

Inhibitory Effects of Ferulic Acid Ethyl Ester (FAEE) on Leptin-Induced Proliferation of Rat Aortic Smooth Muscle Cells

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The abnormal proliferation of vascular smooth muscle cells (VSMCs) in arterial wall is an important pathogenic factor for vascular disorders such as atherosclerosis and restenosis after angioplasty. Leptin is a peptide hormone which plays a central role in the regulation of body weight. Leptin exerts many potentially atherogenic effects such as induction of endothelial dysfunction, migration, hypertrophy and proliferation of VSMC. Ferulic Acid is widely exist in *Angelica sinensis*, *Ligusticum chuanxiong* and so on Chinese medicine, has been approved for anti-inflammatory and antioxidant properties. Ferulic Acid Ethyl Ester (FAEE) is an ester derivative of ferulic acid, the latter known for its anti-thrombus, analgesia, and regulation of immunologic function. The aim of this study was to investigate whether FAEE can inhibit the VSMC proliferation induced by leptin and the possible molecular mechanism of its action. Rat aortic smooth muscle cells (A10 cells) were serum-starved and subsequently treated with leptin at increasing concentrations 0.06, 0.6, or 6 nM for 72h. Leptin enhanced the proliferation of A10 cells in a dose-dependent manner. In transwell migration assay, the A10 cells were seeded into the insert and move through the pores of the membrane at the bottom of the insert in a dose-dependent. In addition, these effect of leptin were all restrained by pretreatment with FAEE (1 μ M) in A10 cells. Further studies are required to clarify the mechanism of FAEE on the leptin-induced atherogenic effects. This study provides a rationale for the therapeutic use of FAEE for atherosclerosis in obesity.