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Prophylactic and Curative Effect of Selenium on Infertility Induced by Formaldehyde Using Male Albino Mice

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Abstract : Introduction: Infertility is a source of psychological, and sometimes social, stress on parents who desire to have children. Formaldehyde is used chiefly as disinfectant, preservative and in the chemical synthesis. The medical uses of formaldehyde are limited, but focused especially on laboratory use. Selenium is an essential trace mineral element for human; it is essential for sperm function and male fertility. Selenium deficiency has been linked to reproductive problems in animals. Objectives: To investigate the prophylactic and curative effect of selenium on male infertility induced by formaldehyde using male albino mice. Method: Forty male albino mice were used, weight 25-30 gm. Five groups of male mice (n=8) were used. Group 1 was daily administered water for injection (5ml/kg) for five days, group 2 was daily administered selenium (100 µg/kg) for five days, group 3 was daily administered formaldehyde (30mg/kg) for five days, group 4 (prophylaxis) was daily administered a combination of formaldehyde and selenium for five days, while group 5 (curative) was daily administered formaldehyde for five days followed by daily administration of selenium for the next five days. Intraperitoneal administration was adopted. At the end of the administration, seminal fluid was collected from vas deferens. Sperm count, morphology and motility were scored; histopathological screening of genital system was carried out. SPSS was applied for comparing groups. Results and conclusion: It was found that formaldehyde toxicity did not change the sperm count and percentage of motile sperm; unhealthy sperm was increased, while healthy sperm was decreased. Formaldehyde produces degeneration/damage to the male mice genital system. Selenium alone produce an increase in sperm count, volume of seminal fluid and the percentage of motile sperm. Selenium has prophylactic and curative effects against formaldehyde-induce genital system toxicity. Future work is recommended to find out if selenium protective effect is through antioxidant or other mechanisms.

Keywords : infertility, formaldehyde, selenium, male mice
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