

عنوان مقاله:

The effects of letrozole-induced maternal hyperandrogenism on sexual behaviors, testicular histology, and serum biochemical traits in male offspring rats: An experimental study

محل انتشار:

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خلاصه مقاله:

Background: Intrauterine endocrine abnormalities have profound effects on the development of physiological disorders. Objective: This study aimed to assess the effects of in utero exposure to letrozole (an aromatase inhibitor) and its late consequences on the reproductive and metabolic performance of an adult male offspring. Materials and Methods: 15 pregnant Sprague-Dawley rats (8 wk, 155 gr) were randomly assigned into 5 experimental groups (n = 3/each) and orally received either letrozole at doses of 0.25, 0.75, 1.00, and 1.25 mg/kg body weight (BW) or vehicle (control) on the gestation days of 16, 17, and 18. Pregnancy outcome, sexual behaviors on postnatal day 60, serum biochemical features, and the histopathology of testes were assessed in male offspring. Results: Compared to control group, delayed labor (21.83 vs. 24.25, $p < 0.0001$) and reduced litter size ($n = 12.25$ vs. $n = 2$, $p < 0.0001$) were recorded in 1.25 mg/kg BW group. A reduction in high-density lipoprotein level and the elevation of testes weight, BW gain, anogenital distance, as well as the serum concentrations of testosterone, triglycerides, cholesterol, and glucose were observed in 1.25 mg/kg BW ($p < 0.0001$) and 1.00 mg/kg BW ($p < 0.0001$) groups in comparison to control. A larger number of anogenital female sniffing, pursuit, and mounting behaviors were also observed in 1.25 mg/kg BW group in

comparison to control ($p < 0.001$). Severe testicular defects including necrosis and disruption of the epithelium of seminiferous tubules, sloughing of epithelial cells, and spermatogenesis arrest were observed in letrozole-treated groups, in a dose-dependent manner. Conclusion: Maternal exposure to letrozole can adversely affect the reproductive and metabolic performance of male offspring rats, suggesting an incomplete sex differentiation.

کلمات کلیدی:

Androgens, Aromatase inhibitors, Rat, Sexual activities, Testes histopathology

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