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THE PROTECTIVE EFFECTS OF JIAWEI BUYANG HUANWU DECOCTION ON VASCULAR ENDOTHELIA AND MECHANISM AFTER ILIAC ARTERY BALLOON INJURED IN RABBITS

Zhou Bin[1], Hao Baoshun[1], Zhu Jieming[1], Liu Yong[1], Wang Ming[1], Wu Lin[1], Chen Lin[1], Liu Jinlai[1], Wu Weikang[2] *[1]Department Of Cardiology Of The Third Affiliated Hospital, Sun Yat sen University, Guangzhou, China; [2]Institute For Integrated Traditional Chinese And Western Medicine Of The Third Affiliated Hospital, Sun Yat Sen University, Guangzhou, China*

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Aim To investigate the protective effects of Jiawei Buyang Huanwu Decoction on vascular endothelial function and mechanism after iliac artery were injured by balloon in diet-induced atherosclerotic rabbits.

Methods (1) The experiment was conducted in the Laboratory of Institute for Integrated Traditional Chinese and Western Medicine, Sun Yat-sen University from May 2006 to June 2007. Twenty four male New Zealand albino rabbits, were randomised and divided into three groups, called control group, model group and drug group respectively. Each group contained eight rabbits. (2) Rabbits of control group were fed with common forage, but model group and drug group fed with high fat

diet. Two weeks later, the iliac arteries were injured by balloon for model group and drug group. Meanwhile, drug group were fed with Jiawei Buyang Huanwu Decoction after the operation, 2 ml/kg/day, containing herbal drug 5 g/ml. (3) At the end of four weeks, the rabbits were killed. Serum samples were stored to assay the levels of cholesterol (total cholesterol (TC), high-density lipoprotein of cholesterol (HDL-C), low -density lipoprotein of cholesterol (LDL-C), and triglyceridemia (TG)), activity of superoxide dismutase (SOD) and levels of malondialdehyde (MDA). Injured iliac artery was fixed by neutral formalin to observe the endothelial hyperplasia by light microscope, and the results were analysed by picture analysis system. (4) Differences of measurement were compared with single factor analysis of variance as well as repetitive measurements analysis of variance.

Results One rabbit died in every group during the trial, 21 rabbits were involved in the results analysis. (1) Light microscope showed that the vascular lumina were narrower, intima was thicker and there were more enormous arteriosclerosis plaques in model group rabbits than that of control group. The lumina were wider and intima was thinner in drug group than that of model group. Image analysis showed that the thickness of intima in model group exceeded that in control group and drug group ($p<0.05$). The area of lumina was smaller than that of control group and drug group ($p<0.05$). (2) The serum levels of TC, TG and LDL-C were higher in rabbits of drug group than that of control group ($p<0.05$), But lower than that of model group ($p<0.05$). the serum level of HDL-C was higher in drug group than that in control and model group ($p<0.05$). (3) The serum SOD activity in drug group was higher than that of model group ($p<0.05$). The serum MDA level in control group was lower than that of model group and drug group, and the serum MDA level in drug group is lower than that of model group ($p<0.05$).

Conclusion Jiawei BHD has significant preventive effect on intimal hyperplasia and the development of atherosclerosis in rabbits with iliac artery injury, and the mechanism of which may be related to modify lipid metabolism, increase SOD activity and decrease lipid peroxidation to protect vascular endothelial function.