Prognostic value of Tumor-infiltrating lymphocytes (TILs) and clinical values for Prediction of Breast Cancer Recurrence in HER2 Positive Early Breast Cancer after Surgery in King Chulalongkorn Memorial Hospital

Surampa Prapatsornvichit¹, Taywin Atikankul² and Napa Parinyanitikul¹

¹ Division of Medical Oncology, Department of Medicine, Faculty of Medicine, Chulalongkorn University and the King Chulalongkorn Memorial Hospital, Bangkok, Thailand
² Departments of Pathology, Faculty of Medicine, Chulalongkorn University and the King Chulalongkorn Memorial Hospital, Bangkok, Thailand

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Background: Tumor-infiltrating lymphocytes (TILs), one of immunological biomarkers have been investigated in breast cancer and other cancers. High levels of TILs or lymphocyte-predominant breast cancer subgroup (LPBC) were associated with better prognosis in HER2 positive and triple negative breast cancers from various studies. However, limitation of TILs in HER2 positive women in Thai ethnicity was reported. So, the aim of this study was to evaluate TILs in combination with clinical values as the prognostic value for predicting the recurrent breast cancer in Thai population.

Method: Four hundred and eighty-six patients with early stage HER-2 positive breast cancer who were diagnosed and treated at King Chulalongkorn Memorial Hospital from January 1, 2005 to December 31, 2016 were reviewed retrospectively. Clinico-pathological features, stromal TILs classified as low, intermediate and high, and survival outcomes were analyzed.

Results: The median age was 52 years (26-85). 56% had postmenopause, 54.5% had T2 tumor, 47.7% had node negative, 66.8% had stage I-II disease, 44.6% had lymphovascular invasion, and 47.5% had positive hormonal receptor. For the primary treatment, 67.3% underwent modified radical mastectomy, 96.5% received neoadjuvant/adjuvant chemotherapy, 69.7% received adjuvant trastuzumab, 46.7% received adjuvant hormonal therapy. In 92 recurrent patients (18.9%), distant metastasis was identified in 67.4%. In 100 available tissues for evaluating stromal TILs, only 14% had high stromal TILs (at least 50%) and 46% had recurrent disease. Twenty three of 39 (59%) in low stromal TILs group had disease recurrence while only 4 out of 14 (28.6%) in high stromal TILs had recurrent disease. Median percentage of stromal TILs in recurrent and non-recurrent group was 17.5% and 27.5%, respectively. From multivariate analysis, high stromal TILs (HR 0.52 [95%CI 0.32-0.85]; p = 0.01) and trastuzumab used (HR 0.39 [95%CI 0.25-0.61]; p <0.001) were associated with decreased risk of recurrences. After median follow up of 4.1 years, 5-years disease free survival (DFS) and 5-years overall survival (OS) were 80.9%, 86.8%, 69% and 92.6%, 91.5%, 94.5% in overall populations, trastuzumab and non-trastuzumab used group, respectively.

Conclusions: High stromal TILs and trastuzumab used were statistically significant prognostic values for predicting disease recurrence in HER-2 positive early breast cancer.

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