Abstract: Increasing numbers of experimental and epidemiological studies suggest the involvement of free radicals in the pathogenesis of various disease entities. Similarly, oxidative processes have been implicated as playing roles in the genesis of hyperthyroidism-induced damage. In this study, we investigated the effects of vitamin E and vitamin C on plasma lipid peroxidation and the susceptibility of apolipoprotein B (apo B)-containing lipoproteins to oxidation in experimental hyperthyroidism. The study animals were initially divided into a control group (Group C) and a hyperthyroid group. The latter was further re-grouped later according to their vitamin supplementation status: Hyperthyroid group without vitamin supplementation (Group H), hyperthyroid group with vitamin E supplementation (Group H+E) and hyperthyroid group with vitamin C supplementation (Group H+C).

Malondialdehyde (MDA) level was measured as an indicator of plasma lipid peroxidation. The apo B-containing lipoproteins were separated by precipitation and incubated with copper sulphate. The MDA levels of this non-HDL fraction were measured prior to and after 1, 2 and 3 hours of incubation. Plasma MDA levels showed no significant differences among groups. Whereas MDA levels measured in non-HDL fraction were significantly higher in Group H than Group C. Group H+E and Group H+C had significantly lower MDA levels than Group H in all these measurements. This finding strongly indicates an increased susceptibility of apo B-containing lipoproteins to oxidation in hyperthyroidism, and that vitamin E as well as vitamin C supplementation protect these lipoproteins from copper-induced oxidation. J. Med. Invest. 46: 29-33, 1999

Keywords: hyperthyroidism, vitamin E, vitamin C, oxidized lipoproteins
Isolation of non-HDL fraction

Other measurements

Statistical Analyses