

EFFECT OF LEVOCARNITINE ON LIPID METABOLISM AND OXIDATIVE STRESS IN PATIENTS WITH CHRONIC KIDNEY DISEASE

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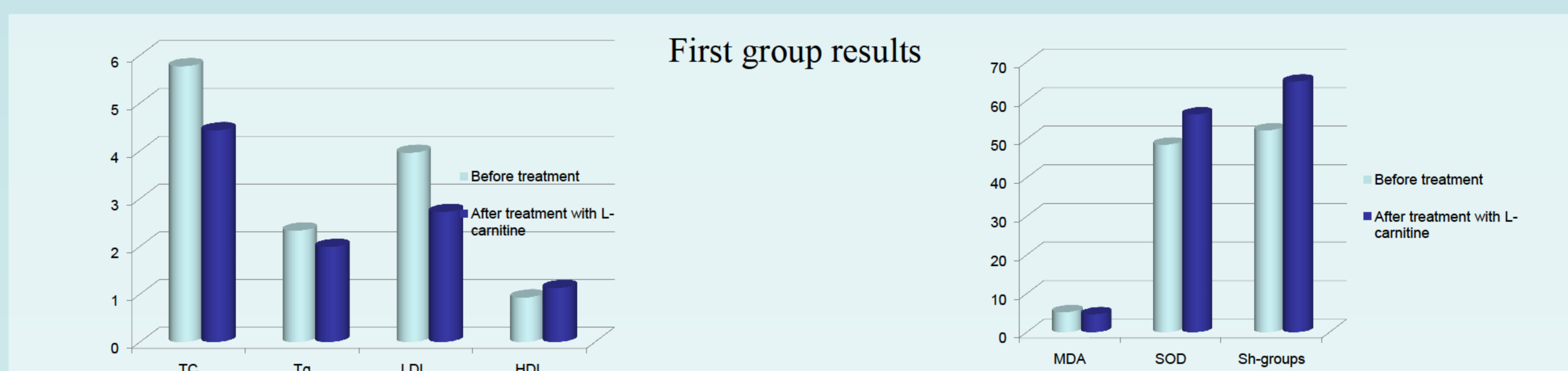
Introduction and Objectives:

Violation of lipid metabolism often accompanies kidney diseases, leading to increased cardiovascular risk. At the same time oxidative stress is one of the threatening factors of progression of renal impairment.

In search of a medicament with antioxidant and lipotropic properties we came to levocarnitine - an amino acid that is synthesized in the kidney and in chronic kidney disease (CKD) is observed to be insufficient. This study aimed to evaluate the effect of 3 months' levocarnitine therapy on lipid metabolism and lipid peroxidation in patients with CKD.

Methods:

The study included 62 patients with CKD and violation of lipid metabolism and oxidant-antioxidant system. Depending on the treatment they were divided into 2 groups homogeneous for age and sex. Patients in the first group (31 persons) received 1 g levocarnitine and standard therapy, patients in the second group (31 persons) received standard therapy. Patients were examined before treatment and in a 3 months period. The criterion for effectiveness of treatment was dynamic of lipid profile (total cholesterol (TC), triglycerides (Tg), high density lipoproteins cholesterol (HDL), low density lipoprotein cholesterol (LDL), lipid peroxidation (malonic dialdehyde (MDA)) and antioxidant (superoxide dismutase (SOD), sh-groups).



Results:

In the first group the following indicators were identified: before treatment - TC (5,77 0,43 mmol/l), Tg (2,33 0,17 mmol/l), LDL (3,96 0,19 mmol/l) HDL (0,93 0,06 mmol/l), MDA (5,213 0,49 nmol/ml), SOD (48,6 3,7 U/1 million erythrocytes), Sh-groups (52,3 4,6 mmol/l), $p < 0,05$; after 3 months' levocarnitine treatment - TC (4,43 0,39 mmol/l), Tg (1,99 0,16 mmol/l), LDL (2,72 0,20 mmol/l) HDL (1,13 0,07 mmol/l), MDA (4,640 0,48 nmol/ml), SOD (56,4 3,9 U/1 million erythrocytes), Sh-groups (64,9 5,1 mmol/l), $p < 0,05$.

In the second group identified indicators were: before treatment - TC (5,74 0,44 mmol/l), Tg (2,36 0,18 mmol/l), LDL (3,93 0,20 mmol/l) HDL (0,95 0,07 mmol/l), MDA (5,123 0,48 nmol/ml), SOD (48,5 3,7 U/1 million erythrocytes), Sh-groups (52,2 4,7 mmol/l); after 3 months' treatment with standart therapy - TC (5,84 0,49 mmol/l), Tg (2,36 0,18 mmol/l), LDL (3,73 0,30 mmol/l), HDL (0,96 0,08 mmol/l), MDA (5,113 0,41 nmol/ml), SOD (48,8 3,9 U/1 million erythrocytes), Sh-groups (52,5 5,1 mmol/l), changes were inconsiderable, $p > 0,05$.

Conclusions:

Using of 3 months' levocarnitine therapy in patients with CKD stages 2-4 optimizes lipid metabolism - reduces total cholesterol, low-density lipoprotein and triglycerides and increases high-density lipoprotein. At the same time levocarnitine restores the balance between lipid peroxidation and antioxidant defense in patients with CKD.

References:

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