Effects of resveratrol on 4-Vinylcyclohexene diepoxide induced testicular germ cell toxicity in mice

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The chemical structure of resveratrol resembles diethylstilbestrol. Resveratrol is a phytoestrogen that can interact with estrogen receptors (ERα and ERβ). Because it is well known that estrogens also influence the male reproductive system, the present study aimed to investigate the possible effects of resveratrol on testis tissue.

The study was designed in two stages, both on 28-day old Swiss albino male mice. The first stage investigated the effects of resveratrol on testes of male mice and the second stage investigated the effects of resveratrol on 4-Vinylcyclohexene diepoxide (VCD)-induced testicular toxicity in male mice. In the first stage, mice received resveratrol (2, 10 and 20 mg/kg/day) by oral gavage for 3 days. In the second stage, mice received same doses of resveratrol for 4 days after intraperitoneal VCD (320 mg/kg/day) injection for 15 days. At the end of the treatment protocols testis was removed and the ratios of testis weight to body weight (TW/BW) and testis dry weight to testis wet weight (TDW/TWW) were calculated. The other testis was used for histological evaluation.

Resveratrol increased the TW/BW and decreased TDW/TWW in a dose-dependent manner. Each three doses of resveratrol decreased Johnsen scores significantly. There was no significant improvement in VCD group.

In the present study, resveratrol led to hypertrophy in testis and significantly increased overall sperm count but decreased mature sperm count at the doses used. These results may suggest that resveratrol can affect the gonadal functions.

Key words: estrogen, resveratrol, testis, 4-Vinylcyclohexene diepoxide