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中文摘要:代谢性心血管病是以机体糖类或脂质代谢紊乱为主要病因的一类心血管疾病,其中2型糖尿病又是典型的代谢性疾病,它不仅会使人产生胰岛素抵抗,更与动脉粥样硬化有关。由活性氧/活性氮产生的氧化应激是引起动脉粥样硬化的一个重要因素,而线粒体不仅是活性氧/活性氮的来源,更是其作用靶点,现有证据表明,线粒体功能障碍是导致心血管损伤的一种机制。文章从活性氧/氮所引发的线粒体功能障碍入手,介绍了二者过量后所激发的线粒体凋亡通路对动脉粥样硬化的影响,就二者通过影响脂代谢及诱发2型糖尿病,继而产生心血管疾病做一综述,并介绍了麦冬、紫河车、人参、葛根和白毛藤等数味中药通过抗ROS/RNS及影响线粒体凋亡通路,从而达到治疗作用。而且以上诸味中药还有诸如抗癌和抗疲劳等作用,有别于经典西药作用的单一性,显示了中药作用的多面性。

中文关键词:活性氧/活性氮 线粒体功能障碍 凋亡 动脉粥样硬化 中药

### Mitochondrial dysfunction induced by excessive ROS/RNS-metabolic cardiovascular disease and traditional Chinese medicines intervention

Abstract:Metabolic cardiovascular disease is a type of disease which almost caused by body carbohydrate and lipid metabolism dysfunction. Type 2 diabetes mellitus is a typical metabolic disease. It not only lead to the insulin resistance but also related to atherosclerosis. Oxidative stress is produced by the reactive oxygen/nitrogen species(ROS/RNS). Oxidative stress and its consequence events play important roles in atherosclerosis (AS). Mitochondria are both sources and targets of reactive oxygen and/or nitrogen species (ROS/RNS), and there is growing evidence that mitochondrial dysfunction may be relevant intermediate mechanism by which cardiovascular risk factors lead to the formation of vascular lesions. Several cardiovascular risk factors are demonstrated causes of mitochondrial damage. This review starts with excessive ROS/RNS-induced mitochondrial dysfunction. The authors emphasize the relationship among axis of excessive ROS/RNS-mitochondrial dysfunction-apoptosis-atherosclerosis. They also introduce several traditional Chinese medicines such as *Ophiopogon japonicus*, *butin*, *Panax ginseng*, *Pueraria lobata*, *Solanum lycratum* and so on in the treatment of relevant diseases through anti-ROS/RNS mechanism. Moreover, the TCMs also can anti-cancer and anti-fatigue, which show the speciality of TCMs different from the single effect of classical western medicines.

keywords:reactive oxygen species reactive nitrogen species mitochondrial dysfunction apoptosis pathway atherosclerosis

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