

Title: Prognostic significance of transforming growth factor β receptor II in clinical stage III breast cancer patients

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Abstract:

Background: The transforming growth factor- β (TGF β) plays a dual role in breast cancer, acting as a tumor suppressor in early carcinomas while promoting tumor metastasis in more advanced breast carcinoma. As a result, the prognostic role of TGF β and its signaling components in breast cancer remains unclear.

Aims: to investigate the relationship between T β RII [type II TGF β (transforming growth factor β) receptor] expression and clinic-pathological characteristics, and to evaluate the prognostic significance of T β RII expression in advanced breast cancer (Clinical stage III).

Patients and Methods: Biopsy from the primary tumor obtained from all patients before receiving any therapy. The expression of T β RII assessed by immunohistochemistry. They underwent surgery, (neo) adjuvant therapy according to standard of care protocols.

Results: Of the 30 patients who enrolled into this study, 20 cases were T β RII positive and 10 cases were negative. The T β RII expression rate was significantly increased in patients with N2 and N3 lymph node metastasis compared to those with N0 and N1 lymph node metastasis (60 % vs 40%; P = 0.038). After a median follow up of 42.3 months. Survival analysis demonstrated that T β RII was associated with poor DFS (P = 0.003). Patients with high T β RII expression showed poorer disease-free survival (DFS) compared to those with low expression (HR=7.215; P=0.011) by cox regression analysis and it was an independent factor for predicting the poor outcome for breast cancer patients.

Conclusion: T β RII expression was associated with high stage lymph node metastasis, and poorer DFS in patients with clinical stage III breast cancer. T β RII is an independent, highly significant prognostic indicator for disease free survival in clinical stage III breast cancer.

Keywords: transforming growth factor- β , Breast cancer.