Antigenotoxic and antimutagenic effects of glutamine supplementation on mice treated with cisplatin

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ABSTRACT. We evaluated the effects of glutamine on clastogenic and genotoxic damage prevention caused by the administration of cisplatin.
Forty Swiss mice were divided into 8 experimental groups: G1 and G2, which were control groups; G3, G4, and G5, which were administered [2 doses of glutamine (orally)] separated by a 24-h period (150, 300, and 600 mg/kg, respectively), and a dose of phosphate-buffered saline by intraperitoneal injection; G6, G7, and G8, which were treated in the same manner as the previous groups, but received cisplatin rather than phosphate-buffered saline. The antimutagenicity groups showed damage reduction percentages of 79.05, 80.00, and 94.27% at the time point T1, 53.18, 67.05, and 64.74 at time point T2 for the 150, 300, and 600 mg/kg doses of glutamine, respectively. Antigenotoxic activity was evident for all 3 doses with damage reduction percentages of 115.05, 119.06, and 114.38 for the doses of glutamine of 150, 300, and 600 mg/kg, respectively. These results suggest that further studies are needed to confirm the clastogenic activity of glutamine. However, our results may lead to rational strategies for supplementation of this antioxidant as an adjuvant in cancer treatment or for preventing genomic lesions.

**Key words:** Antioxidant; Cancer treatment; Chemoprevention