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Long-term treatment of hydrogen-rich saline abates testicular oxidative stress induced by nicotine in mice

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Abstract

Purpose: The present study was designed to test the hypothesis that long-term treatment with hydrogen-rich saline abated testicular oxidative stress induced by nicotine in mice.

Methods: The effects of hydrogen-rich saline (6 ml/kg, i.p.), vitamin C (60 mg/kg, i.p.) and vitamin E (100 mg/kg, i.p.) on reproductive system and testicular oxidative levels in nicotine-treated (4.5 mg/kg, s.b.) mice were investigated.

Results: It was found that vitamin C and vitamin E attenuated serum oxidative level, but did not lower testicular oxidative levels in mice subjected to chronic nicotine treatment, and did not improve the male reproductive damage and apoptosis induced by nicotine. Different from normal antioxidants, vitamin C and vitamin E, hydrogen-rich saline abated oxidative stress in testis, and protected against nicotine-induced male reproductive damages.

Conclusion: Our results first demonstrated that long-term treatment with hydrogen-rich saline attenuated testicular oxidative level and improved male reproductive function in nicotine-treated mice.

Figures

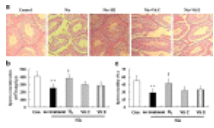


Fig. 1 Histopathological evaluation by hematoxylin-eosin

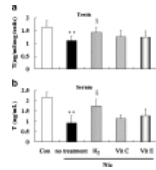


Fig. 2 Testicular (a) and...

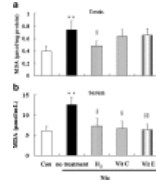


Fig. 3 Testicular (a) and...

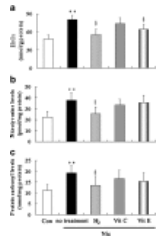


Fig. 4 Testicular H₂O₂...

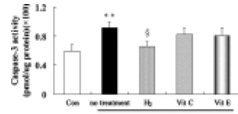


Fig. 5 Testicular caspase-3 activities in control...

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