Int J Biol Markers. 2016 Mar 7:0. doi: 10.5301/jbm.5000200.

Evaluating serum insulin-like growth factor 1 and insulin-like growth factor binding protein 3 as markers in prostate cancer diagnosis.

Rainato G[1], Fabricio AS[2], Zancan M[1], Peloso L[2], Dittadi R[3], Barichello M[4], Fandella A[5], Scattoni V[6], Gion M[2].

Author information

- [1] Istituto Oncologico Veneto IOV IRCCS, Padua - Italy.
- [2] Regional Center for Biomarkers, Department of Clinical Pathology, Regional Hospital, Azienda ULSS12 Veneziana, Venice - Italy.
- [3] Laboratory Medicine Unit, Dell'Angelo Hospital, Azienda ULSS12 Veneziana, Mestre, Venezia - Italy.
- [4] Urology Unit, Regional Hospital, Venice - Italy.
- [5] Urology Unit, Casa di Cura Giovanni XXIII, Monastier di Treviso (Treviso) - Italy.
- [6] Urology Unit, San Raffaele Hospital IRCCS, Milan - Italy.

Abstract

BACKGROUND:

Prostate-specific antigen (PSA) lacks specificity and sensitivity in discriminating prostate cancer (PCa) from benign prostatic hyperplasia (BPH) when the total PSA (tPSA) level is between 4 and 10 ng/mL. It remains to be investigated if additional tumor-associated molecules may improve the PCa diagnostic accuracy. The aim of the present study was to investigate whether serum levels of insulin-like growth factor 1 (IGF1), insulin-like growth factor binding protein 3 (IGFBP3) and their combinations with PSA may enhance the diagnosis of PCa.

METHODS:

Serum tPSA and free PSA (fPSA) levels were measured using an automated chemiluminescence-based method. IGF1 and IGFBP3 levels were evaluated by radioimmunoassays in a prospectively and consecutively enrolled subset of 149 patients with tPSA ≤10 ng/mL made up of patients with benign prostatic hyperplasia (BPH; n = 113) and PCa (n = 36).

RESULTS:

IGF1 and IGFBP3 serum levels did not significantly differ between the PCa and BPH groups. No important correlation was found between the IGF molecules and PSA isoforms in both groups. Statistical analysis of the combination of markers indicated that only the free/total PSA ratio (f/tPSA%) was informative and independent in predicting the presence of PCa, considering that for high values of this percentage (17%) the probability of finding PCa decreased. Receiver operating characteristics areas under the curve (AUC) for IGF1 and IGFBP3 were not informative (AUC ~0.5 in both cases) contrary to the AUC for f/tPSA% (AUC = 0.689, p = 0.0002).

CONCLUSIONS:

The present study showed that neither IGF1 and IGFBP3 alone nor in combination with PSA enhance the diagnostic performance of PSA in PCa.