Prevalence of PTEN Loss in Triple-negative Breast Cancer of THAI Females

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Background: Currently a definitive marker for positive selection of the triple-negative breast cancer (TNBC) remains unavailable. Recent data indicates that PTEN expression may play an important role in TNBC aggressive phenotype. We sought to characterize PTEN expression in TNBC in our institute.

Objective: The primary objective is to determine the prevalence of PTEN loss in TNBC tumor tissue. Additional objectives are to identify an association between several clinical parameters and the status of PTEN expression.

Method: Female TNBC patients who received treatment at our institute were identified. Tissue microarrays were constructed from the available archival tumor tissue at the department of pathology. We used anti-PTEN clone 28H6 to determine the level of PTEN protein.

Results: There were 78 TNBC patients with adequate tumor tissue available. Our cohort found mostly grade 3 (77.6%), and Ki - 67 > 30% (85.9%), which was not different from other studies. Thirty percent of the samples (24 of 78) had undetectable PTEN. In PTEN – negative patients, the average age was 50.3 years and found equally in the pre - and post - menopausal women. Loss of PTEN expression was associated with tumor size larger than 2 cm (79.3% vs. 70.4%), the severity of disease, the presence of lymphovascular invasion (52.6% VS 46.8%) and lymph node involvement (54.2% VS 35.1%). There was a trend towards shorter time to recurrence in the PTEN negative group, 30 months VS not reach in the PTEN positive group, (Odd Ratio (OR) = 0.61, 95%CI =0.24,1.58, P=0.22).

Conclusion: One – third of Thai TNBC patients have PTEN loss. Our data indicates a poorer prognosis in TNBC with loss of PTEN expression. Further study in larger population and longer time of follow up is warranted.