Effect of trilinolein on superoxide dismutase activity and mRNA levels in aortic smooth muscle cells.

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摘要

Abstract

1. Atherosclerotic cardiovascular disease is still the leading cause of death in Western countries. Oxygen free radicals are considered to be intimately involved in the development of atherosclerosis. Anti-oxidants may help to protect mammalian cells from the damage induced by these reactive oxygen species. Many reports have indicated that anti-oxidants used in the treatment or prevention of disease could modify the levels of superoxide dismutase (SOD). However, the effects of long-term anti-oxidant treatment on the levels of SOD in smooth muscle cells (SMC) is still unclear. In the present study, the effects of the lipophilic anti-oxidant trilinolein on the activity and gene expression of SOD in SMC were evaluated. 2. After 2 days incubation with 0.1 micromol/L trilinolein, the activity and mRNA levels of SOD were increased in rat aortic SMC (A7r5), but there was no significant change in these parameters with a higher concentration of 1 micromol/L trilinolein. 3. In contrast, after 7 days incubation with trilinolein, both the activity and mRNA levels of SOD were lowered in a dose-dependent manner. 4. These data emphasize the importance of choosing an optimal dosage for supplementation with anti-oxidants in humans for the scavenging of oxygen free radicals.

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