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PRELIMINARY STUDY ON SUGAR TOLERANCE AND HYPOGLYCEMIC EFFECTS OF EXTRACTS FROM PHYSALIS ALKEKENGI L.VAR FRANCHETII(MAST.) MAKINO

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Abstract:OBJECTIVE: 1.To observe the effect of ethanol extract of physalis alkekengi L.var franchetii(Mast.) Makino on the sugar tolerance of ICR mice.METHODS: 1.Study on the sugar tolerance effects of ethanol extract of physalis alkekengi L.var franchetii(Mast.) Makino by Blood Sugar accumulation in ICR Mice. RESULTS:1. The sugar tolerance of ICR mice was significantly improved by the water extraction and alcohol extraction of physalis alkekengi L.var franchetii(Mast.) Makino. CONCLUSION: 1.Pharmacological experiments showed that the dry physalis alkekengi L.var franchetii(Mast.) Makino, the alcohol extract solution can significantly improve the sugar tolerance of sucrose in mice, and the effect of the alcohol extraction was higher than that of the positive group of acarbose.

KEYWORDS: physalis alkekengi L.var franchetii(Mast.) Makino; Diabetic nephropathy; Sugar tolerance

Physalis alkekengi L.var.franchetii （Mast.） Makino (PAFM)was born in Shen Nong’s Materia Medica, named acid sauce, as the goods. Stay calyx bitter, slightly acidic, cold, go to the lungs. With detoxification, diuretic Tonglin, Liyan phlegm and other effects [1]. Physalis alkekengi L.var.franchetii （Mast.） Contains chemical constituents such as flavonoids, terpenes, lactones, alkaloids, sterols, amino acids and inorganic elements, In the body to play a different pharmacological effects [2].

1.Materials and Methods

1.1experimental animals SPF grade ICR male mice, weighing 18-22g ,feeding Heilongjiang University of Traditional Chinese Medicine Safety Evaluation Center.

1.2Drugs and reagents Akapo sugar (Beijing Bayer Healthcare Co., Ltd.) Sucrose (Tianjin Fuchen Chemical Reagent Factory) physalis alkekengi L.var franchetii(Mast.) Makino alcohol extract solution, physalis alkekengi L.var franchetii(Mast.) Makino water solution (by the laboratory homemade)

1.3Instruments electric constant temperature water bath (Shanghai Bo News Industrial Co., Ltd. medical equipment factory, model HHS), Blood glucose test paper (Huagang Biotechnology Co., Ltd. Daqing plant), blood glucose meter (Huaguang Biotechnology Co., Ltd., model: Shu Lin partner GM260), electronic balance (METTLER TOLEDO Instruments (Shanghai) Co., Ltd. AL204)

2.Experimental methods Fifty male ICR mice were randomly divided into five groups: control group, acarbose group (positive drug group), model group, physalis alkekengi L.var franchetii(Mast.) Makino water administration group, physalis alkekengi L.var franchetii(Mast.) Makino ethanol administration group, come into the experiment. The control group and the model group were given the same amount of normal saline solution, the positive group was treated with 25.0mg/kg of acarbose, the coronite and the water administration group were treated according to the surface area of human and rat the equivalent dose was administered at 9.1 times the normal adult dose (g/kg).The rats in the control group were given the same amount of normal saline, and the other groups were given sucrose 4.0g/kg. After 30 min and 60 min and 120min, respectively, the tail of the mouse blood, the determination of its blood glucose.

3.Experimental results The experimental data were processed by SPSS 17.0, A single factor analysis of variance was used to compare between groups,The results are expressed as mean ± standard deviation (s± x).

Table 1 Effects of sugar tolerance of Extracts from PAFM blood glucose level mmol/l(s±x)

Groups	Normal blood glucose level	30min	1h	2h
Normal control group	7.93±1.4430	8.68±1.8749	10.07±2.0434	10.02±2.1217
Model group	9.41±1.4161	10.8±1.6275	10.53±1.5210	11.04±1.9817
Akapo sugar group	8.38±1.2577	9.10±1.1766*	8.87±1.1757*	9.42±1.4832
Water extract group	9.63±1.1456	9.31±1.2554*	10.39±1.5759	10.58±1.7261
Ethanol extract group	8.81±1.1377	8.5±1.3671**	8.46±1.2313**	8.55±1.7373**

Note: Compared with the model group, * P <0.05, ** P <0.01

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EFFECT OF ZHENGANXIFENG DECOCTION ON AORTIC FIBROSIS IN RATS WITH ESSENTIAL HYPERTENSION

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Abstract Hypertension has become a major chronic disease affecting the health of residents in China.The decoction of Zhenganxifeng can be used in the treatment of hypertension. The effect of this prescription in the treatment of hypertensive rats was proved in the experiment. In recent years, studies have shown that the town of Zhenganxifeng decoction can play a role in reducing blood pressure through multiple targets.SHR rats, with Kato Pury as a positive control medicine, observation of Zhenganxifeng Decoction on the antihypertensive effect of primary hypertension and detection of rat aortic TGF- beta 1, collagen type CTGF, relative gene expression and Smad2 protein expression influence. It is concluded that Zhenganxifeng decoction can decrease the blood pressure and inhibit the fibrosis of aorta in rats.

Key words: Zhenganxifeng Decoction, Essential hypertension, Aortic fibrosis

Hypertension has become a major chronic disease affecting the health of residents in our country, according to statistics, China has more than 2.66 million patients with hypertension. [1-2] High blood pressure can lead to hardening of the arteries, and accelerate the formation of atherosclerosis, and ultimately lead to brain, heart, kidney and other important organs ischemia, hypoxia and dysfunction.Arterial wall fibrosis is the common pathological basis of various types of atherosclerosis. It has been proved in animal models that hypertension can lead to aortic fibrosis.

Zhenganxifeng decoction can regulate the renin angiotensin aldosterone system, inhibition of TGF- beta 1 and IGF-1 expression, promote collagen degrading enzyme produced so as to reduce blood pressure, inhibit myocardial fibrosis [3].

Objective In this study, SHR rats were used to observe the effect of Zhenganxifeng Decoction on reducing blood pressure and inhibiting aortic fibrosis in rats with essential hypertension.

Materials and methods Male SHR rats and male Wistar rats, conventional extraction of Decoction,positive selection card Topri. 10 Wistar rats were divided into blank group, 40 SHR rats were randomly divided into two groups, each group consisted of 10 rats. Model group, positive drug group (Kato Pury), high dose group, low dose group. Rats were given 1ml per 100g, once a day for 4 weeks.

Results and discussion Compared with blank group, the blood pressure of each group increased, the difference was statistically significant (P<0.05 or P<0.01), Compared with the model group, the blood pressure of each group was reduced, and the difference was statistically significant (P<0.01). Compared with the model group, the decoction can reduce the blood pressure and inhibit the relative expression of TGF- beta 1, collagen type I, CTGF gene and the expression of Smad2 in aorta, and decrease the expression of protein.

The process occurs in the aortic fibrosis development, TGF- beta 1 plays a key role in the cell factor, its overexpression can promote the synthesis of extracellular matrix, accelerate fibroblast proliferation, differentiation, the formation of myofibroblast. Smad protein family is the most important substrate of TGF- beta receptor, which can transduce the signal of TGF- 1 into the cell, promote cell proliferation and differentiation. The excessive synthesis of intracellular a-SMA and collagen can accelerate the development of aortic fibrosis. CTGF is a kind of induced fibrosis protein induced by TGF- beta 1, which is the downstream substance of TGF- beta 1. At the same time, CTGF is an important regulator of TGF- beta 1 activity, and the interaction between them is regulated by transcriptional regulation. The mechanism may be related to the activation of TGF- beta 1 response element and its protein.