

The Evaluation of Integration of Traditional Chinese and Western Medicine for the Treatment of Hyperlipidemia

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Abstract. This study explores the effectiveness and clinical application of combining traditional Chinese medicine (TCM) and Western medicine (WM) in treating hyperlipidemia. Hyperlipidemia refers to elevated total cholesterol, triglycerides, or low-density lipoprotein cholesterol in the blood, or decreased high-density lipoprotein cholesterol, leading to increased risks of atherosclerotic cardiovascular diseases. Western medical treatment primarily relies on statins, cholesterol absorption inhibitors, and PCSK9 inhibitors, but these therapies have limited efficacy and cause various side effects. In TCM, hyperlipidemia is categorized as conditions such as "phlegm syndrome," "deficiency damage," and "chest obstruction," with different prescriptions used based on syndrome differentiation. Research has shown that combining TCM and WM produces better clinical outcomes than using WM alone, enhancing lipid-lowering effects while reducing side effects and improving patient satisfaction. However, the potential side effects of TCM and the optimal combination treatment plans for different patient types remain unclear. Future research will focus on identifying the most suitable combination of TCM and WM for different patients, aiming to optimize personalized treatment for hyperlipidemia. This study provides a theoretical basis for the clinical diagnosis and treatment of hyperlipidemia and promotes the further integration of TCM and WM in medical practice.

Keywords: Traditional Chinese medicine, Western medicine, hyperlipidemia.

1. Introduction

Hyperlipidemia, also known as high blood lipids and abnormal blood lipids, refers to high total cholesterol (TC) and/or triglycerides (TG) in the blood and/or high low-density lipoprotein cholesterol (LDL) and/or low high-density lipoprotein cholesterol (HDL-C). The causes of hyperlipidemia include gene mutations, various environmental factors, such as bad eating habits, lack of physical activity, obesity, and other diseases such as diabetes, nephrotic syndrome, liver disease, etc. Hyperlipidemia is a disease in which lipid metabolism disorders in the body lead to increased blood lipid levels. Research data show that hyperlipidemia is closely related to the incidence of stroke, myocardial infarction, sudden cardiac death, diabetes, hypertension, fatty liver, etc. and it's one of the main risk factors of coronary heart disease. The average level of blood lipid components is an important indicator of evaluating the trend of blood lipid changes. According to the national survey data in 2018, the average serum TC of adults aged more than 18 years in my country was 4.8 mmol/L, LDL-C was 2.9 mmol/L, and TG was 1.7 mmol/L. Compared with the data obtained from the national surveys conducted in 2002, 2010, and 2015, the average levels of various blood lipid components have increased significantly. A recently published research report covering 200 countries around the world showed that in 1980, the average levels of TC and non-HDL-C in Chinese adults were among the lower levels in the world, and significantly lower than those in Western countries; while in 2018, the average levels of TC and non-HDL-C in Chinese adults reached or exceeded the average levels of some Western countries. The increase in serum cholesterol levels in the population is expected to lead to an increase of approximately 9.2 million cardiovascular events in China from 2010 to 2030. It's an important goal to curb the continued increase in the average level of serum cholesterol for the prevention of atherosclerotic cardiovascular disease (ASCVD) in my country [1]. Currently, there are two ways to treat hyperlipidemia: therapeutic lifestyle changes and lipid-lowering drug therapy. Using moderate-intensity statins as the initial treatment. if necessary, combining them with cholesterol absorption inhibitors and proprotein convertase subtilisin/kexin type 9 (PCSK9), PCSK9

inhibitors to achieve the target will have better clinical benefits. Hyperlipidemia belongs to the categories of "phlegm syndrome", "deficiency damage", "chest obstruction", "dizziness" in traditional Chinese medical science. The main symptoms include spleen deficiency and phlegm accumulation, stomach heat and organ consolidation, phlegm stasis retention, and liver and kidney yin deficiency. Clinical treatment of hyperlipidemia mainly relies on lipid-lowering drugs such as statins, but their therapeutic effects are not good and cause many adverse reactions. However, some studies showed it's relatively good to combine TCM and WM in the clinical efficacy for patients with hyperlipidemia. This article aims to analyze the disease differentiation of hyperlipidemia from the perspectives of TCM and WM, and provide theoretical basis for the diagnosis and treatment of clinical hyperlipidemia through the combination of TCM and WM.

2. Etiology and Pathogenesis Analysis of Hyperlipidemia

WM clinically divides dyslipidemia into 4 types according to fasting venous serum detection indicators, namely: hypercholesterolemia, hypertriglyceridemia, high and low-density lipoprotein cholesterolemia, and low high-density lipoprotein cholesterolemia. When one or more abnormalities in the above blood lipid indicators can be diagnosed as dyslipidemia. From the perspective of clinical practice, dyslipidemia is divided into hypercholesterolemia, hypertriglyceridemia, mixed hyperlipidemia, and hypohigh-density lipoprotein cholesterolemia.

The cause of hyperlipidemia is closely related to diet. TCM can be attributed to the deficiency of the spleen and phlegm; the stomach is strong, the diet is not irrestal, the appetite is fat and sweet, and the phlegm is turbid. In addition, because it is easy to develop in the elderly, the symptoms are old age and body deficiency, dirty qi decay, yin deficiency and phlegm stagnation, which eventually leads to phlegm accumulation and blood stasis, turns into fat turbidity, and stay in the body and become a disease. Their symptoms are different, and their characteristics are different, which are often manifested as the following four:

The main symptoms of spleen deficiency and phlegm accumulation include body obesity and sagging, fatigue, chest bloating, dizziness, etc. The tongue is manifested as an enlarged tongue, white and thick tongue moss, and soft veins. Spleen deficiency leads to the accumulation of moisture in the body, and the blockage of phlegm moisture, which is manifested as body obesity and relaxation; phlegm moisture stagnation in the middle focus causes fullness of the chest; sputum turbidity can cause dizziness; when moisture flows into the limbs, the limbs will be heavy or swollen; when the spleen and stomach are weak and the phlegm is wet, it is common to have loss of appetite and loose stools.

The main symptoms of stomach fever are fat, fever, fever, thirst and constipation. The appearance of the tongue is yellow and greasy or thin yellow, and the pulse is slippery or slippery; the body of Yangwang, the stomach is hot and hot; the fat is sweet and greasy, and the phlegm is hot and hot; all of them are the signs of gastric heat and solid, and phlegm heat congestion.

The main symptoms of phlegm stasis are yellow tumors in the eyelids, chest tightness and pain, dizziness and bloating, limb numbness or hemiplegia; the tongue is manifested as dark tongue or stasis spots, mossy white or turbid, and slippery pulse. There is phlegm accumulation for a long time, human veins cause stasis, phlegm stasis retention, yellow tumors can be seen at the eyelids; dark sound or stasis spots, moss white greasy or turbid greasy, and smooth veins, all of which are signs of sputum stagnation.

The main symptoms of liver and kidney yin deficiency are thin body and high blood lipids, dizziness, forgetfulness, sore back and weak knees, and insomnia. The tongue is manifested as red tongue, thin or less moss, thin or fine veins. Yin deficiency and fire are strong, and the five hearts are upset and hot; all are signs of liver and kidney yin deficiency, or yin deficiency and fire is strong.

3. Treatment of Hyperlipidemia

In WM, the treatment of hyperlipidemia mainly includes lifestyle intervention and drug treatment. Lifestyle intervention is the basic treatment measure, and secondary dyslipidemia is mainly used to treat the primary disease. During treatment, individualized treatment targets should be determined according to the risk stratification of abnormal blood lipid spectrum. Generally, the greater the danger, the stricter the requirements of lipid adjustment treatment. Clinically, it's usually the first goal to control LDL-C levels of hyperlipidemia treatment, and decline cardiovascular diseases prevalence and mortality. Commonly used therapeutic drugs are: clinically selected lipid-modulative drugs can be divided into statins, betes, niacins, bile acid chelates, cholesterol absorption inhibitors and other drugs.

3.1. Mechanism of Statins

Statins is the competitive inhibitors of hydroxymethyl glutayl coenzyme A reductase. By competitively inhibiting the rate-limiting enzyme-hydroxymethylpentayl coenzyme A reductase of cholesterol synthesis, it inhibits cholesterol synthesis, thereby run the supply of intracellular cholesterol out [2]. The consumption of intracellular cholesterol then leads to an increase in the number of LDL receptors on the cell surface and promotes the intake of LDL in the blood, sothin drugs reduce cholesterol in plasma by reducing cholesterol synthesis and increasing LDL catabolism. Some statins can even reduce TG levels and may increase HDL-C levels in some patients [3].

3.2. Mechanism of Action of Niacin Drugs

Niacin drugs have key sites in the liver and adipose tissue. The drug can inhibit the decomposition and beta-oxidation of fatty acids, and the liver usually uses the product of the decomposition and oxidation of these fatty acids - free fatty acids as the main precursor of TG synthesis [4]. At the same time, niacin drugs in the liver can directly inhibit diacyl glyceryl transferase of hepatocytes and inhibit the synthesis of liver TG, and cause the decrease of liver TG's synthesis, which is an extremely LDL necessary to generate [5]. LDL comes from VLDL, so the reduction of VLDL will cause the decrease concentration of LDL plasma. Niacin drugs can also increase plasma HDL concentration by stimulating the production of lipoprotein A1 in the liver.

3.3. Mechanism of action of Beit drugs

Bate is an agonist of peroxidase proliferation that activates receptor α and lipoprotein lipase. Beit drugs increase the expression of lipoprotein lipase and reduce the concentration of lipoprotein C2 by activating peroxidase proliferation and receptor α , reducing the TG level [6]. Beta drugs also increase HDL-C levels by increasing the expression of lipoprotein A1 and lipoprotein A2.

3.4. Mechanism of Action of Bile Acid Chelate

Bile chelating agents include Coleenamine and Coletepo, which are alkaline anion exchange resins. They combine bile acids with negatively charged and bile salts in the small intestine, form an insoluble composite, prevents the reabsorption of bile acids and hepato-intestinal circulation and then is excreted in feces [7]. The increase in bile acid loss causes the liver to use cholesterol to form bile acid. The decrease in cholesterol concentration activates the liver's absorption of cholesterol-containing LDL particles, and cause decrease of plasma LDL [8].

3.5. The Mechanism of Action of Ezetimibe

The cholesterol absorption inhibitor can inhibit intestinal cholesterol and phytosterol absorption protein present on jejunal cells, inhibit the intestinal absorption of cholesterol, and reduce the storage of exogenous cholesterol in liver tissue, thus reducing cholesterol storage and increasing the clearance of cholesterol in the blood [9]. The combined use of ezetimibe and statins can more effectively reduce the level of LDL in patients.

3.6. Combined Treatment of Lipid-lowering Drugs

Combined treatment of blood lipid management is a big trend. Mixed dyslipidemia accounts for a large proportion of clinical practice, and the use of a class of drugs alone generally does not achieve better clinical effects. Therefore, the combination of lipid-modulation drugs is often applied in clinical practice, such as combined cholesterol absorption and inhibition should be considered when LDL-C does not meet the standard after statin drug treatment. Agents and PCSK9 inhibitors, patients with high-risk cardiovascular and cerebrovascular diseases whose TG is still elevated after statins are treated can be combined with high-purity beta to reduce the risk of their occurrence [10].

For the above four symptoms of hyperlipidemia, there are four common treatments corresponding to TCM.

Ginseng Baishu Sanhe Erchen Tang plus or minus: The source of Erchen Tang is: "Taiping Huimin and Agent Bureau", the king's medicine is half summer: spicy, warm and dry, dry and wet phlegm, reduce reverse and stomach, disperse knots and eliminate scurvy, "This Herb from New" says that it is "the main medicine for treating wet phlegm". The minister's medicine is orange red: wet phlegm is already formed, blocking the qi machine, orange red is hard to warm and dry, to control qi and stagnate, dry and wet to dissolve phlegm, which means "to treat phlegm first cure qi, and qi is smooth and phlegm disappears". The source of ginseng white art is: "Taiping Huimin and Agent Bureau" The king's medicine is ginseng, white art, and poria. The medicine is yam, lotus seed meat, white lentils, and barley kernels. The second medicine can help ginseng, strengthen the spleen and benefit the qi, and also suppress diarrhea with a thick intestine; white lentils strengthen the spleen and dampness, and the barley kernel strengthens the spleen and moisture. The second medicine helps the art, Ling strengthens the spleen and helps the luck, and the dampness and relieves diarrhea. The main function of Shenling Baishusan is to benefit qi and strengthen the spleen, seep moisture and stop diarrhea, and add or decrease Erchen soup to take into account the effect of drying, humidifying phlegm, rationalizing qi and middle.

Three yellow diarrhea heart soup with flavor, the source is "The essentials of gold shortage". In the recipe, rhubarb, Huang Lian and yellow astragalus are bitter and clear the stomach and diarrhea; peony peel and zardenth clear heat and cool blood; smallpow powder nourishes yin and clears heat and stomach; white and red grass, cypress charcoal, crane grass, earth elm charcoal, purple pearl grass cool blood and dissolve stasis and stop bleeding; calcined corrugated with acid and stomach, relieve pain and stop bleeding; licorice and harmony with various medicines. With the combination of medicine, it is an agent that clears the stomach and relieves fire, cools blood, dissolves stasis and stops bleeding. The main function of Sanhuang Diaxin Soup is to detoxify diarrhea and fire, dry and dampness to relieve heat, and add ground, yuan ginseng and wheat dong to nourish yin and jin. This prescription is mainly used to treat hyperlipidemia caused by gastric heat; the treatment is to clear the stomach, diarrhea and heat, and conduct stagnation.

The source is 51 volumes of "Jingyue Complete Book". In the stasis decoction recipe, angelica tail activates blood, breaks blood and relieves pain. Hawthorn enters the blood and activates blood to dispels stasis to relieve swelling and pain. The fragrance is attached to regulate menstruation and relieves pain. Green skin drains the liver and regulates qi. Safflower activates blood and dissolves stasis, menstruation and relieves pain. Wuyao qi relieves pain, Zediarrhea and water and relieves swelling. The main function of Tongqi decoction is to relieve women's stagnation and blood accumulation, unfavorable meridians, and extreme pain and refusal to press. And postpartum blood stasis and real pain, and men and women's blood reflux, blood reflux and other symptoms of stroke sequelae, add astragalus, Sichuan astragalus, red peony, earth dragon to benefit qi and activate blood; for those with fatty liver, add a tablet of turmeric, Yinchen, tiger stick to clear the liver and activate blood and regulate qi. This prescription is mainly used to treat hyperlipidemia caused by phlegm stasis; the treatment is to activate blood and dispel stasis, dissolve phlegm and reduce lipids.

Erzhi Pill is combined with six flavors of ground yellow pills. The source of Erzhi Pill is Volume I of "Medical Fece". The formula is to use the female chastite Ganping, which is beneficial to the liver and tonic the kidney; dry lotus grass is sweet and cold, which enters the kidney to replenish the

essence, which can benefit the lower and glory. The two drugs can not only replenish the yin of the liver and kidney, but also stop bleeding. It is a famous prescription to treat liver and kidney yin deficiency and bleeding. The source of Liuwei Dihuang Pill is the "Direct Secret of Pediatric Drug Certificate". In the formula, cooked Dihuang is used as the king's medicine to fill the lean marrow and nourish the yin essence. The medicine is mountain astragalus meat and yam, which not only strengthens the kidney and strengthens the essence, but also strengthens the spleen to help the source of natural transformation. The main function of Erzhiwan is to benefit the liver and kidney. This prescription is mainly used to treat hyperlipidemia caused by liver and kidney yin deficiency; the treatment is to nourish the liver and kidney, nourish yin and reduce lipids.

4. Discussion

In clinical work and research, some lipid-lowering drugs have been found to have different degrees of adverse reactions to patients. For example, statins may increase liver enzymes, lead to muscle pain, rhabdomyolysis, and increased blood sugar; statins are less likely to cause increased transaminase and creatinine content, skin itching, joint pain and gastrointestinal reactions; smoke A common adverse reaction of acids is skin flushing. After the above adverse reactions, patients either reduce the compliance of taking the drug or stop taking the drug, which is not conducive to blood lipid regulation.

At present, single-flavored drugs with obvious lipid-lowering effects have been found to be: kudzu root, twisted stock blue, grapefruit peel, etc. The combination of kudzu root and oyster has a more prominent effect on lowering blood lipids, and has a multi-link and multi-target therapeutic effect in lowering blood lipids. It is suitable for long-term medication. It has a high medicinal value for HLP, and can subsidiary treat cerebrovascular diseases such as atherosclerosis. Over recent years, many studies show that TCM compounds play a significant therapeutic role in lowering blood lipids, and the compound is flexible in adding and decreasing, and there are many clinical applications with the symptoms. The results show that the lipid-lowering prescription has a significant effect on the treatment of spleen deficiency, phlegm and wet hyperlipidemia.

Erchen soup comes from the "Taiping Huimin and Agent Bureau", which is good for drying and moistening phlegm in the middle of summer, and reducing stomach, which is a king's medicine; orange red can not only relieve qi stagnation, but also dry and moisten phlegm, which is a minister's medicine. Modern pharmacological research, the orange peel glycoside component in orange red can inhibit the formation of lipid peroxidation, and the low-molecule substance in orange pectin has the effect of lowering blood lipids. [11]. With poria, it strengthens the spleen and seeps moisture; ginger helps to dissolve phlegm and reduce reflux; black plum is mixed with both; licorice strengthens the spleen and mixes the medicines. The combination of various drugs can have the effect of drying, moistening and phlegm, qi and middle. Studies have shown that erchen soup can reduce the content of cholesterol and triglycerides in the blood, increase the concentration of nitric oxide in serum, and reduce the content of endothelin [12]. The results of this study shows that the total efficiency of observation group was higher than placebo, and the blood lipid level was significantly different from that of the placebos, suggesting that Erchen soup can effectively regulate blood lipid levels, improve lipid metabolism, and improve the clinical treatment effect.

Modern pharmacological research shows that Dan ginseng can promote the distribution, operation and clearance of blood lipids, and improve the blood rheology and microcirculation state of hyperlipidemia by regulating the influencing factors of the animal red blood cell membrane of hyperlipidemia model animals [13]; Yinchen and Dan ginseng are used together to have the effect of dehumidifying and dispelling stasis, which is a king's medicine; twisting blue flavor, sex Cool, belongs to the lungs, spleen and kidney meridians, benefits qi and strengthens the spleen, dissolves phlegm and cough, clears heat and detoxifies. The use of twisted stock blue in the recipe is mainly to help the king's medicine transport the spleen and regulate qi to help moisture and dispel phlegm, activate blood and dissolve stasis, which is a minister's medicine; raw hawthorn has the function of

strengthening the spleen and digestion, qi and dissolving stasis. The latest pharmacological research shows that it mainly by reducing the limit of cholesterol synthesis in the liver Fast enzyme plays the role of lowering blood lipids [14,15].

5. Conclusion

In summary, this article provides a certain description of the treatment of separate TCM and separate WM and the combined treatment of TCM and WM. At the same time, it discusses the mechanism of action of various drugs and some adverse reactions in WM. During treatment, TCM will use different prescriptions for patients with different diseases; in WM, different drugs are used for different types of hyperlipidemia. At the same time, the combination of TCM and WM to treat hyperlipidemia has become a major trend. In recent years, studies have found that compared with simple WM lipid adjustment treatment, the clinical effect of TCM discrimination combined with WM to treat hyperlipidemia is more obvious. At the same time, compared with simple WM treatment, the combined treatment of TCM and WM can not only enhance the lipid reduction effect, but also According to the patient's individual situation, we can reduce the adverse reactions brought about by WM, improve the patient's feeling of medication, improve patient satisfaction, and achieve safe lipid reduction. This article is not clear about the adverse reactions of TCM and how different patients should adopt the best treatment plan for the combined treatment of TCM and WM. In the next study, I will focus on the most suitable combination of TCM and WM treatment plans for different types of patients.

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