Effect of trilinolein on the activity and gene expression of superoxide dismutase in cultured rat brain astrocytes.

陳保羅

Chiu WT;Chan P;Liao SS;Liou JR and Cheng JT

摘要

Abstract

Cerebrovascular disease is one of the major causes of morbidity and mortality in recent. Oxygen free radicals produced during cerebral infarction increases the damage to neurons. Superoxide dismutase (SOD) is the endogenous antioxidant enzyme that can effectively scavenge superoxide radicals. Trilinolein is a lipophilic antioxidant purified from the herb of Panax pseudoginseng. In the cultured rat brain astrocytes (RBA), the activity of SOD (both Cu,Zn-SOD and Mn-SOD subtypes) was markedly increased by incubation with trilinolein at low concentration (0.1 μM) for 2 days. This stimulatory effect of trilinolein was not related to the incubating concentration. However, long-term (7 days) incubation with trilinolein at same concentration decreased the activity. Similar changes were also observed in the gene expression of SOD in RBA; short-term (2 days) incubation of RBA by 0.1 μM trilinolein increased the mRNA level that was lowered in RBA received a long-term incubation with 0.1 μM trilinolein. This result shows that trilinolein is an effective antioxidant to increase the activity of SOD in RBA which would be beneficial to neurons subjected to oxygen free radical damage. However, long-term medication of antioxidant shall be concerned.

.