To Observe the Curative Effect of Metabolic Balance Decoction on Metabolic Syndrome

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ABSTRACT Objective: To investigate the curative effect of metabolic balance decoction on metabolic syndrome. Methods: 60 patients with metabolic syndrome were randomly divided into experimental and control groups. The control group administered captopril and metformin. Experimental group was added metabolic balance decoction on the basis of treatment for the control group. The course of treatment was 3 months. The body mass index, blood pressure, blood glucose, blood lipids were deteced before and after treatment. Results: The potency in the experimental group was significantly higher ($P<0.05$). Compared with that in the control group, the body mass index, blood pressure, blood glucose, lipid parameters in the experimental group improved more significantly after treatment ($P<0.05$ or $P<0.01$). Conclusion: The metabolic balance decoction can make patients lose weight and reduce their blood pressures, blood glucoses and regulate their lipids and it is the effective recipe to intervene metabolic balance.

Key words: Metabolic Syndrome; Metabolic balance decoction; Captopril; Metformin

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Introduction

Metabolic syndrome (metabolic syndrome, MS) is a group of clinical syndromes whose clinical performances are obesity, hypertension, high blood glucose, and whose pathogenesis is insulin resistance [1]. With the research going deeper, patients with MS are at a higher risk of cardiovascular diseases. Compared with those without MS, those with the MS have a significant increase on the risk of having cardiovascular diseases and type 2 diabetes [2-3]. According to the data published by the International Diabetes Federation (IDF) in 2005, it is estimated that a quarter of the world's population have MS [4]. It is obvious that MS has presented a global trend [5]. Incidence of metabolic syndrome has been increasing in China, and MS has become the most common metabolic diseases in the middle-aged and elderly people [6]. It is roughly estimated that morbidity of MS in China has reached 14%~18% [7]. If we don't carry out early intervention, the consequent deadly diseases by MS will have a severe influence on human health and life and bring about high medical costs. The study emphasizes on the therapeutic research of traditional Chinese medicine on MS. We used metabolic balance decoction to treat metabolic syndrome and obtained a better curative effect. Presently reports as follows.

1 Materials and methods

1.1 Clinical Data

1.1.1 Diagnosis and Inclusion, Exclusion Criteria With reference to the diagnostic criteria of the MS from the Diabetes Branch of Chinese Medical Association in 2004 [8], all cases have the three in the following four symptoms or all of those and exclude type 1 diabetes, diabetic ketoacidosis, liver, kidney and heart disease, and other endocrine diseases: (1) overweight and (or) obese BMI ≥ 25.0 Kg /m^2; (2) high glucose, FPG ≥ 6.1mmol / L (110mg/dl) and (or) 2hPG ≥ 7.8mmol / L (140mg/dl), and (or) diagnosed with diabetes and treated; (3) high blood pressure, SBP / DBP ≥ 140/90mmHg, and (or) diagnosed with hypertension and treated; (4) lipid disorders, fasting TG ≥ 1.7mmol / L (110mg/dl), and (or) fasting serum HDL-C The male <0.9mmol / L (35mg/dl), the Female <1.0 mmol / L (39 mg/dl).

1.1.2 General Information Patients were randomly divided into 2 groups by means of a random number table. There are 30 patients in the Experimental group, including 16 males and 14 females. And 30 patients in the control group, including 18 males and 12 females. The difference in their genders, ages, and courses of disease and body mass indexes between two groups (see Table 1) was not statistically significant ($P>0.05$), so the data from the two groups are comparable.

1.2 Therapeutic Methods

1.2.1 Control group Take 12.5 mg of captopril tablets (manufactured by Guofeng Pharmaceutical Co., Ltd. in Qingdao), three times a day; take 500mg of metformin hydrochloride enteric-coated tablets (Manufactured by Tian Pharmaceutical Co., Ltd. in Guizhou), twice a day.

1.2.2 Experimental group On the basis of treatment for the control group, patients in the experimental group are added a metabolic balance decoction, one dose which has to be taken twice every day (in the morning and evening respectively) when the decoction is warm.Recipe: Kudzuvine root 30 g, szechuan lovage rhizome 10 g, Danshen root 30 g, hawthorn fruit 30 g, figwort root 15 g, rhizome alismatis 30 g, barbary wolfberry fruit 15 g, Indian buead 30 g, ginkgo leaf 10 g.

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For two groups, the course of treatment is one month, and patients should take the medicines continually for three courses.

1.3 Observation on Curative Effect

1.3.1 Observation of indicators Observe patients' body mass index (BMI), systolic blood pressure (SBP), diastolic blood pressure (DBP), fasting blood glucose (FBG), total cholesterol (TC), triglyceride (TG), high density lipoprotein (HDL-C) before and after treatment.

1.3.2 Criteria of curative efficacy Markedly improved: their blood pressure, blood lipids, blood glucose have dropped to normal levels, but there is no significant change in their body weights; Effective: blood pressure, blood lipids, blood glucose were significantly reduced, but there are still one or two indicators below the normal standard; Invalid: After treatment, none of indicators has changed significantly.

1.3.3 Statistic analysis Apply Paired T-test to analyze the comparative data of every group before and after treatment and apply Group T-test to analyze their Means comparation.

2 Results

2.1 Curative Effect Comparations of patients with MS in two groups after treatments. The curative effect of experimental group is obviously superior to that of the control group, See Table 2.

Table1 The comparison of Gender,Age,course of disease and BMI between two groups ($\bar{x}\pm s$)

Group	Cases	Gender (n)	Average Age (year)	Average course of disease (mouth)	BMI (kg/m²)	P
E group	30	16/14	42.5± 7.8	15.25± 8.69	26.11± 2.73	P>0.05
C group	30	18/12	45.0± 9.9	15.53± 7.45	26.22± 2.31	

Table 2 The Curative Effect comparation between two groups cases (%)

Group	Cases	Markedly improved	Effective	invalid	Total efficiency
E group	30	13(43.3)	15(50.0)	2(6.7)	93.3*
C group	30	8(26.6)	12(40.0)	10(33.3)	66.7

Notes: the comparison between Experimental group and Control group: *P<0.05.

2.2 This study found that after 3 months of treatment, patients in the experimental group who take western medicines orally while taking the metabolic balance decoction, had significant decrease in their body mass index, and a stable reduction in their blood pressure, fasting blood glucose, and an regulation of TC, TG, HDL- C levels; Those in the control group who only administered western medicines, can also had a reduction in the body mass index, blood pressure and fasting blood glucose, but the degree of reduction was not so significant as those in the experimental group. Besides, as for the lipid regulation, the western medicines decreased TG levels, and had no obvious regulation effect on TC, HDL-C regulation, See Table 3.

Table 3 Indicators Comparations of patients with MS between two groups after and before treatments: BMI,BP,FBG,BL ($\bar{x}\pm s$)

Indicators	Experimental group		Control group	
	Before treatment	After treatment	Before treatment	After treatment
BMI	26.11± 2.73	23.74± 1.69##*	26.22± 2.31	24.79± 1.44##
SBP(mmHg)	144± 9	125± 8##	143± 11	128± 9##
DBP(mmHg)	98± 9	79± 8##*	99± 10	84± 9##
FBG(mmol/L)	9.19± 2.39	6.82± 0.94##**	8.97± 2.44	7.63± 1.06##
TC(mmol/L)	6.06± 0.66	5.86± 0.47##	5.99± 0.59	5.92± 0.49
TG(mmol/L)	2.78± 1.03	1.90± 0.40##*	2.66± 1.04	2.02± 0.42##
HDL-C(mmol/L)	1.10± 0.42	1.35± 0.42#*	1.03± 0.41	1.13± 0.41

Notes: The comparation of each group before and after treatment: #P<0.05,## P<0.01; the comparation of two groups after treatment:*P<0.05, **P<0.05.

3 Discussion

With the modernization of life models and improvement of living standards, the changes have happened to population's

diseases notions, and the diseases caused by life styles and metabolism have gradually played a leading role. Wu Yuanmin and other scholars [9] have reported the prevalence of MS in the population of Shanghai: 11.02% of the population aged 50~59 have MS, and 25% of the population aged over 60 have MS. MS has quickly become a serious chronic disease in China now and a major cause of human health. Bai Xueqin and other researchers[10] have reported that the percentage of MS have risen as the civil servants and retirees in Beijing grow older and older, which is closely related to the change of life and work styles such as uptaking too much food high in heat, fat, sugar and protein, lacking exercise, irregular daily life and so on.

So far, there has not been a proper name for the MS in Chinese traditional medical science yet. Based on its clinical symptoms, it is categorized into obesity, diabetes, abdominal fullness, accumulation, chest numbness and pain, dizziness and so on[11-12], and it is also closely related to phlegm and stagnation. The main pathogenesis of MS is that emotional imbalance and overeating greasy and surfeit flavor can cause damp heat syndrome, turbid and phlegm obstruction, turbid and phlegm changes with qi, blocked qi, qi stagnation and blood stasis and phlegm accumulation with blood stasis wherever qi flows. All the changes have happened throughout the development of Metabolic Syndrome. Pouring turbid out to dissipate blood stasis and clearing away heat and eliminating dampness are the main rules of treatment. Danshen root, szechuan lovage rhizome, ginkgo leaf and hawthorn fruit in the metabolic balance decoction can activate blood to dissipate blood stasis; Kudzuvine root and barbary wolfberry fruit can invigorate energy and promote saliva; Indian buead and rhizoma alismatis can benefit water and eliminate phlegm and turbid; figwort root can clear away heat, cool blood and eliminate toxins and all these traditional Chinese medicines above can help to activate blood to dissipate blood stasis, promote saliva and slake thirsty, and clear away heat and eliminate phlegm.

In short, the metabolic syndrome is a psychosomatic disease related to heredity and environment, which involves multiple systems in the human body and multiple visceral organs and has a great harm to human body. Western medicines themselves can cause metabolic disorders, such as blood pressure drugs can make blood sugar and blood fat increase, blood fat drugs can increase blood sugar, and the medicines have a bigger adverse reaction, but Chinese traditional medicines relatively have a smaller adverse reaction, because the Chinese traditional medical science holds the holism and believes in the oneness of nature and human, and holds the prevention and cure idea that humans should prevent them before diseases happen and prevent the changes of diseases after they have got diseases. Therefore, Chinese traditional medical science has a natural advantage over the prevention and cure of the disease [13-15]. The experiment preliminarily proved that the metabolic balance decoction can lower patients' BMI, FBG, blood pressures, and blood glucoses and regulate their lipids and it is the effective recipe to intervene metabolic balance. Besides, its effects are more likely to be multi-way and multi-targeted and its exact mechanism requires further studies.

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代谢调衡饮治疗代谢综合征的临床疗效观察

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摘要 目的:考察代谢调衡饮治疗代谢综合征的临床疗效。方法:将 60 例代谢综合征患者随机分为试验组和对照组,对照组口服卡托普利和二甲双胍,试验组在此基础上加服代谢调衡饮,疗程 3 个月,观察两组治疗前后体重指数、血压、血糖、血脂等指标变化。结果:试验组有效率明显高于对照组(P<0.05)。与对照组相比,试验组患者治疗后体重指数、血压、血糖、血脂指标改善更明显(P<0.05 or P<0.01)。结论:代谢调衡饮对代谢综合征患者具有减重降压,降糖调脂功效,是干预代谢调衡饮的有效方剂。

关键词:代谢综合征;代谢调衡饮;卡托普利;二甲双胍
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