THE PROTECTIVE EFFECT OF DELTA-TOCOTRIENOL ON OCHRATOXIN A-INDUCED NEPHROTOXICITY

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Ochratoxin A (OTA) is a natural mycotoxin produced by filamentous mold species belonging to the genera *Aspergillus* and *Penicillium* (1); it is involved in the development of important human and animal diseases. Several studies have shown that OTA is nephrotoxic, hepatotoxic, teratogenic, neurotoxic, immunotoxic, genotoxic and carcinogenetic in several animal species, with the longest half-life in human blood (2); the kidney is the primary target of OTA. The mechanism of OTA toxicity have not yet been clearly elucidated. Several studies have demonstrated that OTA induced nephrotoxicity and hepatotoxicity through oxidative DNA damage in vitro (3,4) and in vivo (5). In this work we have evaluated the protective effect of Delta-tocotrienol (DT3), a member of vitamin E family, on OTA induced nephrotoxicity in rats. In particular we have analyzed trends in body weight, renal damage through the evaluation of glomerular filtration rate (GFR) and oxidative stress through Malondialdehyde (MDA) and Dihydroethidium assay in Sprague Dawley rats. The rats, randomly divided into four groups, were treated for 2 weeks as follows: Group 1 was treated with oral injection of saline solution; Group 2 was treated with oral injection of OTA (0.5 mg/kg); Group 3 was treated with oral injection of DT3 (10 mg/kg) and Group 4 had received both OTA (0.5 mg/kg) and DT3 (10 mg/kg) administered simultaneously. Our data showed that animals treated with OTA presented weight loss and a significant reduction of GFR. We have also showed an increase of the levels of MDA and O_2^- in OTA treated animals. The co-treatment with DT3 prevented weight loss and restored the levels of GFR; moreover, we have showed a decrease of MDA and O_2^- levels in DT3 treated animals respect to the control. These data show that the nephrotoxic effect induced by OTA is most probably linked with the increase in reactive oxygen species production and indicate that the DT3 is able to prevent renal oxidative stress and the reduction in the GFR secondary to OTA administration.

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