CARDY-70

CORRELATION BETWEEN PLASMA ALPHA-TOCOPHEROL AND GLUTATHIONE LEVELS AND LIPID PEROXIDATION IN CORONARY ARTERY DISEASE (CAD)

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BACKGROUND - Considerable evidence suggests that oxidative stress is a major event in the development of atherosclerosis. Epidemiologic studies suggest an association between increased antioxidant intake, especially of α-tocopherol, and reduced morbidity and mortality from coronary artery disease.

METHODS - We studied 65 newly referred CAD patients and 61 age- and sex-matched control healthy subjects. As a marker of oxidative stress, plasma malondialdehyde (MDA) as thiobarbituric acid reactive substances (TBARS), plasma concentration of α-tocopherol by HPLC after extraction of plasma and glutathione (GSH) as co-antioxidant were measured.

RESULTS - α-Tocopherol was significantly decreased in CAD patients (28.55μmol/L) compared with controls (32.07μmol/L; $p = 0.007$). The patients had significantly lower glutathione (GSH) levels (43.01nmol/L) compared with controls (124.44nmol/L; $p < 0.05$). MDA concentration was significantly higher in patients (114.93nmol/L) compared with controls (50.48nmol/L; $p < 0.005$). We calculated the amount of α-tocopherol per LDL-cholesterol, total cholesterol and total lipids, and found significantly lower levels of all of them in CAD patient compared with controls. An inverse correlation was found between α-tocopherol and GSH with MDA ($p <0.05$, $p < 0.005$, respectively).

CONCLUSIONS -These results suggest that increased oxidant stress present in CAD may lead to compensatory changes in the levels of some antioxidants, viz. α-tocopherol and glutathione. These results also suggest that oxidative stress precedes the development of coronary artery disease.

Key words: coronary artery disease, α-tocopherol, malondialdehyde, glutathione