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Comparison of Prostatic Response to Pituitary Grafts in Castrate Rats Treated with Testosterone or Dihydrotestosterone

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To understand further the effect of prolactin (PRL) on prostatic growth, the present study was undertaken to determine if the augmentation of testosterone (T)-stimulated growth by PRL is mediated before or after the formation of dihydrotestosterone (DHT). Mature male Sprague-Dawley rats were castrated and treated with subcutaneous Silastic implants containing either T or DHT. Serum PRL was elevated by grafting, under the kidney capsule, pituitaries from two female rats, while controls received grafts of muscle. Three weeks later, all animals were sacrificed. Animals bearing pituitary grafts had an average serum PRL level of 125 to 140 ng/ml while PRL levels for controls were 15 to 20 ng/ml. T treatment provided 1.37 ± 0.11 ng T/ml serum and the DHT capsules produced serum DHT levels of 1.16 ± 0.12 ng/ml. Under these conditions, the lateral prostate showed a specific growth response to PRL: wet weight, protein content, protein concentration, and DNA levels were all significantly greater in engrafted rats treated with either T or DHT than in their respective controls. On histologic examination, elevated PRL levels were associated with proliferative changes of the lateral lobe which included marked papillary infolding and acinar epithelial hyperplasia. This alteration was similar in both steroid-treated groups. These data show that PRL has the same effect on DHT-maintained lateral lobes as it does on the testosterone-maintained prostate and indicate that the PRL effect is not mediated prior to T conversion to DHT but rather at a site beyond DHT formation.

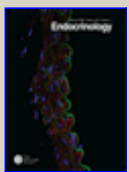
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