Advances in the treatment of chronic atrophic gastritis with a combination of Chinese and Western medicine and the public health implications

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Abstract. Chronic atrophic gastritis (CAG) is a disease characterized by atrophy of the gastric mucosa and reduction of intrinsic glands, accompanied by intestinal hyperplasia and/or pseudopyloric glandular hyperplasia, and is a common clinical gastrointestinal lesion that can be produced by the interaction of multiple factors. The pathogenesis of CAG has not been completely clarified, and there are no specific drugs or treatment methods, and the disease is prone to recurrence. The pathogenesis of CAG is not fully understood, and there is no specific drug or treatment, and the disease is prone to recurrence. This paper reviews the treatment progress and public health implications of Western medicine, Chinese medicine, and the combination of Western and Chinese medicine in the treatment of chronic atrophic gastritis, in order to provide some reference for the clinical treatment and public prevention of chronic atrophic gastritis.

Keywords: chronic atrophic gastritis, Chinese medicine, Western medicine, combined Western and Chinese medicine, public health.

1. Introduction

Chronic atrophic gastritis (CAG) is a common digestive system disease in China. It is a chronic gastritis caused by multiple factors, with atrophy, reduction or even disappearance of intrinsic glands, thinning of the mucosal layer and thickening of the mucosal muscle layer as the main pathological changes, often accompanied by extensive intestinal epithelial hyperplasia and heterotypic hyperplasia [1]. Clinical symptoms often present as upper abdominal discomfort, fullness, burning sensation, belching, loss of appetite, and dyspepsia[2]. Since fiberoptic gastroscopy and electronic gastroscopy were put into large-scale clinical use in China, the detection rate of CAG among the total number of patients examined by gastroscopy was up to 13.8%, and the cancer rate was up to 7%, and the cancer rate was even higher when accompanied by heterogeneous hyperplasia [3].In 1978, the World Health Organization (WHO) has officially classified CAG as a precancerous state of gastric cancer[4], and the results of a large number of studies have shown that as a precancerous disease is inseparable from the occurrence and development of gastric cancer. In this paper, we will review the combined treatment of chronic atrophic gastritis with Chinese and Western medicine and the impact on public health.

2. Diagnostic criteria

2.1 Western medical diagnostic criteria

According to the Consensus Opinion on Chronic Gastritis in China (2017, Shanghai)[5]: Patients have chronic dyspepsia with symptomatic manifestations of gastric and epigastric distension, poor appetite, anemia, increasing emaciation, and weakness; gastroscopy shows a rough surface of gastric mucosa with pale color, wrinkling, atrophy, elevated brittleness, easy bleeding, and increased reflection; laboratory tests show reduced pepsinogen levels in blood and urine, sinus mucosa atrophy, and increased serum gastrin.

2.2 Diagnostic criteria of Chinese medicine evidence

According to the "Expert Consensus Opinion on the Treatment of Chronic Gastritis in Chinese Medicine (2017)" [6]：primary evidence: distension and pain in the stomach and epigastric region. Secondary evidence: ① bitter and bad breath, acid reflux, frequent belching; ② nausea, loss of appetite, lack of warmth in the limbs, and dullness; ③ burning in the stomach and epigastrium; ④ loose stools. The tongue is red, the coating is yellow and thick or greasy, and the pulse is thin and weak. Determination of evidence: the main evidence and tongue are necessary, plus 2 or more secondary evidence, with reference to the pulse.

3. Etiology and pathogenesis

Clinical studies have shown that the pathogenesis of CAG is related to various factors such as weakness of the spleen and stomach, dietary disorders, drugs, emotional disorders, and external evil intrusion, etc. The above factors can lead to a loss of transportation and transformation, and a malfunction in the elevation of the spleen and stomach, resulting in qi stagnation, cold condensation, dampness obstruction, fire stagnation, and blood stasis, which manifest as symptoms such as distension and noisiness in the stomach[7] . Studies have shown that environmental, age, and dietary factors are key factors that induce the development of chronic atrophic gastritis. Long-term irregular diet, excessive hunger, overeating, and heavy smoking and alcohol consumption can cause serious damage to the gastric mucosa[8-9]. In addition, mental factors can also lead to organic lesions in the stomach, abnormal secretion of gastric glands and pathological changes by affecting the autonomic nerves, etc. In addition, drug stimulation such as ethylene salicylic acid can also cause some damage to the gastric mucosa[10-11].

4. Western medical treatment

4.1 HP eradication therapy

Helicobacter pylori (HP) infection is closely associated with a variety of upper gastrointestinal diseases such as chronic atrophic gastritis. H. pylori infection not only causes and exacerbates the corresponding inflammation in the gastric mucosa, but may also be the initiating factor that initiates the transformation of chronic atrophic gastritis to cancer[12]. Studies have shown [13] that an acidic environment can promote the formation of agglutinates that can cover the mucosal surface and play a role in protecting the gastric mucosa and eradicating HP. You WC et al[14] found that the risk of developing severe atrophic gastritis, gastric mucosal intestinal epithelial hyperplasia, heterogeneous hyperplasia or gastric cancer was significantly reduced after 4 years of HP infection clearance intervention in 3400 adult patients and the risk of developing them further decreased to 40% after 7.3 years post-intervention. A study by Shu Xu et al[15] showed that the reversal rate of gastric sinus mucosal atrophy was 25.1% higher in patients with HP eradication compared to the non-eradicated group. and the increase in reversal rate was significantly greater in patients with HP eradication at 5 years follow-up. However, in a study by Rezaei Tavirani Metal[16], HP eradication was found to have no significant improvement in the reversal rate of intestinal chemosis. Liu Huiling[17] et al. found by animal experiments that HP could also be killed by hematoporphyrin-mediated photodynamic therapy (PDT), while relieving the degree of inflammation in HP-associated gastritis without toxic effects on the normal gastric mucosa. The antibacterial mechanism of PDT is mainly through laser irradiation to produce monopeptide oxygen and other reactive oxygen species and directly damage the bacterial cell wall and membrane system to play a role in the removal of HP [18]. Currently, the recommended protocol for HP eradication at home and abroad is a triple therapy containing proton pump inhibitor (PPI) and two antibiotics [19], among which the commonly used clinical antibiotics include metronidazole, clarithromycin and amoxicillin.

4.2 Gastric motility-improving drugs

Gastric motility drugs can promote the recovery of gastric function, inhibit bile reflux, and assist gastric and duodenal motility, thus reducing the erosive effect of digestive juices on gastric mucosa. Gastric motility drugs can be used in combination with various drugs to treat patients, such as gastrointestinal motility drugs combined with acid suppressants, etc., so as to improve the symptoms of dyspepsia; combined with antidepressants and anti-anxiety drugs to relieve and regulate the symptoms of nervousness and weakness of patients, reduce the stimulation of mental factors on the digestive function of patients, and reduce the risk of developing chronic atrophic gastritis disease. The results of a study by Qiong Yang [20] showed that the use of mosapride tablets combined with amoxicillin capsules and bismuth pectin in the treatment of chronic atrophic gastritis was able to reduce inflammatory factor levels, gastric mucosal symptom scores, glandular atrophy scores, and all gastric function indexes were significantly improved and gastric emptying time was shortened. Modern pharmacological studies have shown [21] that mosapride is a drug to improve gastric motility, which can promote gastric peristalsis and gastric emptying, thus promoting the recovery of gastric function.

4.3 Other treatment methods

Studies have shown [22] that gastric mucosal damage is one of the important factors inducing CAG, and gastric mucosal protective drugs are often used clinically to treat CAG. Wu Zheng[23] concluded that the use of colloidal pectin bismuth, a compound drug composed of pectic acid and metal ion bismuth elements, helps epithelial cells secrete large amounts of mucus and form a protective film of gastric mucosa, and the joint use of the antibiotic amoxicillin can significantly relieve the clinical symptoms of CAG. Studies have shown that patients with CAG often show varying degrees of reduced gastric acid secretion, while the altered acid-base environment in the stomach may cause the formation of endogenous carcinogens[24]. The use of antioxidant vitamins, selenium, tea polyphenols or antioxidant drugs can be effective in preventing carcinogenesis. Wang Xueping et al [25] used argon ion fusion coagulation and endoscopic mucosal resection to treat patients with chronic atrophic gastritis with heterogeneous hyperplasia, respectively. Argon ion-binding coagulation has the advantage of being minimally invasive compared with traditional endoscopy, and is worth promoting in clinical practice.

5. Traditional Chinese medicine treatment

5.1 Differentiation and typing treatment

In the clinical treatment of 108 patients with different types of CAG, Gao Fugui [26] applied Xiang Sha Liu Jun Zi Tang and Reasonable Zhong Tang with addition and subtraction to treat gastric yang deficiency; and used self-prepared Three Acid Tang with addition and Yigang Tang with addition and subtraction to treat gastric yin deficiency and gastric yin and yang deficiency respectively. After treatment, 75 cases (69.4%) were controlled, 26 cases (24.1%) were improved, and only 7 cases (6.5%) had no significant effect. Wang Shilu et al [27] showed that the use of Jianshu Liqi formula with addition and subtraction could alleviate the inflammation of gastric mucosa and improve the atrophy of the glands, which was beneficial to the improvement of symptoms in CAG patients and had good clinical efficacy. In the treatment of 62 patients with CAG with weak spleen and stomach, Liu Shouliang et al [28] used the control treatment of ginseng and astragalus drink (Astragalus, Salvia, and Hawthorn) and folic acid, and the results showed that the efficacy of the treatment group using ginseng and astragalus drink was significantly better than that of the folic acid treatment group, and ginseng and astragalus drink also had the efficacy of upregulating Caspase-3 protein expression in gastric mucosal tissue. According to Yu[29], the symptoms of glandular hyperplasia and intestinal metaplasia in patients with CAG are referred to as vein blockage and gastric yin deficiency in Chinese medicine. In 130 patients with CAG with glandular hyperplasia treated with Chai Hu Shu Huan San

plus and minus formula, the clinical symptoms were reduced and the levels of gastrin and gastrin increased significantly, and the efficacy of Chai Hu Shu Huan San plus and minus formula was remarkable, with an overall efficiency of 92.08%. In conclusion, Chinese medicine has significant efficacy on different types of CAG through the method of identification and treatment, and there were no obvious adverse reactions and good clinical safety, so it is worth promoting the use.

5.2 Treatment with proprietary Chinese medicine

Chronic atrophic gastritis is an advantageous disease treated by TCM, and the efficacy of TCM in treating CAG is gradually recognized by the industry. The "Treatise on Typhoid" says: "disharmony in the stomach, subcardiac gangrene and hardness, dry yelp and smelly food." Morodan has the effect of harmonizing the stomach and lowering rebelliousness, strengthening the spleen and eliminating distension, and promoting pain [30].In 2019, the Management of Gastric Epithelial Precancerous States and Lesions (MAPS II) has listed morodan as a drug for the treatment of gastric precancerous lesions[31].With the continuous development of Chinese medicinal preparations, other proprietary Chinese medicines such as Gastric Fuchun Tablets and Gastric Anteater Capsules have been increasingly used in clinical treatment with significant efficacy. Lulan et al [32] administered gastric fuchsin + omeprazole + thiosemicarbazone to the treatment group and omeprazole + thiosemicarbazone to the control group of patients with CAG with hyperplasia or with intestinal epithelial hyperplasia. The results showed that the total effective rate of the treatment group was 66%, and the effective rate of the control group was 40.8%, which was statistically significant. Zhou Yong[33] treated 80 cases of ACG patients with nourishing stomach relief capsule, and the total effective rate reached 92.5%. Wang Quanhua et al [34] treated 42 cases of ACG patients with Qifang Gastroparesis Granules in combination with conventional methods, and the improvement of symptoms and pathological phenomena of patients after treatment was significantly better than that of the conventional method treatment group.

5.3 Acupuncture and acupuncture medicine treatment

Acupuncture treatment can improve blood circulation, reduce the inflammatory response, further promote the normalization of gastric function, and achieve the effect of passing without pain, thus reducing clinical symptoms. Studies have shown that acupuncture and acupuncture medicine treatment can help improve the symptoms of belching, bloating, and panacidity in patients with CAG[35]. Experimentally, it was demonstrated that acupuncture (main acupuncture points were taken from Zhongguan, Neiguan, and Feosanli, and matching acupuncture points were taken for identification) was more advantageous in improving gastric mucosal status and improving pathological scores compared to the control group (vincristine)[36]. Gu Wei[37] used foot San Li, Guan Yuan, Blood Sea, Qi Hai, and Di Yu acupoints in acupuncture treatment to tonify the spleen and activate blood circulation and remove blood stasis. In the 40 patients with CAG treated, the total effective rate reached 85.0%, which was more significant compared with the triple therapy + folic acid control group (total effective rate of 65.0%). Xiao Guirong et al [38]gave acupuncture treatment to 20 patients with CAG and applied a compress made of Ginseng and Atractylodis Macrocephalae to the middle epigastric and gastric yu after removing the needles, and the results showed that their gastric mucosal scores and clinical TCM symptoms scores were lower than those of the control group, and the overall effective rate was higher than that of the control group, further confirming the feasibility of acupuncture for CAG. Li Hongjiang [39]used acupuncture and medicine with treatment, selected bilateral spleen acupoint, middle epigastric and stomach acupoints for subcutaneous embedding, and used gastric rehabilitation capsules (including drugs such as Astragalus, Atractylodes and Paeonia) to achieve good clinical efficacy in the treatment of CAG. Some experiments have confirmed that acupuncture treatment of CAG may be related to the regulation of apoptosis index and reduction of NFKB and Bcl-2 levels[40].

6. Combination of Chinese and Western treatments

Since Chinese medicine has unique advantages in the treatment of CAG, while Western medicine also has an irreplaceable role in the treatment of CAG. Therefore, a combination of Chinese and Western medicine is often used in clinical practice so that the advantages of Chinese and Western medicine can complement each other and give better efficacy. Lin Ye [41] et al. used triple therapy with gastric rejuvenation to treat CAG. The triple therapy played the role of H. pylori removal, and the combined treatment could effectively play the advantages of Chinese medicine and Western medicine, so that the clinical efficacy rate reached 91%, the total efficiency of gastroscopic pathological biopsy reached 88.6%, and the eradication rate of H. pylori after treatment reached 94.3%. Li Duo et al[42] confirmed by experiments that the therapeutic effect of using Dendrobium nourishing stomach soup combined with conventional western medicine for CAG was better than either Chinese medicine or western medicine alone, and the patients' symptoms improved more significantly. Zhao Lei et al [43] found that because Chai Hu plus Dendrobium oyster soup has the effect of tonifying the spleen and stomach and nourishing gastric yin, bismuth pectin capsule can protect the gastric mucosa, and amoxicillin plays an antibacterial role, the total effective rate of combined Chinese medicine treatment was 5.64% higher compared with the control group after using Chinese medicine Chai Hu plus Dendrobium oyster soup with bismuth pectin capsule and aspirin. The combined treatment of Chinese and Western medicine can complement each other's advantages, effectively control the disease and improve the clinical efficacy, so the combined treatment of Chinese and Western medicine can be an important direction for the clinical treatment of CAG.

7. Public health status and impact

As contemporary living standards continue to improve, the incidence of chronic atrophic gastritis is also increasing[44], and studies have shown that there is a positive correlation between the prevalence of CAG and increasing age, and the trend is more significant in populations of developing countries[45]. Currently, the prevalence of CAG is high in China, and the prevalence varies widely among different regions[46]. Because CAG has no specific clinical symptoms, definite diagnosis depends on endoscopic and pathological findings to a high degree, the correlation between severity and pathological grading is poor, and the etiology of chronic atrophic gastritis is complex and variable, clinical treatment is difficult and there is a risk of carcinogenesis [47].In 1988, Pelayo Correa [48] proposed the 'normal-superficial gastritis-atrophic gastritis-small intestine metaplasia-colon metaplasia-heterogeneous hyperplasia-carcinoma' model of gastric cancer development, scholars believed that blocking or delaying one or more of these links may be important for the prevention and treatment of gastric cancer. The results of a decade-long cohort study investigating more than 90,000 cases showed that the cancer rate would be substantially increased when glandular atrophy, especially heterogeneous hyperplasia, was present[49]. Therefore, aggressive treatment of chronic atrophic gastritis and prevention of carcinogenesis and reduction of gastric cancer incidence have important implications and significance for both individual and public health.

8. Summary

With the continuous in-depth research on the pathogenesis of CAG, multiple treatment protocols for chronic atrophic gastritis have continued to mature. At present, the research on how to prevent "inflammation-cancer transformation" has become a hot spot in the field of chronic atrophic gastritis. Although the types of western drugs and Chinese herbal medicines tend to be diversified, their efficacy and mechanism of action still need to be studied and explored in depth in order to provide more treatment options for individualized treatment of patients with chronic atrophic gastritis. In conclusion, in the treatment of chronic atrophic gastritis, the advantages and strengths of Chinese medicine should be brought into play, while the research results and means of modern medicine

should be actively adopted, and a combination of Chinese and Western medicine should be adopted to complement each other's strengths in order to achieve better clinical outcomes.

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