Aim: Luminal A type breast carcinomas are slowly growing tumors with favorable prognosis among the other subtypes. Although some authors have shown that estrogen receptor (ER) negative/ progesterone receptor (PR) positive tumors exhibit more aggressive behavior than both the receptors-positive tumors others have accepted that ER-/PR + phenotype is due to technical failure of the immunohistochemistry (IHC) assay. The predictive and prognostic value of PR expression in ER – tumors is much less understood probably because of the rarity. The primary aim of the study was to assess the distribution and prognostic significance of breast cancer subtypes defined according to 3 panel patterns of ER, PR, and HER2. The second aim was to evaluate whether the ER-/PR+ tumors may be different from luminal A and B tumors.

Methods: Medical records of 3358 women who underwent surgery for breast cancer were retrieved. The ER, PR, and HER2 status was determined by IHC as part of routine assessment. The tumors were classified into 5 subtypes: luminal A (ER+ and/or PR+ and HER2 -), luminal B (ER+ and/or PR+ and HER2 +), triple negative (TN) (ER-, PR-, HER2-) and HER2-enriched (ER-, PR-, HER2+). We defined ER-, PR+, HER2- or + tumors as luminal X. The cumulative disease-free survival (DFS) rates were analyzed by the Kaplan-Meier method and differences between the groups in survival were assessed by log-rank test. Cox’s model was used to examine the independent effects of the factors on DFS.

Results: Recurrent disease occurred in 19.2% of the patients. DFS rate was higher for luminal A (85 %) compared with luminal B (75.7%), TN (72.4%), HER2-enriched (72.5%), and luminal X (71.7%) (p< 0.05). Univariate analysis revealed that age (< 40 vs >40), grade, tumor size (T), lymph node status (N), tumor stage, molecular subtype, HER2, ER and PR status were prognostic indicators for DFS; however, Cox’s model showed that only T, N, grade and ER status remained statistically significant. ER-/PR+ phenotype was seen in 6.1% of all patients and this tumor experienced lower cumulative DFS (71.6%) compared with ER+/PR+ tumors (84.3%).

Conclusions: Our results showed that luminal X tumor was characterized by poorer DFS in univariate analysis. Because absence of ER expression was an independent prognostic factor even in PR positive tumors, it can be suggested that ER-/PR+ phenotype is a separate biologic subtype.

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