

Original Paper

Protective effect of vitamin E on the para-nonylphenol induced-testicular toxicity in adult rats: a stereological study

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Abstract

Background and Objective: Para-nonylphenol as an environmental pollutant has weak estrogenic activity and causes oxidative stress in different organs including testis. This study was done to determine the protective effect of vitamin E on the para-nonylphenol induced-testicular toxicity in adult rats.

Methods: In this experimental study, 24 Wistar rats were randomly allocated into four groups including control, vitamin E (100 mg/kg/day, orally), para-nonylphenol (250mg/kg/day, orally) and finally para-nonylphenol (250mg/kg/day, orally) plus vitamin E (100mg/kg/day, orally). After 56 days of treatment, removal of the right testis, tissue processing and staining with Heidenhain's Azan, the morphometric parameters of testicular tissue was evaluated using stereological method.

Results: The mean volume of seminiferous tubules, height of the germinal epithelium, seminiferous tubules diameter, thickness of the basement membrane, number of spermatocyte, spermatid and sertoli cells significantly reduced in para-nonylphenol group compared to the controls ($P<0.05$). These parameters were significantly increased in the para-nonylphenol plus vitamin E group compared to para-nonylphenol group ($P<0.05$). In the histopathological examination, atrophy of seminiferous tubules, germinal epithelium vacuolation and epithelial disarrangement were observed in para-nonylphenol group. Histopathological alterations reduced in para-nonylphenol plus vitamin E group compared to para-nonylphenol group.

Conclusion: Co-administration of vitamin E with para-nonylphenol can prevent the adverse effects of para-nonylphenol on the testicular tissue in adult rats.

Keywords: Testis, Seminiferous tubule, Para-nonylphenol, Vitamin E, Stereology, Rat

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