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JOURNAL ARTICLE

Androgen concentrations and their receptors in the periurethral region are higher than those of the subcapsular zone in benign prostatic hyperplasia (BPH)

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Benign prostatic hyperplasia (BPH) is an androgen-dependent disease that initially develops in the inner prostate, where the highest concentrations of testosterone (T) and dihydrotestosterone (DHT) are found. In this study, we have evaluated the cytosolic androgen receptors (ARc), the nuclear androgen receptors (ARn), and the concentrations of T, DHT, and 3alpha-androstane diol (3alphaDiol) in BPH tissue to verify the existence of a possible correlation between androgens and their receptor concentrations. Prostatic samples, removed by suprapubic prostatectomy in 15 untreated patients, were sectioned in periurethral, intermediate, and subcapsular zones. Testosterone, DHT, and 3alphaDiol were evaluated by radioimmunoassay after extraction and purification on celite microcolumns, and ARc and ARn were evaluated by means of dextran-coated charcoal method. In total tissue, mean levels of DHT, T, and 3alphaDiol were 2,531+/-308, 260+/-36, and 403+/-35 pg/mg of DNA (mean+/-SE), respectively. Cytosolic androgen receptors, detectable in all cases, were 16+/-2.8 fmol/mg of protein (mean+/-SE), and ARn, detectable in 12 cases, were 108+/-15 fmol/mg of DNA (mean+/-SE). A linear correlation between DHT and 3alphaDiol, T and DHT, and 3alphaDiol and ARn was found. If the different regions are considered, the periurethral zone, site of the primitive BPH nodule, presents the highest levels of androgens and ARn with respect to the other regions. This relative hyperandrogenism may be responsible for the growth-promoting processes of this area, leading to urinary obstruction.

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