:1003-3734.2002.06.020.
[76] Chen XY, Zeng MX, Song HP, Lin Y, Chen XJ, Cai X, *et al*. Meta-analysis on the effectiveness and safety of Huangqi Jianzhong Decoction combined with conventional Western medicine in the treatment of Helicobacter pylori-associated peptic ulcers. Journal of Li-shizhen Traditional Chinese Medicine 2019;30(4):993–998. doi:10.3969/j.issn.1008-0805.2019.04.080.
[77] Huang HH, Zhan XF, Hu YS. Effect of high-dose dual therapy combined with Ganhaiweikang Capsules in the treatment of Helicobacter pylori infection-associated gastritis. Med Innovation China 2024;21(14):91–94. doi:10.3969/j.issn.1674-4985.2024.14.022.
[78] Zeng MX, Chen XY, Song HP, Lin Y, Chen XJ, Cai X, *et al*. Meta-analysis of the efficacy and safety of combined use of Chaihu Shugan Powder and conventional Western medicine in the treatment of Helicobacter pylori-associated peptic ulcers. Liaoning Journal of Traditional Chinese Medicine 2019;46(11):2254–2260. doi:10.13192/j.issn.1000-1719.2019.11.004.
[79] Zhang YM, Wang TT, Ye H, Zhang XZ, Cheng H, Li JX, *et al*. Clinical observation of the therapeutic effect of Jinghua Weikang Capsule combined with triple therapy on Helicobacter pylori infection and chronic gastritis. Chin J Integr Tradit West Med Dig 2013;21(11):587–590. doi:10.3969/j.issn.1671-038X.2013.11.008.
[80] Han YS, Yang Q, Wang DX, Zhang ZG, Zhang GL, Cao ZW, *et al*. Clinical study of Jinghua Weikang Capsule combined triple therapy for the treatment of Helicobacter pylori positive chronic gastritis: a multicenter, randomized, double-blind clinical trial. Chin Gen Pract 2011;14(31):3639–3642. doi:10.3969/j.issn.1007-9572.2011.31.032.
[81] Hu FL, Cheng H, Zhang XZ, An HJ, Sheng JQ, Lv NH, *et al*. Efficacy and drug resistance analysis of Jinghua Weikang Capsule combined with triple therapy in the treatment of Helicobacter pylori-related duodenal ulcers and gastritis: a multicenter clinical observation. Natl Med J China 2012;92(10):679–684. doi:10.3760/cma.j.issn.0376-2491.2012.10.012.
[82] Liu SN, Liu ZM, Meng M, Liu HM, Ma JZ. Observation on the therapeutic effect of Molorodan in combination with Rebeprazole triple therapy on Helicobacter pylori-associated chronic gastritis. Mod J Integr Tradit Chin West Med 2017;26(7):749–751. doi:10.3969/j.issn.1008-8849.2017.07.023.
[83] Cheng H, Hu FL, Sheng JQ, An HJ, Xu L, Liu FX, *et al*. Remedial treatment of Helicobacter pylori infection with Jinghua Weikang Capsule combined with furazolidone triple or quadruple therapy: a multicenter randomized controlled study. Natl Med J China 2016;96(40):3206–3212. doi:10.3760/cma.j.issn.0376-2491.2016.40.002.
[84] Wang N, Wang CJ, Li YF. Observation on the Efficacy of Traditional Chinese Medicine Combined with "Four Combination Therapy" in the Treatment of Hp-positive Chronic Gastritis. Chin J Integr Tradit West Med (Chin Ed) 2017;37(4):406–409. doi:10.7661/j.cjim.20170203.002.
[85] Liu ZW. Remedial treatment of Helicobacter pylori with quadruple therapy combined with traditional Chinese medicine. Chin J Gastroenterol Hepatol 2012;21(8):715–718. doi:10.3969/j.issn.1006-5709.2012.08.009.
[86] Bao Z, Wu G, Du J, Ye Y, Zheng Y, Wang Y, *et al*. The comparative efficacy and safety of 9 traditional Chinese medicines combined with standard quadruple therapy for Helicobacter pylori-associated gastritis: a systematic review and network meta-analysis. Ann Transl Med 2022;10(24):1349. doi:10.21037/atm-22-5421, PMID:36660649.
[87] Ding B, Cui CH, Duan F, Du QT, Liu LL. Data mining and Meta-analysis of traditional Chinese medicine compound for the treatment of Helicobacter pylori-associated chronic atrophic gastritis. Chin J Ration Drug Use 2024;21(5):74–89. doi:10.3969/j.issn.2096-3327.2024.05.012.
[88] Lu Q, Ma RF, Xie JH, Mo ZM, He WY, Zhao HL, *et al*. Systematic evaluation of traditional Chinese medicine in the treatment of Helicobacter pylori-associated gastritis. China J Chin Mater Med 2021;32(2):481–486. doi:10.3969/j.issn.1008-0805.2021.02.69.
[89] Xia HX, Buckley M, Keane CT, O'Morain CA. Clarithromycin resistance in Helicobacter pylori: prevalence in untreated dyspeptic patients and stability in vitro. J Antimicrob Chemother 1996;37(3):473–481. doi:10.1093/jac/37.3.473, PMID:9182104.
[90] Alarcón T, Domingo D, Prieto N, López-Brea M. Clarithromycin resistance stability in Helicobacter pylori: influence of the MIC and type of mutation in the 23S rRNA. J Antimicrob Chemother 2000;46(4):613–616. doi:10.1093/jac/46.4.613, PMID:11020260.
[91] Xue J, Li S, Wang L, Zhao Y, Zhang L, Zheng Y, *et al*. Enhanced fatty acid biosynthesis by Sigma28 in stringent responses contributes to multidrug resistance and biofilm formation in Helicobacter pylori. Antimicrob Agents Chemother 2024;68(9):e0085024. doi:10.1128/aac.00850-24, PMID:39046242.
[92] Rosli NA, Al-Maleki AR, Loke MF, Tay ST, Rofiee MS, Teh LK, *et al*. Exposure of Helicobacter pylori to clarithromycin in vitro resulting in the development of resistance and triggers metabolic reprogramming associated with virulence and pathogenicity. PLoS One 2024;19(3):e0298434. doi:10.1371/journal.pone.0298434, PMID:38446753.
[93] Baffone W, Pianetti A, Citterio B, Lombardelli G, Vittoria E, Bruscolini F. Studies on the development and stability of resistance of Helicobacter pylori to metronidazole and clarithromycin. J Chemother 2001;13(2):126–132. doi:10.1179/joc.2001.13.2.126,

PMID:11330358.
[94] Ma JZ, Feng S, Hu FL. Clinical observation of comprehensive treatment of 63 cases of refractory Helicobacter pylori infection in stages. Chin J Integr Tradit West Med (Chin Ed) 2018;38(1):20–24. doi:10.7661/j.cjim.20171115.286.
[95] Zhang XZ. Cooperation Measures of Traditional Chinese Medicine and Western Medicine in Helicobacter pylori Infection. Shaanxi J Tradit Chin Med 2023;44(11):1499–1502. doi:10.3969/j.issn.1000-7369.2023.11.001.
[96] Ghasemian A, Fattahi A, Shokouhi Mostafavi SK, Almarzoqi AH, Memariani M, Ben Braiek O, *et al*. Herbal medicine as an auspicious therapeutic approach for the eradication of Helicobacter pylori infection: A concise review. J Cell Physiol 2019;234(10):16847–16860. doi:10.1002/jcp.28363, PMID:30847906.
[97] Li Y, Li X, Tan Z. An overview of traditional Chinese medicine therapy for Helicobacter pylori-related gastritis. Helicobacter 2021;26(3):e12799. doi:10.1111/hel.12799, PMID:33765344.
[98] Hu FL. Interpreting certain issues in the management of Helicobacter pylori infection from the perspective of integrative medicine. China Med Her 2023;25(2):123–126. doi:10.3969/j.issn.1009-0959.2023.02.001.
[99] Zhang H, Peng B, Zhang CX, Luo HS. Observation of the Therapeutic Effect of Wufuchun Capsule Combined with Two-Drug Therapy on Helicobacter pylori Eradication. Chin J Gastroenterol Hepatol 2024;33(5):518–521. doi:10.16367/j.issn.1003-5028.2017.10.0627.
[100] Tang XD, Zhou LY, Zhang ST, Xu YQ, Cui QC, Li L, *et al*. Randomized double-blind clinical trial of Moluodan () for the treatment of chronic atrophic gastritis with dysplasia. Chin J Integr Med 2016;22(1):9–18. doi:10.1007/s11655-015-2114-5, PMID:26424292.
[101] Liu YC, Zheng LH, Mao JS. Clinical efficacy observation of combined therapy with Weifu Chun and quadruple therapy for Helicobacter pylori-related gastric ulcers and its effect on gastrointestinal hormones. Liaoning Journal of Traditional Chinese Medicine 2024;51(7):122–125. doi:10.13192/j.issn.1000-1719.2024.07.034.
[102] Chen Y, Ye H, Liu Y, Chen FQ, Yu J, Zhang XZ. Treatment of Helicobacter pylori infection from the perspective of spleen and stomach dampness-heat theory. J Basic Chin Med 2019;25(2):195–197. doi:10.19945/j.cnki.issn.1006-3250.2019.02.020.
[103] Zhang J, Guo J, Li D, Chen M, Liu J, Feng C, *et al*. The efficacy and safety of Clostridium butyricum and Bacillus coagulans in Helicobacter pylori eradication treatment: An open-label, single-arm pilot study. Medicine (Baltimore) 2020;99(45):e22976. doi:10.1097/MD.0000000000022976, PMID:33157939.
[104] Mestre A, Sathiya Narayanan R, Rivas D, John J, Abdulqader MA, Khanna T, *et al*. Role of Probiotics in the Management of Helicobacter pylori. Cureus 2022;14(6):e26463. doi:10.7759/cureus.26463, PMID:35919364.
[105] Ismail NI, Nawawi KNM, Hsin DCC, Hao KW, Mahmood NRKN, Chearn GLC, *et al*. Probiotic containing Lactobacillus reuteri DSM 17648 as an adjunct treatment for Helicobacter pylori infection: A randomized, double-blind, placebo-controlled trial. Helicobacter 2023;28(6):e13017. doi:10.1111/hel.13017, PMID:37614081.
[106] Zhou BG, Chen LX, Li B, Wan LY, Ai YW. Saccharomyces boulardii as an adjuvant therapy for Helicobacter pylori eradication: A systematic review and meta-analysis with trial sequential analysis. Helicobacter 2019;24(5):e12651. doi:10.1111/hel.12651, PMID:31414551.
[107] Zhu R, Chen K, Zheng YY, Zhang HW, Wang JS, Xia YJ, *et al*. Meta-analysis of the efficacy of probiotics in Helicobacter pylori eradication therapy. World J Gastroenterol 2014;20(47):18013–18021. doi:10.3748/wjg.v20.i47.18013, PMID:25548501.
[108] Dai LN, Cui MH, Fu Y, Yue L, Ma ZL. Efficacy of PPI-based Standard Triple Therapy Combined with Teprenone for Treatment of Helicobacter pylori Infection. Chin J Gastroenterol 2016;21(3):156–160. doi:10.3969/j.issn.1008-7125.2016.03.005.
[109] Andreev DN, Maev IV, Dicheva DT. Efficiency of the Inclusion of Rebamipide in the Eradication Therapy for Helicobacter pylori Infection: Meta-Analysis of Randomized Controlled Studies. J Clin Med 2019;8(9):1498. doi:10.3390/jcm8091498, PMID:31546909.
[110] Liang J, Li J, Han Y, Xia J, Yang Y, Li W, *et al*. Helicobacter pylori eradication with ecabet sodium, omeprazole, amoxicillin, and clarithromycin versus bismuth, omeprazole, amoxicillin, and clarithromycin quadruple therapy: a randomized, open-label, phase IV trial. Helicobacter 2012;17(6):458–465. doi:10.1111/j.1523-5378.2012.00971.x, PMID:23066868.
[111] Liu Y, Teng GG, Wang WH, Wu T, Hu FL. Protective effect of sucralfate on gastric mucosal injury induced by Helicobacter pylori infection and its influence on gastrointestinal flora. Natl Med J China 2019;99(20):1546–1552. doi:10.3760/cma.j.issn.0376-2491.2019.20.006.
[112] Teng G, Liu Y, Wu T, Wang W, Wang H, Hu F. Efficacy of Sucralfate-Combined Quadruple Therapy on Gastric Mucosal Injury Induced by Helicobacter pylori and Its Effect on Gastrointestinal Flora. Biomed Res Int 2020;2020:4936318. doi:10.1155/2020/4936318, PMID:32934960.
[113] Li YF, Zhang XJ, Jiang W, Wang CJ, Bai G, Liu J. Meta-analysis of Chinese herbal medicine combined with triple therapy versus triple therapy alone for the treatment of Helicobacter pylori-associated gastrointestinal diseases: a randomized controlled trial. Chin J Integr Tradit West Med Dig 2014;22(2):86–89. doi:10.3969/j.issn.1671-038X.2014.02.09.
[114] Chen RH, Liu M, Chen L, Shi N, Yu QX, Ding X. Literature study on the distribution characteristics of traditional Chinese medicine syndromes in Helicobacter pylori-related chronic gastritis. China J Tradit Chin Med Pharm 2013;28(6):1878–1881.
[115] Tan YY. Efficacy observation of Lianpoyin plus-minus treatment for Helicobacter pylori positive chronic gastritis. Journal of Sichuan of Traditional Chinese Medicine 2016;34(5):142–144.
[116] Wang JH, Liu L, Wen MQ, Tang XD, Du XQ, Xu YP, *et al*. The Modified Coptis and Officinal Magnolia Bark Beverage for Helicobacter pylori-associated Gastritis. Journal of Practical Traditional Chinese Internal Medicine 2013;27(6):114–115. doi:10.3969/j.issn.1671-7813.2013.03(x).57.
[117] Jin YX. Efficacy observation of modified Xiangsha Liujunzi decoction combined with first-line triple therapy in the treatment of Helicobacter pylori chronic gastritis (spleen and stomach qi deficiency syndrome). Heilongjiang Medical Journal 2017;30(1):132–133. doi:10.14035/j.cnki.hljyy.2017.01.064.
[118] Liu Y, Gong HW, Tan DQ. Systematic evaluation of the efficacy and safety of Banxia Xie Xin Tang in the treatment of Hp-related gastritis. New J Tradit Chin Med 2014;46(10):207–210. doi:10.13457/j.cnki.jncm.2014.10.084.
[119] Li RJ, Dai YY, Qin C, Huang GR, Qin YC, Huang YY, *et al*. Application of traditional Chinese medicine in treatment of Helicobacter pylori infection. World J Clin Cases 2021;9(35):10781–10791. doi:10.12998/wjcc.v9.i35.10781, PMID:35047590.
[120] Song LL, Jiang L, Zhu TT, Liu M. Relationship between Hp Eradication Effect and TCM Syndrome Types. Chin J Inf Tradit Chin Med 2013;20(12):7–9.
[121] Chen Y, Yuan HX, Ye H, Zhang XZ, Liu Y. Distribution of TCM Syndrome Types and Tongue Images in Patients with Failed Helicobacter Pylori Eradication Based on Propensity Score Matching. J Basic Chin Med 2021;27(6):986–989. doi:10.19945/j.cnki.issn.1006-3250.2021.06.024.
[122] Wang J, Wang H, Xiao Y, Guo J, Zhao Y. Microecology-turbidity toxin theory: correlation between helicobacter pylori infection and manifestation of tongue and gastroscopy. J Tradit Chin Med 2022;42(3):458–462. doi:10.19852/j.cnki.jtcm.20210612.001.
[123] Moghadam MT, Chegini Z, Norouzi A, Dousari AS, Shariati A. Three-Decade Failure to the Eradication of Refractory Helicobacter pylori Infection and Recent Efforts to Eradicate the Infection. Curr Pharm Biotechnol 2021;22(7):945–959. doi:10.2174/1389201021666200807110849, PMID:32767919.
[124] Ozeki K, Furuta T, Ojima T. Association Between Patients' Immunoglobulin E Levels and Difficulty Eradicating Helicobacter pylori. Clin Exp Gastroenterol 2021;14:311–316. doi:10.2147/CEG.S322512, PMID:34345177.
[125] Sugimoto M, Furuta T, Yamaoka Y. Influence of inflammatory cytokine polymorphisms on eradication rates of Helicobacter pylori. J Gastroenterol Hepatol 2009;24(11):1725–1732. doi:10.1111/j.1440-1746.2009.06047.x, PMID:20136959.
[126] Borody T, Ren Z, Pang G, Clancy R. Impaired host immunity contributes to Helicobacter pylori eradication failure. Am J Gastroenterol 2002;97(12):3032–3037. doi:10.1111/j.1572-0241.2002.07121.x, PMID:12492186.