Glycemic and oxidative status of patients with type 2 diabetes mellitus following oral administration of alpha-lipoic acid: a randomized double-blinded placebo-controlled study.

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BACKGROUND: Despite well-controlled blood glucose levels, diabetic complications still inevitably take place via several mechanisms including excessive generation of free radicals in patients who suffer from diabetes mellitus (DM).

OBJECTIVE: A randomized double-blind placebo-controlled clinical trial to investigate the effectiveness of oral supplementation of DL-alpha-lipoic acid (ALA) on glycemic and oxidative status in DM patients was conducted.

METHODS: Thirty eight outpatients with type 2 DM were recruited and randomly assigned to either placebo or treatment in various doses of ALA (300, 600, 900, and 1200 mg/day) for 6 months. Following the treatment, all subjects were evaluated for glucose status and oxidative biomarkers.

RESULTS: Results showed that fasting blood glucose, HbA1c trended to decrease in a dose-dependent manner. Increase of urinary PGF2α-Isoprostanes (F2α-IsoP) was noted in placebo but not ALA-treated groups, indicating possible suppressing action of ALA on lipid peroxidation in DM subjects. 8-Hydroxy-2’-deoxyguanosine (8-OHdG) levels, however, were similar in both placebo and ALA groups as well as urinary microalbumin and serum creatinine. Safety evaluation was monitored and treatment was found to be well tolerated despite some minor side effects.

CONCLUSION: Results from this study reflected the benefits of ALA in glucose status with slight efficiency on oxidative stress-related deterioration in DM patients.

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