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JOURNAL ARTICLE

Influence of estradiol on accessory reproductive organs in the castrated male rat. Effects of bromocriptine and flutamide

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Estradiol partially maintained the weights of the dorsolateral prostate and seminal vesicles in castrated adult male rats. One group of animals received subcutaneous injections of estradiol (0.01 mg/kg) daily, while a second group of animals received estradiol plus bromocriptine (4.0 mg/kg). Changes in weights of accessory reproductive organs were correlated with serum prolactin levels. Estradiol significantly increased serum prolactin levels while concomitant treatment with bromocriptine caused serum prolactin to remain at castrate levels. Bromocriptine slightly decreased, but did not abolish, the effect of estradiol on weights of the dorsolateral prostate and seminal vesicles. To determine if the effect of estradiol was mediated by androgen receptors in the dorsolateral prostate and seminal vesicles, a third group of animals was treated with flutamide. Flutamide, at a dosage (20 mg/kg) that abolished the effects of dihydrotestosterone on the weights of these tissues, produced no alternation of the effects of estradiol. Treatment of animals with a combination of flutamide, bromocriptine, and estradiol did not significantly alter organ weights from the results obtained with bromocriptine and estradiol. Scatchard plot analysis of the effect of estradiol treatment on cytosol binding of estradiol demonstrated increased quantities of estradiol binding in dorsolateral prostate and seminal vesicles which correlated with the changes in weights noted. Although part of the effect of estradiol on regression of male accessory reproductive organs of castrated rats may be mediated by prolactin, the principal effect appears to be a direct action on responsive tissues.

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