Prognostic significance of cyclin B1 expression plus clinicopathologic features in hormonal positive, HER2 negative early breast cancer in King Chulalongkorn Memorial Hospital During 2010-2015

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Background: Approximately one third of hormonal receptor (HR) positive, HER2 negative early breast cancer reported disease relapse after adjuvant treatments. Both clinicopathologic features and multigene assays consider to be predicting factor of relapse. Cyclin B, one of proliferative markers used in OncotypeDx has been explored previously for predicting recurrence in this subgroup of breast cancers. Our study aims to determine the prognostic significance of cyclin B1 in combination with clinicopathologic factors in recurrent HR positive, HER2 negative breast cancer.

Methods: Two-hundred and fourteen HR positive, HER2 negative early breast cancers who were diagnosed during 2010 to 2015 in King Chulalongkorn Memorial Hospital were retrospectively reviewed. All clinicopathologic factors and level of cyclin B1 expression were evaluated. Correlation of cyclin B1 expression with clinicopathologic features was also compared in recurrence and non-recurrence group.

Results: In 214 patients, 58 patients were recurrence group while 156 patients were non-recurrence group. Mean age at breast cancer diagnosis were 53 years. Recurrence group had high pathological staging, tumor grade, LVI, Ki-67 and lymph node involvement compared to non-recurrence group (p < 0.05). Mean cyclin B1 expression was 9.61% (19.62 % in recurrence group and 5.88 % in non-recurrence group; p< 0.001). We have used cut-off of cyclin B1 expression at ≥ 10 % (7th decile) to classify high and low of expression. Cyclin B1 high expression were demonstrated in 53.4% of recurrence group compared to 22.4% of non-recurrence group. In multivariate analysis, tumor grade (OR 8.42, 95%CI 1.04-67.98; p = 0.046), receiving neoadjuvant chemotherapy (NAC) (OR 4.27, 95%CI 1.41-12.87; p = 0.010) and % cyclin B1 expression (OR 1.04, 95%CI 1.00-1.07; p = 0.013) were associated with recurrent disease. Five-year relapse free survival for cyclin B1 low and high expression were 84.9% and 60.1%, respectively.

Conclusions: Tumor grade, receiving NAC and % cyclinB1 expression were associated with risk of recurrence in HR positive and HER2 negative early breast cancer.