

Antioxidant Effects of Selenium on Sperm Parameters and Testicular Structure in Young and Aged Mice

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Abstract

Introduction: Selenium, as an antioxidant, is essential for normal testicular function and spermatogenesis. It can reduce free oxidative radicals as a cofactor for antioxidant enzymes; therefore, it is expected to increase fertility. This experimental study was conducted to determine the effects of different doses of selenium on sperm parameters and testicular structure of aged and young mice.

Materials and Methods: In this study, twenty 10 to 12-month and twenty 2 to 3-month old male mice were randomly divided into three control, sham and experimental groups. The control group received no injection but the sham and the experimental groups received daily intraperitoneal injections of selenium solvent (Normal saline) and selenium, 0.2 mg/kg (Based on dose/response data), respectively over 5 weeks. Histological examinations as well as sperm analyses were performed on days 21, 28, 35 and 42 following the initiation of injections.

Results: Sperm analyses showed improvements especially in terms of normal morphology and viability rates in the experimental group ($P < 0.05$). Decreased sperm counts were evident in the aged mice at histological examination and some vacuoles were observable in the epithelium of seminiferous tubules.

Conclusion: The results indicated that administration of 0.2 mg/kg selenium, improves some sperm parameters in the aged mice; thus, it seems that selenium effects are dose-dependent and appropriate amounts of the element can probably improve testicular function and sperm quality in the aged subjects.

Keywords: Antioxidant, Histology, Male infertility, Oxidative stress, Selenium, Sperm parameters, Testis.

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