

The beneficial effects of selected amino acids on lipid peroxidation in hypercholesterolemic animals

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Background and Aims: One of the major factors causing oxidative stress in cardiovascular diseases is dyslipidemia. In these conditions, by increasing lipid peroxidation, antioxidant capacity decreased and production of plasma malondialdehyde, as an index of lipid peroxidation, is increased. Antioxidant properties of some amino acids have been reported in several studies. We aimed to investigate the effects of amino acids Arg, Lys, Ser, His and Asp on plasma antioxidant capacity and production of malondialdehyde in hypercholesterolemic animals.

Methods: 35 white male rabbits were randomly divided into seven groups (n=5) including: normal control, hypercholesterolemic control and five hypercholesterolemic groups treated with amino acids. Animals were fed with special diets for twelve weeks and then blood samples were collected to measure antioxidant capacity (AC) and malondialdehyde (MDA).

Results: Plasma AC showed significant increase in groups treated with amino acids compared to hypercholesterolemic control group ($p < 0.05$). Plasma level of MDA in all groups treated with amino acids showed significant reduction compared to hypercholesterolemic control group ($p < 0.05$).

Conclusions: According to these results it seems that administration of amino acids Arg, Lys, Ser, His and Asp to hypercholesterolemic animals increases antioxidant capacity and reduces lipid peroxidation and may have beneficial effects.

Keywords: Amino acids; Lipid peroxidation; Hypercholesterolemia; Antioxidant