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Interleukin-8 serum levels in patients with benign prostatic hyperplasia and prostate cancer

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Abstract

Objectives. Using arbitrarily primed polymerase chain reaction (AP-PCR) ribonucleic acid (RNA) fingerprinting, we discovered a messenger RNA (mRNA) that encoded the cytokine interleukin-8 (IL-8) that was up-regulated in the peripheral blood leukocytes (PBLs) of patients with metastatic prostate cancer (CaP) compared with similar cells from healthy individuals. We compared the total prostate-specific antigen (PSA) levels, the free/total (f/t) PSA ratios, and the immunoreactive IL-8 serum concentrations in patients with either biopsy-confirmed benign prostatic hyperplasia (BPH) or CaP.

Methods. The sera from 35 apparently healthy normal volunteers and 146 patients with biopsy-confirmed BPH and CaP obtained from two academic centers were

retrospectively examined to determine the serum levels of IL-8, total PSA (tPSA), and the f/t PSA ratio. Logistic regression and trend analysis statistical methods were used to assess the results.

Results. Normals ($n = 35$), BPH patients ($n = 53$), patients with clinical Stages A to C CaP ($n = 81$), and patients with metastatic CaP ($n = 12$) had mean levels of IL-8 of 6.8, 6.5, 15.6, and 27.8 pg/mL, respectively. The IL-8 serum concentrations correlated with increasing CaP stage and also differentiated BPH from clinical Stages A, B, C, or D CaP better than tPSA and performed similarly to the f/t PSA ratio. The combination of the IL-8 levels and f/t PSA ratios using multivariate logistic regression analysis distinguished BPH from Stages A, B, C, or D CaP or only Stages A and B with a receiver operating characteristic area under the curve of 89.8% and 87.5%, respectively ($P < 0.0001$).

Conclusions. The IL-8 serum concentration in our clinically well-defined patient sample was independent of the f/t PSA ratio as a predictor of CaP. When test samples are controlled for extraneous clinical origin of inflammation or infection, the combination of the IL-8 and f/t PSA assay results may offer an improved approach for distinguishing BPH from CaP.



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