University of Macau

Abstract

The inhibitory effect of l-tetrahydropalmatine (l-THP) on TNF-alpha-induced adhesion molecule expression in human endothelial cells

by Yu Nan

Thesis Supervisor: Dr. Ming Yuen LEE

Chinese Medicinal Science

Atherosclerosis (AS) is a variety of cardiovascular and cerebrovascular diseases pathophysiological basis, mainly involving large and medium-sized arteries which can lead to heart, brain, and other organs and tissues ischemic necrosis, myocardial infarction, and brain death and so on. The pathogenesis of atherosclerosis involves a complex series of events, similar to a chronic inflammatory process, with the formation of atherosclerotic plaque as the end result.

Corydalis yanhusuo also called Rhizoma corydalis is well known as a traditional Chinese herbal medicine, prepared from the dried tubers of Corydalis yanhusuo W.T. Wang, It has gained ever-increasing popularity in today's world because of its therapeutic effects for promoting blood circulation, reinforcing vital energy and alleviating pain such as headache, chest pain, epigastric pain, abdominal pain,

backache, arthralgia or trauma. The chemical constituents of Corydalis yanhusuo W.T. Wang have been investigated in some detail like tertiary and quaternary alkaloids, including dehydrocorydaline (DHC), Berberine corydaline, tetrahydropalmatine (THP), protopine, Boldine , palmatine , tetrahydrocoptisine, tetrahydrocolumbamine and corybulbine. And *l*-THP is regarded as a characteristic and active constituent of Corydalis yanhusuo W.T. Wang and the content of l-THP is the main criterion of its quality assurance and control.. *l*-THP was demonstrated as a very effective monoamine depletory in the brain that has excellent neuroprotective effects such as analgesic ,sedative and hypnotic actions. Recently, *l-THP was* proved to be a potential candidate to cure the diseases, such as anti-arrhythmic, anti-hypertensive and prevention of ischaemic-reperfusion injury. However, the biological effects of *l*-THP on Atherosclerosis and the underlying mechanisms are unclear yet. This investigation describes the protective effects of *l*-THP of AS on HUVEC *in vitro*. *l*-THP could deceased the adhesion of THP-1cell and HUVECs , 30 micromolar of *l*-THP-treatment inhibited the TNF-a induced expression of VCAM-1 and ICAM-1 by western blotting, Flow and ELISA assay . Immunostaining assay show that *l*-THP could regulated NF-kB translocation. Furthermore. *l*-THP was found to decreased ICAM-1 and VCAM-1 mRNA expression by real-time PCR, Our results suggest that *l*-THP inhibits the expression of molecules involved in the inflammatory process, therefore it could be used as an alternative in the treatment of chronic inflammatory diseases such as atherosclerosis.

Key words: Atherosclerosis, *l*-THP, adhesion, HUVECs