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L-Carnitine: A hepatoprotective agent against radioiodine toxicity in rats

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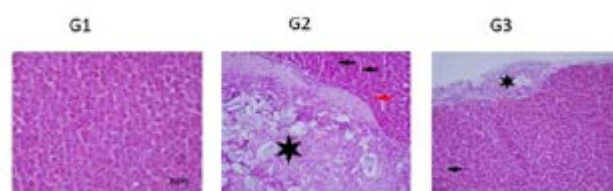
Objective: Radioactive iodine (RAI), which has much hematological and non-hematological toxicity, is a well-known and widely-used radionuclide for the treatment of metastases in differentiated thyroid carcinomas. Cell death caused by the ionizing radiation is related to free radical formation. L-carnitine is an essential nutrient that the body uses to convert fat into energy. L-carnitine has effective free radical scavenging, superoxide anion radical scavenging, and hydrogen peroxide scavenging activities. In the present study, the hepatoprotective effect of L-Carnitine against RAI toxicity was evaluated.

Materials and methods: Thirty-six rats were randomly divided into three groups as untreated control (Group 1); oral radioiodine administrated rats (Group 2), and Group 3 (oral RAI and daily intraperitoneal injection of 200 mg/rat L-carnitine). In the third group, L-carnitine administration was started 2 days before and continued for five days after RAI administration. Twenty-four hours after the administration of the last dose of L-carnitine, liver samples were taken for biochemical and histopathological

evaluation.

Results: The histopathological damage in the L-carnitine group was significantly less than the RAI group ($p < 0.05$ for all pathological parameters). The levels of the tissue malondialdehyde and fluorescent oxidation products levels were lower, and the total sulphhydryl levels were higher in L-carnitine group when compared with RAI group. The differences were statistically significant between these groups for all parameters ($p < 0.05$).

Conclusion: L-carnitine administration significantly decreased RAI-induced histopathological damage, which might be due to its antioxidant effects.



Biography

Aziz Mutlu Barlas has graduated from Gazi University Medical Faculty in Ankara/Turkey in 1997. He started General Surgery education at University of Health Sciences, Ankara Training and Research Hospital. He is still working as General Surgery specialist at the same hospital. He has published more than 20 papers in reputed journals.

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