

Cryptotanshinone inhibits TNF- α -induced early atherogenic events in vitro

Abstract

Endothelial dysfunction has been implicated in the pathogenesis of atherosclerosis. *Salvia miltiorrhiza* (danshen) is a traditional Chinese medicine that has been effectively used to treat cardiovascular disease. Cryptotanshinone (CTS), a major lipophilic compound isolated from *S. miltiorrhiza*, has been reported to possess cardioprotective effects. However, the anti-atherogenic effects of CTS, particularly on tumor necrosis factor- α (TNF- α)-induced endothelial cell activation, are still unclear. This study aimed to determine the effect of CTS on TNF- α -induced increased endothelial permeability, monocyte adhesion, soluble intercellular adhesion molecule 1 (sICAM-1), soluble vascular cell adhesion molecule 1 (sVCAM-1), monocyte chemoattractant protein 1 (MCP-1) and impaired nitric oxide production in human umbilical vein endothelial cells (HUVECs), all of which are early events occurring in atherogenesis. We showed that CTS significantly suppressed TNF- α -induced increased endothelial permeability, monocyte adhesion, sICAM-1, sVCAM-1 and MCP-1, and restored nitric oxide production. These observations suggest that CTS possesses anti-inflammatory properties and could be a promising treatment for the prevention of cytokine-induced early atherogenesis.

Keyword: Cryptotanshinone; Nitric oxide; Soluble cellular adhesion molecule \square TNF- α ; Monocyte adhesion; Chemokine