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PROGRESS ON THE PHARMACOLOGICAL ACTIONS OF DANSHENSU

QIAN Si-yuan, ZHANG Bo, LI Wei, XU Yang, HUANG Shu-ming*

(Institute of Chinese Medicine, Heilongjiang University of Chinese Medicine, Haerbin 150040, China)

Abstract Salivia miltiorrhiza is a traditional Chinese medicine, which is extensively used in treatment of cardiovascular treatment. The water-extractable component of the medicinal herb Danshen(Salvia miltiorrhiza) is Danshensu, which had become one of the research central point. This study summarizes its pharmacological research of danshensu focused on the characteristics of the activity.

Keyword: Salivia miltiorrhiza; Danshensu; pharmacological actions

Introduction The family of Labiatae includes Salvia miltiorrhize, which the dried roots were called danshen. Traditional Chinese medicine of danshen was often used for treatment of cardiovascular diseases, such as effective for promoting blood circulation, relieving blood stasis, angina pectoris, myocardial infarction and stroke. Mechanism may involve that Danshen has ability to enhance of antioxidant defenses activities and reduce or eliminate the free radicals. Meanwhile, Danshen has also been proved to attenuate the increased calcium in cells caused by anoxia-reoxygenation in the isolated ventricular muscle cells. It decreases transformation of xanthine oxidase from xanthine dehydrogenase and reducing the production of oxygen free radicals[1].

The components of Danshen can be divided into lipid-soluble and water-soluble. The lipid-soluble fraction contains that more than 30 diterpenoid tanshinones. On the other hand ,the water-soluble fraction includes that salvianolic acid B lithospermic acids, protocatechuic acid. rosemarinic acid. Water decoction is the most commonly used method of preparing Chinese folk medicine for human consumption. So, the putative active components of its aqueous extract are Danshensu. We hope more viewers will appreciates the approach of traditional Chinese medicine[2].

Pharmacological actions of Danshensu Danshensu improves of cardiovascular dysfunction

Myocardial hypertrophy caused by adaptive response of the heart muscle for overload of blood. The compensatory drawbacks, mainly because of myocardial hypertrophy increased aerobic, and coronary blood flow, often can’t meet their needs, so the hypertrophy myocardial function if cannot maintain normal for a long time, finally induce to cardiac failure. Tang[3] and others evaluated the protective effect of the myocardial hypertrophic rats induced by Danshensu, and the frist reported that Danshensu can reverse the middle crevice of the mind.

Prevention and treatment of atherosclerosis Endothelial injury is recognized as the initiating factor of atherosclerosis. Low density lipoprotein, which induces the proliferation of smooth muscle cells that an important factor of atherosclerosis. Zheng[4]discovered that Danshensu can significantly reduce expression of PDGF-BB bu suppress low density lipoprotein. The results showed that the anti-oxidant low density lipoprotein can reduce the proliforation of the smooth muscle cells, which may be reponsible for lowering the expression level of PDGD-BB.

Danshensu has effect of anti-cancer Zhang[5] evaluated with antitumor activity of B16F10 melanoma cells and HUVEC proliferation, but decline the expression of MMP-2,9 and VEGF in the cells. In animal experiments, Danshensu significantly inhibits spontaneous and experimental B16F10 melanoma cells models of transfer. So these results suggest that Danshensu can be an anti-tumor effect by inhibiting tumor angiogenesis and tumor invasion[6].

Conclusions To sum up, with deepening the research, which is increasingly clear. Phaarmacological activities and mechanisms of continuously new pharmacological effects were found, and hope that with the early in disease prevention and control can be made full use of propotion the development of traditional Chinese medicine moderniz

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Author: QIAN Si yuan: email: XY223126@163.com HUANG Shu-ming email: huangshuminghljzyy@126.com Address: Heilongjiang University of Traditional Chinese Medicine, Harbin, Heilongjiang, Heping Road, No.24, 150040

STUDY ON METABOLISM OF THE MAIN ACTIVE COMPONENTS OF HUAQIZEREN TREATING TYPE 2 DIABETES WITH INSULIN RESISTANCE IN THE INTESTINAL FLORA

Qijing Huang1, Pengyang Yu1, Nannan Xing1, Pengling Ge1, *

1Department of Pharmacology, School of Basic Medical Sciences, Heilongjiang University of Chinese Medicine, Harbin 150040, China *Corresponding authors: Pengling Ge, Department of Pharmacology, School of Basic Medical Sciences,Heilongjiang University of Chinese Medicine, 24 Heping Road, Harbin 150040, China; E-mail: pengling-ge@126.com

Objective Huaqizeren is effective experience prescription for treating type 2 diabetes with insulin resistance. Through the metabolism study on main activeingredients of Huaqizeren in vitro and in vivo intestinal flora, we identified structure of metabolites, explored the relationship between the prototype components and metabolic products, and analysed the metabolism pathway about main active ingredients of Huaqizeren and their metabolites in intestinal flora in vivo, clarified the metabolism process in vivo and material basis of Huaqizeren treating type 2 diabetes with insulin resistance.

Materials and methods Intestinal bacteria metabolism experiment in vitro: To study the metabolism of the main active components of Huaqizeren in rat intestinal flora using culture methods in vitro, detect the content of main active components of Huaqizeren, identified structure of metabolite using UPLC-Q-TOF-MS analysis method, in order to investigate the its biological activity and safety.Intestinal bacteria metabolism experiment in vivo: After the mice were ig administered with Huaqizeren, we respectively collected 4 h and 12 h cumulative fecal, and quickly opened the abdominal cavity, removed the cecal contents after animal were sacrificed. Feces and the contents of the appendix were fully dissolved with 4 times MeOH, 12000 r·min-1 centrifuged for 15 min, the prototype compounds and their metabolites in supernatant were rapidly separated and determined by UPLC-Q-TOF-MS analysis to investigate intestinal bacterial metabolism of the main active ingredients of Huaqizeren.

Results The main active ingredients of Huaqizeren Ginsenoside-Rb1 (G-Rb1)、Alisol A 24-acetate and 9-hydroxy-octadecadienoic acid (9-HODE) could be metabolized by the intestinal flora, and the metabolism of G-Rb1 in the intestinal flora is faster, while Alisol A 24-acetate and 9-HODE metabolic rate is relatively slow. The study identified 4 metabolites of G-Rb1, such as Ginsenoside-Rd (G-Rd)、Ginsenoside-F2 (G-F2)、Compound K (C-K)、and 20(S)protopanaxadiol (Ppd), only one metabolite of Alisol A 24-acetate was Alisol A.

Conclusion Through intestinal bacteria metabolism experiments in vitro and in vivo, the study clarified that the metabolic regularity of main active components of Huaqizeren and its metabolites in intestinal flora, and identified structure of metabolites, it has vital significance to clarify pharmacodynamic material basis、metabolic process and rational administration after administration of the Huaqizeren.

Key words: Type 2 diabetes mellitus; Insulin resistance; Huaqizeren Intestinal flora; Metabolite

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