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JOURNAL ARTICLE

4-MAPC, a 5 alpha-reductase inhibitor, reduces rat ventral prostate weight, DNA, and prostatein concentrations

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Several compounds, such as 4-MAPC (4-methyl-3-oxo-4-aza-5 alpha-pregnane-20- carboxylate), that inhibit conversion of testosterone (T) to dihydrotestosterone (DHT) by 5 alpha-reductase have been demonstrated to reduce prostate size in rats and dogs. The current studies were undertaken to determine if this effect is due to a reduction in cell number, in epithelial cell synthetic activity, or both. Eight-week-old intact rats were treated daily for 14 days with sesame seed oil, 4-MAPC (10 mg/kg), 4-MAPC + testosterone propionate (TP, 1 mg/kg), or 4-MAPC + TP (3 mg/kg). Rats were killed 24 hours after the last injection. In the animals treated only with 4-MAPC, ventral prostate weight was reduced 37%, but the 14% reduction in total DNA was not significant. The mean intraprostatic concentration of prostatein, a major secretory protein, was reduced 45% (P less than 0.05). The 3 mg/kg dose of TP increased ventral prostate weight, prostatein concentrations, and acid phosphatase activity, even though DNA/ventral prostate was similar to that in control animals. These observations indicate that the reduction in ventral prostate weight in adult rats is due in part to a reduction in cell number, but the primary effect was due to a reduction in synthetic activity, and possibly atrophy of the epithelial cells. Furthermore, TP in pharmacologic doses increased ventral prostate weight and synthetic activity without increasing DNA.