Evaluating histological modifications of testis and spermatogenesis in adult male rats on finasteride

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Abstract

Introduction: Finasteride, a synthetic 4-azasteroid compound, is a competitive and specific inhibitor of type II 5-α-reductase, an intracellular enzyme that converts testosterone into dihydrotestosterone (DHT). Finasteride is prescribed for nearly all disturbances related to DHT concentration such as benign prostatic hyperplasia, male-pattern androgenetic alopecia, hirsutism, acne and seborrhea. Since finasteride is frequently prescribed in men, the effects of different doses of finasteride on the number of spermatogonia, Sertoli and Leydig cells have been investigated in the present study.

Materials & Methods: Forty mature male Sprague-Dawley rats were divided into five groups of eight. The first group was kept as the control group and received nothing. The second or the sham group, only received distilled water orally, but the last three experimental groups respectively received 25, 50 and 100*mg/kg* of *BW/d* doses of finasteride orally for a 32-day period. Then photomicrographs of testis tissues were studied and the results of the five groups were statistically analyzed by ANOVA, t, Tukey and Duncan tests. $P<0.05$ was considered significant.

Results: Administration of 50 and 100*mg/kg* per *BW* doses of finasteride significantly decreased the number of spermatogonia and 50*mg/kg* doses reduced the number of primary spermatocytes ($p\leq0.05$). The number of Sertoli cells had no significant difference in the experimental groups in comparison with the control group but there was a significant increase in the number of Leydig cells in all of the experimental groups ($p\leq0.05$). This drug did not have any significant effects on the density of different kinds of cells, and nuclear or cytoplasmic staining properties of spermatogonia.

Conclusion: Finasteride causes a significant decrease in the number of spermatogonia and primary spermatocytes. It also causes a significant increase in the number of Leydig cells but it does not have any significant histological effects on the testis or any effects on spermatogenesis. Therefore, it seems that short-term uses of the medication may not have harmful effects on male fertility.

Key Words: Finasteride, Testosterone, Testis, Germinal cell, Dihydrotestosterone, Sertoli cell, Leydig cell, Spermatogonia, Primary spermatocyte, Spermatogenesis, Male fertility, 5-α-reductase.

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