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JOURNAL ARTICLE

Acute and chronic effects of cisplatinum upon testicular function in the rat

H. F. Huang, L. M. Pogach, E. Nathan and W. Giglio
Department of Surgery, University of Medicine and Dentistry of New Jersey, New Jersey Medical School, Newark 07103.

One of the side effects of cisplatinum-based chemotherapy is the impairment of spermatogenic function. In order to understand the mechanisms responsible for this side effect, the present study examined the short- and long-term effects of five daily injections of 2 mg/kg cisplatinum upon the functional normality of Leydig cells and Sertoli cells in intact adult rats, and their relationship with the status of spermatogenesis. Results of the present study demonstrate that cisplatinum treatment resulted in a progressive but reversible loss of germ cells from the seminiferous epithelium. Although testicular testosterone contents reduced transiently after the adminisration of cisplatinum, these testosterone levels are otherwise sufficient to support complete spermatogenesis. Thus, the cisplatinum-induced germinal regression cannot be accounted for by hypoandrogenism. The testicular ABP contents of the drug-treated rats remained unchanged during the treatment period, decreased transiently 30 days after the treatment, and returned to normal 120 days after treatment. A decrease in epididymal ABP content was also noted 10 and 30 days after the drug treatment. These observations suggest that Sertoli cell functions were affected by cisplatinum treatment. The effects of cisplatinum upon Sertoli cells were further demonstrated by the dose-dependent suppression of the production of ABP, lactate, and estradiol in cultured Sertoli cells. In addition, cisplatinum administration resulted in a reversible decrease in pituitary weights and an irreversible decrease in seminal vesicle weights. These results further demonstrate the toxic effects of cisplatinum upon various aspects of the male reproductive system.

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