
L-Carnitine supplementation improved clinical status without changing oxidative stress and lipid profile in women with knee osteoarthritis.

Malek Mahdavi A, Mahdavi R, Kolahi S, Zemestani M, Vatankhah AM.

Students' Research Committee, Tabriz University of Medical Sciences, Tabriz, Iran; Nutrition Research Center, Tabriz University of Medical Sciences, Tabriz, Iran; Connective Tissue Diseases Research Center, Tabriz University of Medical Sciences, Tabriz, Iran; Drug Applied Research Center, Tabriz University of Medical Sciences, Tabriz, Iran.

OBJECTIVE: Considering the pathologic importance of oxidative stress and altered lipid metabolism in osteoarthritis (OA), this study aimed to investigate the effect of l-carnitine supplementation on oxidative stress, lipid profile, and clinical status in women with knee OA. We hypothesized that l-carnitine would improve clinical status by modulating serum oxidative stress and lipid profile.

METHODS: In this randomized double-blind, placebo-controlled trial, 72 overweight or obese women with mild to moderate knee OA were randomly allocated into 2 groups to receive 750 mg/d l-carnitine or placebo for 8 weeks. Dietary intake was evaluated using 24-hour recall for 3 days. Serum malondialdehyde (MDA), total antioxidant capacity (TAC) and lipid profile, visual analog scale for pain intensity, and patient global assessment of severity of disease were assessed before and after supplementation. Only 69 patients (33 in the l-carnitine group and 36 in the placebo group) completed the study.

RESULTS: l-Carnitine supplementation resulted in significant reductions in serum MDA (2.46 ± 1.13 vs 2.16 ± 0.94 nmol/mL), total cholesterol (216.09 ± 34.54 vs 206.12 ± 39.74 mg/dL), and low-density lipoprotein cholesterol (129.45 ± 28.69 vs 122.05 ± 32.76 mg/dL) levels compared with baseline (P < .05), whereas these parameters increased in the placebo group. Serum triglyceride, high-density lipoprotein cholesterol, and TAC levels did not change significantly in both groups (P > .05). No significant differences were observed in dietary intake, serum lipid profile, MDA, and TAC levels between groups after adjusting for baseline values and covariates (P > .05). There were significant intragroup and intergroup differences in pain intensity and patient global assessment of disease status after supplementation (P < .05).

CONCLUSION: Collectively, l-carnitine improved clinical status without changing oxidative stress and lipid profile significantly in women with knee OA.

PMID: 26149189