Abstract

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Alpha-lipoic Acid Improves Endothelial Dysfunction in Patients with Subclinical Hypothyroidism.

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OBJECTIVE: Many studies showed that impairment of flow-mediated endothelium-dependent arterial dilation (FMD) exists in patients with subclinical hypothyroidism (sHT). The crucial mechanism of this endothelial dysfunction remain unclear. We hypothesized that oxidative stress may be partially responsible for the impairment in FMD in patients with sHT. Thus, the present study was designed to assess whether the antioxidant alpha-lipoic acid can improve endothelial dysfunction in patients with sHT.

PATIENTS AND METHODS: Forty women with newly diagnosed sHT and 18 healthy women with euthyroid status were enrolled. Patients were randomized into 2 groups to receive no treatment (n=20), alpha-lipoic acid (n=20) for 3 weeks. We measured the FMD at baseline and after 3 weeks.

RESULTS: FMD in alpha-lipoic acid and no-treatment group were 3.92% and 4.02%, respectively, which were significantly lower than that in controls (5.64%) ($p<0.001$). After 3 weeks treatment, compared with before treatment in sHT patients, plasma thiobarbituric acid reactive substances (TBARS) levels decreased significantly in alpha-lipoic acid group ($p<0.001$), and remain unchanged in no-treatment group ($p>0.05$). FMD improved markedly (4.82%) in alpha-lipoic acid group ($p<0.01$), and remain unchanged in no-treatment group ($p>0.05$). The absolute changes in FMD showed significant negative correlation with the changes in TBARS ($r=-0.773$, $p<0.001$).

CONCLUSION: Our data showed that sHT patients exists impaired endothelial function, and antioxidant alpha-lipoic acid can improve endothelial function, through decrease of oxygen-derived free radicals.

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