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TILIANIN PREVENTS DIET-INDUCED ATHEROSCLEROSIS BY INHIBITION OF NUCLEAR FACTOR κB (NF-κB) ACTIVATION IN LDL RECEPTOR DEFICIENT MICE

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Tilianin, purified from acrial part of *Agastache rugosa* Kuntze, reduces progression and may induce some regression of aortic foam cell formation in low density lipoprotein receptor deficient mice (LDLR -/- mice). We investigated whether tilianin can prevent high fat diet-induced atherosclerosis. Twenty-six male mice were divided into three groups. One group of mice received high fat diet (1.25% cholesterol, 15% fat and 0.5% sodium cholate) and two groups of mice received high fat diet plus 1 mg/kg lovastatin and 250 mg/kg tilianin, respectively. After 8 weeks, mice were sacrificed and total cholesterol, HDL cholesterol, triglyceride and aortic foam cell development were determined. Mice fed high fat diet with tilianin had slightly lower levels of total cholesterol than those fed the unsupplemented high fat diet. The development of foam cells between the third neck vessel and 1mm above the aortic valve was significantly reduced by 41.9% compared with control group (P <0.01). To elucidate the possible mechanisms of anti atherogenic effect, we investigated the anti-inflammatory actions of tilianin on NF-κB, nitric oxide (NO) inducible nitric oxide synthase (iNOS), IL-6 gene expression in RAW264.7 cells. Tilianin was negatively regulated iNOS promoter activity in transiently transfected RAW264.7 cells and decreased NO production. The decrease in LPS induced IL-6 expression was demonstrated by reverse transcription-polymerase chain reaction (RT-PCR). These

results indicate that tilianin ameliorated atherosclerosis by the inhibition of NF-κB dependent expression of iNOS and proinflamatory cyokines