Ameliorative Effect of L-carnitine As Antioxidant Supplementation Against Reproductive Toxicity in Male Albino Mice Administered Monosodium Glutamate

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ABSTRACT

This study was carried out to investigate the ameliorated effect of L-carnitine on monosodium glutamate (MSG)-induced testicular toxicity in male mice. Sixty adult male mice were randomized into 6 groups (n = 10). In addition to control male mice group that orally administered distilled water, monosodium glutamate (MSG) was orally administered to male mice at doses of 0.3 and 0.6 mg/g body weight individually and in combination with 150 mg/kg body weight of L-carnitine for 35 days. Reproductive performance for each group was assessed. So, body weight change and testicular weight was recorded, sperm analysis for revealing the sperm viability, sperm count, sperm motility and sperm morphology were evaluated. Sperm DNA degradation was investigated by comet assay. Measurement of morphometric parameters for testes tissue was carried out. Histopatholgical study for testicular tissue was also recorded. Finally, immunohistochemical studies by PCNA, Ki-67 and Claudin-1 were also carried out in testis tissue. The study demonstrated that L-carnitine ameliorated MSG-induced alterations in reproductive performance, testicular weight, histology, sperm count, sperm motility, and sperm morphology. The result also revealed that L-carnitine attenuated the irrationality of histology in testicular tissues caused by MSG exposure. **Conclusions:** The findings of the present study indicated that treatment of male mice with L-carnitine banned MSG-induced reproductive toxicity by improving sperm quality and enhancing testicular structure status.

Key words: Monosodium glutamate, reproductive toxicity, testis, mice and L-carintine