

Prediabetes Treatments from Damp-Heat Constitution

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Abstract: The constitution of the human body is the reaction of the rise and fall of Vital Qi. Prediabetes is closely related to damp-heat constitution. In the paper, we summarize and sort out the theoretical and clinical research on the treatment of prediabetes from damp-heat constitution in recent years, and understands the current research status of prediabetes from damp-heat constitution. This paper summarized the epidemiological investigation of prediabetes constitution, the theoretical discussion on the treatment of prediabetes from damp-heat, the clinical research of prediabetes and the use of prescriptions. It has a broad prospect to study TCM intervention in the treatment of prediabetic diseases. This provides new treatment methods and ideas for the clinical treatment of prediabetes, and provides theories for the treatment of prediabetes from the perspective of physique, so as to delay the progression of prediabetes, achieve the purpose of "preventing the disease", thereby reduce the incidence of diabetes.

1. Introduction

Nowadays, there are more than 100 million people with diabetes in China, and what is even more serious is that diabetes has a huge number of "reserve forces", namely pre-diabetic people. According to statistics, the prevalence of diabetes in China is the highest in the world, and the prevalence of prediabetes also shows a rapidly growing trend [1]. Prediabetes, also known as impaired glucose regulation (IGR), is a state of abnormal glucose metabolism between diabetes and normoglycemia, comprising impaired fasting glucose (IFG) and abnormal glucose tolerance (IGT), which can occur alone or in combination [2]. Modern medical practitioners believe that IGR belongs to the category of "spleen disease" and "disease turbidity" in Chinese medicine [3], this stage is the only reversible stage in the process of diabetes mellitus, and it belongs to the dominant disease in the field of "treating the untreated disease" in Chinese medicine. It is evident that pre-diabetes is the key period for prevention and control of diabetes. The development of pre-diabetes is inextricably linked to the influence of the patient's constitution. The study of TCM constitution of diabetes based on classical theory suggests that people with obese constitution and damp-heat constitution are susceptible to diabetes [4]. Damp-heat constitution is one of the biased constitutions in Wang Qi's theory of nine bodies, and the percentage of damp-heat constitution in the Chinese population is 9.08%. Damp-heat

constitution has become the soil of diseases such as thirst [5]. Physical constitution is interrelated with the occurrence and development of certain diseases, and the purpose of "treating the disease before it occurs" can be further achieved to peaceful constitution through reasonable interventions. In this paper, we will summarize the theoretical and clinical studies on the treatment of prediabetes from the perspective of damp-heat constitution in recent years, in order to elaborate the advantages of treating prediabetes by regulating damp-heat constitution, and to provide a new perspective and method for clinical treatment of prediabetes, so as to reduce the occurrence of diabetes, improve its regression effectively, and thus reduce the prevalence of diabetes.

2. Epidemiological survey of pre-diabetic body type

For the prediabetes onset of different body types, according to the epidemiological survey results show that although phlegm-damp body type is predominant in the prediabetic population, damp-heat body type is also not uncommon, and damp-heat body type is more likely to transform into diabetes [6]. Jinling Song [7] observed 120 patients with prediabetes, and after summarizing and analyzing the body type, the results showed that the results of relevant indexes were significantly higher in 35 (29%) patients with phlegm-damp body type and 25 (21%) patients with damp-heat body type than in other body types. The results of the analysis of the TCM constitution types and related indexes in 200 cases of pre-diabetic people by Xianhui Zhou [8] showed that the highest proportion of phlegm-damp constitution (24.0%) and damp-heat constitution (16.0%). Therefore, it is necessary to explore the treatment of prediabetes from the damp-heat constitution to improve its pathological physical condition in a timely and effective manner and to reverse or delay its progression to diabetes to some extent.

3. Theoretical study on the treatment of prediabetes from damp-heat theory

Most physicians use the method of identification and treatment to treat prediabetes, and because of the different understanding of the mechanism of the occurrence of prediabetes, so through the method of identification and typing to treat prediabetes, there is no uniform standard, now from the perspective of damp-heat to explore the pathogenesis of prediabetes, the following are some common typing from the damp-heat theory of prediabetes:

3.1. Spleen deficiency and damp-heat

Professor Huaji Chi [9] believes that the stage of thirst in diabetes develops from "spleen disease" and that clinical attention should be paid to the spleen and stomach damp-heat factors. Wenhe Wei [10] believes that spleen deficiency leading to internal heat is the main pathogenesis of impaired glucose regulation. Professor Liang Xiaochun [11] believes that the cause of pre-diabetes is damp-heat, and that damp-heat is embedded in the spleen, leading to spleen deficiency and loss of function, so the main treatment is to clear heat and dispel dampness and strengthen the spleen. Li Weiran [12] found in his many years of clinical practice that in modern society, spleen disease is mainly caused by spleen deficiency and damp-heat, and spleen spleen deficiency is the root of the disease.

3.2. Dampness and heat inside the body

According to academician Zhang Boli [13], the main causes of prediabetes include congenital deficiency, emotional and mental disorders, fatty and sweet food, and sedentary lifestyle. Professor Sun Xinyu [14] believes that the disease is characterized by a loss of spleen function, gathering dampness and producing phlegm, and the phlegm-dampness is embedded in the spleen, causing heat

to stagnate in the middle jiao, eliminating grain and consuming fluid, resulting in spleen disease, which can be clinically manifested as internal damp-heat. Gao Zhisheng [15] believes that the pathogenesis of spleen disease is closely related to excessive fatty and sweet diet, spleen deficiency and dampness, damp-heat entrapment, and depletion of yin and fluid, and that its origin is damage to the spleen and stomach and loss of dispersal of essence, and its symptoms are damp-heat entrapment, obstruction of qi, depletion of fluid, and further development to thirst. Xu Jianqin [16], chief physician, treats damp-heat internalized type of diabetes, paying much attention to the function of the spleen and stomach in digesting water and grain, absorbing essence, and dispersing essence in the viscera, and using concentrated, concise additions and reductions for the dynamic changes of damp-heat.

3.3. Damp-heat in the liver and gallbladder

According to Xu Xiang [17] team, the liver is responsible for draining and regulating the qi of the whole body, which is closely related to the draining of fluid and has a close relationship to the occurrence of thirst. Inadequate diet, loss of spleen health, brewing dampness and generating heat, which accumulates in the liver and gallbladder, or external damp-heat evil, which offends the liver meridian, resulting in damp-heat in the liver meridian. Treatment should be based on clearing damp-heat in the liver and gallbladder. According to Professor Yu Zhiqiang [18], the disease of thirst is blamed on the liver. The treatment should be to dredge the liver and clear heat, and strengthen the spleen. Professor Lv Renhe [19] believes that patients with achalasia are affected by the spleen, which is responsible for transporting water and fluid, and that the accumulation of water and fluid in the spleen and stomach results in the transformation of dampness into phlegm, and the accumulation of phlegm and dampness into heat, which results in the accumulation of pathological products in the body. For damp-heat in the liver meridian, the liver-clearing method is often used to clear damp-heat to remove metabolic products in the body, speed up the excretion of metabolic waste on the surface of the liver, enhance insulin sensitivity, and thus lower blood sugar.

3.4. Dampness, heat and stagnation

Professor Zhang Fuli based on the theory of "damp-heat causes stasis" [20], clearly put forward that pre-diabetes mostly has the pathogenesis of "damp-heat causes stasis", and blood stasis runs through the whole process of pre-diabetes. In his long-term clinical practice, Professor Zhou Zhongying, a master of Chinese medicine, proposed the innovative theory of "Three Heat Theory" of the Chinese pathogenesis of thirst, namely dry heat, damp heat and stasis heat. This theory suggests that the disease of thirst is caused by excessive consumption of fatty, sweet, and thick flavors that produce damp-heat, and that the entanglement of dry heat and damp-heat for a long time leads to stasis in the veins and channels, which turns into heat, and the intertwining of the three heats depletes qi and yin, thus developing the pathological basis of the disease of thirst. Stasis of blood blocks the ligaments, the movement of essence is abnormal, and phlegm and stasis of blood intermingle, so that the appearance of stasis of blood runs through the whole period of prediabetes.

From the above theory, it can be seen that the cause of damp-heat type of prediabetes is related to the loss of spleen transportation and the preference for fatty and sweet food, which results in the internal production of water-dampness and heat; or damp-heat affects the drainage of the liver and the abnormal elevation of qi. This reflects the characteristics of damp-heat-based body type in prediabetes. It also indicates that the evolution of various damp-heat type of prediabetes is based on the damp-heat constitution, and the various subtypes of prediabetes have a subordinate relationship with the damp-heat constitution.

4. Clinical research on the treatment of prediabetes from damp-heat theory

In recent years, with the continuous research on prediabetes, the experience and means of treatment for prediabetes in Chinese medicine are becoming more and more abundant. Commonly used internal treatment methods such as internal Chinese medicine, food therapy, etc.; external treatment methods acupuncture and massage therapy, acupuncture point burial, etc. The following will be a clinical study on the treatment of prediabetes from the perspective of damp-heat.

4.1. Internal Chinese medicine method

Yang Qiaoyu [21] used Spleen and Damp-Heat drink to treat abnormal glucose tolerance in the type of spleen deficiency and damp-heat, and this formula has the function of clearing heat and resolving dampness, and regulating Qi and resolving turbidity. Sixty outpatients with glucose tolerance abnormalities of spleen deficiency and dampness-heat type were selected, and the treatment group was given controlled diet and exercise plus spleen and Damp-Heat drink (composition of the formula: Ban Xia, Ginger, Chen Pi, Bamboo Roo, Fu Ling, etc.), while the control group was given controlled diet plus exercise basic treatment. The treatment showed that the treatment group was effective in improving TCM symptoms, BMI and FPG in patients with abnormal spleen deficiency and damp heat type of glucose tolerance. Lin Yan [22] used compound ba qia drink to treat damp-heat type hypoglycemic tolerance, 84 patients with hypoglycemic tolerance were selected, 41 cases in the experimental group were given compound ba qia drink on the basis of lifestyle intervention (diet-exercise intervention alone); 43 cases in the control group were given acarbose tablets on the basis of lifestyle intervention, and the changes in blood glucose and the clinical symptoms of Chinese medicine before and after treatment were observed in both groups after 2 months of treatment. Changes. The results showed that the improvement of TCM symptom score in the experimental group was better than that in the control group. It showed that compound sarsaparilla drink could effectively reduce blood glucose and fasting insulin level, improve insulin resistance index, and improve patients' TCM clinical symptoms. The drug composition of the experimental group was: ba qia, Shang Si Cai, Zea mays, and Wu Mei. Wei Wenhe [23] used the spleen deficiency damp-heat type of diabetes before treatment with the spleen ning formula. Fifty-six cases of outpatients were selected to take Spleen (and Dampness) Ning Fang plus orally (Spleen (and Dampness) Ning Fang medicinal use: Pei Lan, Cang Zhu, Fu Ling, Huang Lian, Huang Jing, etc.), 7 days as a course of treatment, 4 consecutive courses of treatment to observe the clinical efficacy, the results showed that: 21 cases were clinically cured, 32 cases were effective, and 3 cases were invalid, with an overall efficiency of 94.64%. The results showed that 21 cases were clinically cured, 32 cases were effective, and 3 cases were ineffective, with a total effective rate of 94.64%.

Damp-heat internalization Zhang M et al. [24] to observe the clinical efficacy of the Chinese herbal medicine formula for strengthening the spleen and clearing heat and dampness on patients with type 2 prediabetes. In this study, 60 patients with type 2 diabetes mellitus were selected, 30 cases in the Chinese herbal medicine group, who took the formula for strengthening the spleen and clearing heat and dampness orally (drug composition: Cardamom, Fa Ban Xia, Huang Lian, Scutellaria, Chen Pi, etc.); 30 cases in the Western medicine group, who took metformin orally. After 12 weeks of treatment, we observed the improvement of prediabetes. The results showed that the formula of strengthening the spleen, clearing heat and promoting dampness had the effect of reducing FPG, 2h postprandial glucose and glycated hemoglobin, and had a significant effect of reducing BMI. Zhang Yutao [25] used the formula of Ban Xia Xie Xin Tang plus or minus to treat damp-heat trapped spleen type of prediabetes. The results showed that the treatment group was significantly better than the control group.

Zhuang Xinru [26] used Huang Lian Wen Bile Tang with addition and subtraction to treat damp-

heat containing spleen in prediabetes (IGT), which has the effect of clearing heat and bile, strengthening the spleen and dispelling dampness. Seventy-two patients with IGT who met the inclusion criteria were selected, and the experimental group was treated with Huang Lian Wen Bile Tang with addition and subtraction; the control group was treated with acarbose tablets + basic treatment. 4 weeks was a course of treatment, and 3 courses of treatment were continuously observed. The final results showed that Huang Lian Wen Bile Tang with addition and subtraction could effectively reduce blood glucose and body mass index, improve insulin resistance and TCM symptoms in patients with IGT damp-heat-containing spleen evidence with significant efficacy. Yang Min [27] used a combination of acupuncture and medicine to treat metabolic syndrome of liver and gallbladder damp-heat type. In this study, 60 cases were selected and 30 cases in the study group were treated with Chinese herbal soup and acupuncture. The Chinese herbal soup consisted of: gentian, coix seed, Chai Hu, Kou Ren, and almond, etc. The gai-fang has the effect of draining liver and Qi and clearing damp-heat; the acupuncture points: Quchi, Zhonghua, Tianshu, Yinlingquan, and Taichong, etc. The combination of the points regulates the Shaoyang pivot, clears damp-heat of liver and gallbladder, and strengthens the spleen and resolves stagnation. In the control group, 30 cases were treated with oral Gentian and Liver Capsules, and the indexes before and after treatment were observed after 8 weeks. The results showed that the combination of acupuncture and medicine was effective in treating metabolic syndrome of liver and gallbladder damp-heat type.

Jing Shengju [28] observed the clinical efficacy of pre-diabetes recovery capsules in the treatment of prediabetes (Qi and Yin deficiency, dampness and heat stasis evidence). The formula has the efficacy of benefiting Qi and nourishing Yin, clearing heat and dispelling dampness, and activating blood circulation. Sixty patients were selected for this study. In the treatment group, 30 patients were given lifestyle intervention and Sugar Qian Kang capsule (drug composition: Astragalus, Shengdi, Huanglian, Coix Seed, DangGui etc.), 3 capsules once, 3 times/day; in the control group, 30 patients were given lifestyle intervention; the indexes were observed after 8 weeks; comparison of the efficacy of the Chinese medical evidence: the total effective rate of the treatment group was 90%, higher than that of the control group (total effective rate 60%), comparison of the overall efficacy: the total effective rate of the treatment group 86.67%, higher than the control group (total effective rate 53.33%), the results show that: sugar before Kang capsule can significantly improve the clinical symptoms of pre-diabetic patients, and has a regulatory effect on patients' blood sugar and blood lipids. Dampness-Heat Stasis Ma Boyan [29] observed the effect of Huayu Wenzhi Tang on patients with metabolic syndrome. The effect of Huayu Wendan Tang is to dispel dampness and clear heat, resolve blood stasis and lower turbidity. The prescription consisted of Chen Pi, Radix et Rhizoma Pinelliae, Poria, Citrus aurantium, Radix et Rhizoma Bamboo and Radix Scutellariae. Forty-eight patients who met the inclusion criteria were finally selected and treated with Huayu Wenzhong Tang for 14 days, and the changes of metabolic indexes were observed before and after treatment. The results showed that the fasting blood glucose and insulin resistance index decreased significantly after treatment, and that Huayu Wenzhong Tang could effectively improve the disorders of glucolipid metabolism in metabolic syndrome.

Zhong Ping [30] observed the clinical effect of acupuncture combined with tui na in the treatment of pre-diabetic patients. In this study, 62 patients with prediabetes were selected, 31 cases in the control group were given conventional exercise and diet therapy; 31 cases in the observation group were treated with acupuncture combined with tui-na on the basis of the control group. In the observation group, 31 patients were treated with acupuncture combined with tui-na on the basis of the control group. Acupuncture points: Liver Shu, Spleen Shu and Pancreatic Shu were selected; massage therapy: Liver Shu, Spleen Shu and Pancreatic Shu were selected. The results showed that acupuncture combined with tui-na treatment in pre-diabetic patients could improve glucolipid metabolism and reduce blood glucose and lipid index levels. Wang Yi [31] used acupuncture points

for the treatment of prediabetes with dampness and heat in the spleen. 66 patients with prediabetes (dampness and heat in the spleen) were selected and divided into the acupuncture point buried thread group and the sham buried thread group, 33 patients each. The patients in both groups were given life interventions, and on this basis, the acupuncture point buried thread operation was carried out in the bilateral points of the lower stomach and spleen, and medical lamb's intestine thread was implanted in the needle tube for a treatment period of 8 weeks. The results showed that the total effective rate of the acupuncture point buried thread group was 90.00%, which was higher than that of the sham buried thread group (total effective rate was 66.67%), indicating that the acupuncture point buried thread had good clinical efficacy in the treatment of prediabetes (damp-heat containing spleen evidence).

5. Discussion

Damp-heat type of prediabetes is based on the patient's traditional damp-heat constitution, which is influenced by certain factors inside and outside the body, such as congenital endowment, living in a wet place for a long time, preferring to eat fatty and sweet food, and drinking alcohol for a long time, and other etiological factors, resulting in prediabetic symptoms. Therefore, after the cause is removed, the pre-diabetic symptoms can improve or even disappear, but often, because the patient's own damp-heat constitution has not been changed, the pre-diabetic symptoms recur or persist or even develop into diabetes. In the treatment of clinical for disease evidence is relatively easy, but for the adjustment of human bias body is more difficult, damp-heat body for damp-heat symptoms have susceptibility, and in today's environment, easily affected by external aspects, resulting in prediabetes is very easy to relapse. Therefore, the treatment of prediabetes should be based on the treatment of the patient's plain constitution, early intervention through lifestyle or medication, adjustment of the patient's biased constitution, and treatment based on clinical manifestations as the standard and analysis of accompanying symptoms.

Pre-diabetes is a rapidly growing trend today, and this disease is a serious test for patients and society, so how to safely reduce or delay diabetes is becoming a topic of increasing interest. Since diabetes is a disease with obvious correlation with dampness and heat, we should identify the susceptible people of prediabetes through physical identification at an early stage, and intervene from the perspective of "treating the disease before it occurs" in Chinese medicine, so as to "prevent the disease before it occurs" and "prevent the disease before it occurs". The body type of damp-heat can be regulated to prevent the disease. By regulating the damp-heat constitution, we can fundamentally treat prediabetes and prevent recurrence and development of diabetes. Therefore, the treatment of prediabetes from damp-heat constitution provides a new treatment idea for prediabetes and is of great significance to the improvement of the quality of life of prediabetes patients.

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