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Antioxidant status and lipoprotein peroxidation in chronic fatigue syndrome.

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The aetiology and pathogenesis of the Chronic Fatigue Syndrome (CFS) are still largely unresolved. Accompanying metabolic disorders such as selective n-6 fatty acid depletion suggest that oxidative stress and more specifically lipid peroxidation might play a role in its pathogenesis. In order to investigate this hypothesis, oxidant-antioxidant status and its impact on lipoprotein peroxidation in vitro was examined in 61 patients with unexplained fatigue lasting more than 1 month. They were subdivided into 2 groups: group CFS+ (33 subjects) fulfilled the 1988 Center of Disease Control criteria for CFS and group CFS- did not but was similar as regards age, sex distribution and clinical characteristics.

Antioxidant status was similar in the 2 groups except for lower serum transferrin in the CFS+ (mean (95 % CI) 2.41 (2.28-2.54) versus 2.73 (2.54-2.92) g/L in the CFS-, $p = 0.009$) and higher lipoprotein peroxidation in vitro: 6630 (5949-7312) versus 5581 (4852-6310) nmol MDA/mg LDL and VLDL cholesterol x minutes, $p = 0.035$). CFS intensified the influence of LDL cholesterol ($p = 0.012$) and of transferrin ($p = 0.045$) on peroxidation in vitro, suggesting additional pro-oxidant effects. These results indicate that patients with CFS have increased susceptibility of LDL and VLDL to copper-induced peroxidation and that this is related both to their lower levels of serum transferrin and to other unidentified pro-oxidising effects of CFS.

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