

A COMPARATIVE STUDY ON THE EFFECT OF DORASTRAGALUS AND TRAPINE ON THE IMPROVEMENT OF GLYCOLIPID METABOLISM IN THE ELDERLY PATIENTS WITH ESSENTIAL HYPERTENSION

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ABSTRACT

Objective: To study the differences in the effect of multi-salamcinolone and trayandiamide on glycolipid metabolism in elderly patients with hypertension.

Methods: From December 2016 to December 2018, 200 patients with hypertension were selected for this study, and the patients were randomly divided into two groups. In group A, the patients with group A were treated with a multi-sand treatment, and the treatment period was 2 months with the treatment of the patients with the group B. The differences in diastolic blood pressure, systolic pressure, fasting blood glucose, 2h postprandial blood glucose, cholesterol (TC), triglyceride (TG), low density lipoprotein (LDL) and high density lipoprotein (HDL) were compared between the two groups.

Results: The results showed no significant difference between the two groups before treatment ($P > 0.05$). After treatment, the diastolic blood pressure and systolic pressure of the two groups were lower than before treatment, but there was no statistical difference between the groups ($P > 0.05$). After treatment, the fasting blood glucose and postprandial blood sugar of the patients in group A and group B showed no significant difference ($P > 0.05$). TC, TG, LDL and HDL were all lower than before treatment. However, in group B, it was not as obvious as in group A ($P < 0.05$).

Conclusion: There was a positive effect of lowering blood pressure in elderly hypertension patients, but the effect of multi-sallow on the metabolism of glycolipids in elderly patients with high blood pressure was superior to that of Trajoba.

Keywords: Dorastragalus, trapine, old-age hypertension, glycolipid metabolism.

DOI: 10.19193/0393-6384_2020_4_342

Received November 30, 2019; Accepted January 20, 2020

Introduction

In recent years, with the improvement of living standards and changes in lifestyle, the incidence of hypertension is getting higher and higher, especially in the middle-aged and the elderly. In academic circles, hypertension is recognized as a high-risk factor for cardiovascular disease⁽¹⁻³⁾. Hypertension, especially in the elderly, is often accompanied by disorders of carbohydrate and lipid metabolism, and the disorder of blood glucose and lipid metabolism

will lead to atherosclerosis and so on, aggravating the risk of cardiovascular disease⁽⁴⁾. Doxazosin and terazosin are both α receptor blockers, which have a positive effect on the ability to control blood pressure in patients with hypertension⁽⁵⁾.

However, it is not very clear whether doxazosin and terazosin have any effect on glycolipid metabolism in patients with hypertension. Therefore, this study explored the effect of these two drugs on glycolipid metabolism in elderly patients with hypertension. This study is described as follows.

Materials and methods

Clinical data

Two hundred elderly patients with hypertension who were admitted to our hospital from December 2016 to December 2018 were selected. Using the random number table method, these patients were randomly divided into two groups: group A and group B. There were 100 patients in group A, with 58 males and 42 females who ranged in age from 61 to 78 years old, with an average age of (69±3.5) years old. Group B included 100 patients, with 55 males and 45 females whose age range was 63~76 years old, with an average age of (69±2) years old. The statistics of the age and gender of patients in the two groups are shown in table 1 below:

Group	Case(n)	Gender (n)		Age (year)	
		Male	Female	Age	Average age
A Group	100	58	42	61~78	69±3.5
B Group	100	55	45	63~76	69±2
<i>t</i>		0.904		0.732	
<i>P</i>		0.062		0.074	

Table 1: Statistical table of basic data of patients in the two groups.

Inclusion criteria

All patients selected for this study had to meet the following criteria:

- All of the patients had been diagnosed with hypertension (hypertension diagnostic criteria are presented in the Guidelines for the Revision of the Chinese Hypertension Prevention and Control Guide for Hypertension, 2010; 6);
- All patients were more than 60 years old;
- All patients were free of all system diseases, including brain, liver, kidney;
- All patients had good drug compliance;
- All patients and their families agreed to carry out the treatment. The sex and age of the two groups had no statistical difference ($P < 0.05$).

Methods

Patients in group A were treated with doxazosin, which was taken orally once a day before sleep with a dose of 2mg (the initial dose was 1mg). Doxazosin was produced by Kangmei Pharmaceutical Co., LTD. The batch number was national drug approval number H20000444.

Patients in group B were treated with terazosin, which was taken orally once a day before sleep with a dose of 2mg (the initial dose was 1mg). Terazosin

was produced by Hunan Shen Tai Chun Pharmaceutical Co., LTD. The batch number was national drug approval number H20067067.

During the treatment, all patients were on a light diet, maintained good work and rest habits, and engaged in appropriate exercise.

Evaluation index

Diastolic blood pressure, systolic blood pressure, fasting blood glucose, 2h postprandial blood glucose, cholesterol (TC), triacylglycerol (TG), low-density lipoprotein (LDL), high-density lipoprotein (HDL) and other indicators were compared between the two groups before and after treatment.

Blood pressure of the brachial artery was measured by cuff sphygmomanometer. Blood glucose and lipid were measured by automatic biochemical analyzer in the laboratory of our hospital.

Statistical methods

All the data in this study were statistically analyzed by SPSS19.0 software, and the measurement data were tested by the t-value test and chi-square χ^2 test for inter-group comparison.

The test standard was $\alpha = 0.05$, and $P < 0.05$ indicated statistical significance.

Results

Comparison between the two groups before treatment

As evident in table 2, there was no statistical significance in the blood pressure indices and carbohydrate and lipid indices between the patients in group A and group B ($P > 0.05$).

Project	A Group	B Group	χ^2	P
Systolic Pressure (mmhg)	161.7±7.2	163.9±5.7	0.962	0.074
Diastolic Blood Pressure (mmhg)	106.2±5.3	104.9±3.9	0.822	0.083
Fasting Blood-Glucose (mmol/L)	6.5±0.36	6.6±0.29	1.051	0.072
2h Postprandial Blood Glucose (mmol/L)	8.4±0.52	8.2±0.48	1.472	0.053
TC (mmol/L)	4.94±0.44	4.88±0.39	0.802	0.085
TG (mmol/L)	1.92±0.27	1.98±0.22	1.264	0.077
LDL (mmol/L)	2.86±0.28	2.93±0.21	1.835	0.051
HDL (mmol/L)	2.67±0.11	2.69±0.20	0.893	0.080

Table 2: Comparison of blood pressure, blood lipid index and blood glucose index of the two groups before treatment.

Comparison between the two groups after treatment

As evident in table 3, after doxazosin and terazosin were given to their respective groups, the blood pressure of both groups decreased, but there was no statistical significance in the blood pressure of the two groups after treatment ($P>0.05$). When blood glucose and lipid indices were compared, those for patients in group A were significantly better than in group B ($P<0.05$).

Project	A Group	B Group	χ^2	P
Systolic Pressure (mmHg)	140.7±8.5 ^a	139.1±6.8 ^a	1.375	0.064
Diastolic Blood Pressure (mmHg)	94.2±4.9 ^a	92.1±5.6 ^a	1.282	0.073
Fasting Blood Glucose (mmol/L)	4.4±0.42 ^a	5.6±0.36 ^a	4.631	0.036
2h Postprandial Blood Glucose (mmol/L)	7.07±0.18 ^a	7.90±0.32 ^a	5.832	0.019
TC (mmol/L)	3.86±0.07 ^a	4.32±0.12 ^a	4.987	0.022
TG (mmol/L)	1.12±0.06 ^a	1.43±0.17 ^a	5.014	0.021
LDL (mmol/L)	2.26±0.04 ^a	2.48±0.08 ^a	4.282	0.042
HDL (mmol/L)	1.70±0.12 ^a	2.12±0.19 ^a	6.182	0.013

Table 3: Comparison of the blood pressure, blood lipid and blood glucose index of the two groups before treatment. Note: ^arepresents the comparison with the corresponding data in table 2, $P<0.05$.

Discussion

With changes in lifestyle, hypertension is gradually becoming a more common disease, with high incidence. According to statistical data, the incidence of hypertension is more than 45% among people over 65 years of age in China⁽⁷⁻⁸⁾. Hypertension often leads to many other cardiovascular diseases, such as coronary heart disease. At the same time, in elderly patients, hypertension is usually accompanied by disorders of glucose and lipid metabolism, so hypertension patients are prone to chronic diseases such as atherosclerosis and diabetes⁽⁹⁾. Therefore, while controlling the blood pressure of patients with hypertension, attention should also be paid to glucose and lipid metabolism disorders.

Doxazosin and terazosin are both α receptor antagonists and are widely used in the treatment of hypertension. The main mechanism of reducing blood pressure is to inhibit the postsynaptic α receptor, reduce the resistance of peripheral blood vessels and play a role in reducing blood pressure⁽¹⁰⁾. In addition, it has been suggested that α receptor antago-

nism can also activate the 5-hydroxytryptamine (5-HT) receptor, which can reduce the regulation of the sympathetic nervous system by the cardiovascular center and play an antihypertensive role.

At present, both doxazosin and terazosin can reduce blood glucose and blood lipid to a certain extent, and their main mechanisms are as follows: increasing the activity of the LDL receptor, speeding up the transport and metabolism of LDL, decreasing the ability of cell cholesterol synthesis, increasing insulin sensitivity and correcting the bodyundefined resistance to insulin.

In animal experiments, the levels of blood glucose, TC and TG in rabbits with high fat diets were significantly decreased after 6 weeks of continuous treatment with doxazosin and terazosin⁽¹¹⁾. Therefore, this study investigated the effect of doxazosin and terazosin on glycolipid metabolism in elderly patients with hypertension.

In this study, 200 patients were randomly divided into two groups. Group A patients were treated with doxazosin, while group B patients were treated with terazosin. The treatment period for both groups was 2 months. Before treatment, diastolic blood pressure, systolic blood pressure, fasting blood glucose, 2 h postprandial blood glucose, TC, TG, LDL and HDL were not statistically significant ($P>0.05$).

After treatment, systolic and diastolic blood pressure decreased significantly in both groups, and there was no significant difference in the degree of decrease between the two groups ($P<0.05$). In comparison with the indices for fasting blood glucose, 2h postprandial blood glucose, TC, TG, LDL and HDL, the patients in group A were significantly lower than those in group B ($P<0.05$). According to the current study, the main effect of doxazosin on the decrease of glycolipid was that doxazosin can promote the entry of glucose and insulin into skeletal muscle cells, increase the uptake of glucose, reduce the decomposition of adipose tissue and improve the utilization of carbohydrates in surrounding tissues⁽¹²⁾.

To sum up, doxazosin and terazosin had good antihypertensive effects, but in improving glycolipid metabolism in elderly patients with hypertension, the effect of doxazosin was better than that of terazosin.

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