Abstract

Objectives: Cancer is a complex process in which cytokines play an important role. Cytokines are low-molecular weight soluble proteins involved in cellular transmission signals and several disorders. Pro-inflammatory cytokines (IL-1, TNF-alpha and IL-6) are involved in prostate cancer development. The aim of this study was to relate the expression (analyzed by Western blot and immunohistochemistry) of several pro-inflammatory cytokines (IL-1, TNF-alpha and IL-6) with serum levels of prostate-specific antigen (PSA) in normal (no pathological samples) as pathological samples (hyperplasia and cancer), in order to elucidate their possible role in tumor progression. We are also discussing the possible use of these cytokines as a potential therapeutic target.

Methods: This study was carried out in 5 normal, 25 benign prostatic hyperplastic (BPH) and 17 prostate cancer (PC) human prostates. Immunohistochemical and Western blot analysis were performed. Serum levels of PSA were assayed by a PSA DPC immulite assays (Diagnostics Products Corporation, Los Angeles, CA) Results: In BPH, IL-1alpha, IL-6 and TNF-alpha were only expressed in patients with PSA serum levels of 0-4 ng/ml or 4-20 ng/ml, but not in the group >20 ng/ml. In PC these cytokines were only expressed in patients with PSA serum levels >4 ng/ml, although the expression of these cytokines was elevated when PSA levels were >20 ng/ml. Conclusions: In PC there might be an association between high expression of pro-inflammatory cytokines (IL-1, TNFalpha and IL-6), elevated serum levels of PSA and cancer progression. A better understanding of the biologic mechanism of this association may improve the finding of new targets for therapy in these patients.

Keywords

TNFalpha, IL-1, IL-6, PSA, Prostate cancer.