

Quantification of Transforming Growth Factor Beta 1 Levels in Metastatic Axillary Lymph Node Tissue Extracts from Breast Cancer Patients

A New Specimen Source

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OBJECTIVE: To use cytoplasmic tissue extract as a new specimen source to quantify transforming growth factor beta 1 (TGFβ1) protein in metastatic axillary lymph node tissue (ALNT) of breast cancer (BC) patients and to confirm the feasibility of this approach in a prospective pilot study on a subgroup of patients with invasive BC.

STUDY DESIGN: The 6 selected malignant and autologous nonmalignant pairs of ALNT were fractionated, under special preanalytical, nonaggressive/nondenaturing conditions, to obtain respective cytoplasmic extracts for TGFβ1 detection by the Quantikine (R&D Systems Inc., Minneapolis, Minnesota, U.S.A.) enzyme-linked immunosorbent assay kit.

RESULTS: The data indicated a highly significant ($r = 0.973054$) positive linear correlation between the TGFβ1 concentration and total protein concentration in cytoplasmic extract of metastatic ALNT. The

subsequent patients' pilot study, performed strictly before any clinicopathologic factors were accessible, revealed significantly ($p < 0.01$) elevated TGFβ1 in malignant ALNT (median value: 1.05 ng/mg protein, range: 0.67-3.6 ng/mg protein, $n=6$) vs. autologous nonmalignant ALNT controls (median value: 0.48 ng/mg protein, range: 0.29-0.90 ng/mg protein, $n=6$). This elevation was correlated with the number of metastatic axillary lymph nodes with respect to the total and was consistent with an increase in size of tumor deposits in axillary lymph nodes.

CONCLUSION: Our data provide for the first time suggestive evidence that the TGFβ1 level in cytoplasmic extracts of metastatic ALNTs may be a promising biomarker of invasiveness for BC patients. Confirmatory, large-scale studies are needed to evaluate possible implications of this putative biomarker in BC diagnosis and treatment. (*Anal Quant Cytol Histol* 2009;31:288-29

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