Effects of antiandrogen and anti-inflammation drugs on the rat prostate

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Context: Various agents with antiandrogenic properties are used in hormonal therapy of prostate cancer (PCa). All of them lead to apoptosis of both androgen-dependent PCa cells and normal prostatic epithelial cells. Histological studies revealed persistent inflammation in benign prostatic hyperplasia and PCa tissues. Recently it was realized that low grade inflammation is involved in epithelium and stroma growth, as well as prostate tumorigenesis. Objective: To study dexamethasone (Dex) and aspirin (Asp) effects on ventral prostate in rats treated with hexestrol (Hex) and/or flutamide (Fl). Materials and methods: Dex (50 mcg/kg b.w.) and Hex (2 mcg/kg b.w.) were injected subcutaneously, Fl (10 mg/kg b.w.) and Asp (10 mg/kg b.w.) for were given per os to Wistar male rats during 10 d or 30 d followed by histological and histochemical examination of ventral prostate. Results: Acute focal inflammation, epithelial cells apoptosis and atrophy, reduction in acini sizes, overgrowth of connective tissue, activation of mast cells, leukocytes penetration into stroma, an increase of fibroblast number were found in the prostate of rats treated with Hex or Fl for 10 d. Stromal-epithelial ratio was increased. Dex against Hex plus Fl treatment reduced inflammation in stroma and atrophy of epithelium. Surprisingly, epithelial atrophy after 30 d Dex and Hex administration was less than that of Hex alone though inflammation was suppressed. Asp potentiated Hex-induced atrophy of epithelium with less anti-inflammation effect as compared to that of Dex. Both epithelium atrophy and suppression of inflammation were intensified by adding Asp to Hex plus Fl treatment. Conclusions: Our observations suggest that inflammation is involved in mechanisms of prostate atrophy induced by antiandrogens. Presumably, Asp administration is reasonable in PCa patients treated with antiandrogenic drugs.