302P | **A risk score integrating lymphocytes ratios (LRs) and lactate dehydrogenase (LDH) levels to predict prognosis in metastatic breast cancer (MBC) patients**

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Background: Monocyte-to-lymphocyte ratio (MLR), neutrophil-to-lymphocyte ratio (NLR) and LDH levels have been associated with worse prognosis in several malignancies, including MBC. This study aimed at exploring the prognostic impact of a novel risk score, integrating baseline LRs and LDH levels in MBC patients (pts).

Methods: This retrospective study analyzed 396 consecutive pts with a diagnosis of MBC, treated between 2007 and 2017 at the Oncology Department of Udine (Italy). MLR and NLR cut-offs were previously obtained through ROC analysis using propensity score-matched healthy controls (Gerratana et al 2018). The LDH cut-off value (480 U/L) was chosen according to the local laboratory upper reference limit. Based on these data, an integrated LRs-LDH score (LLS) was calculated ranging from 0 (LRs and LDH low), through 1 (LRs or LDH high), to 2 (both LRs and LDH high). The prognostic impact of baseline LLS was investigated through Cox regression, and differences in survival were tested by log-rank test.

Results: After a median follow-up of 52.8 months, median overall survival (OS) was 30.9 months and median progression free survival (PFS) was 9.2 months. Pts with baseline elevated MLR, NLR or LDH were 64.2% (251/391), 70.8% (277/391), and 31.5% (70/222), respectively. The 78.8% (308/391) of pts had elevated LRs (MLR, NLR or both). Considering subgroup analysis, no interaction was seen between LDH and LRs. By multivariate analysis, after adjustment for molecular profiles, performance status, number of metastatic sites, central nervous system and liver involvement, a worse prognosis in terms of OS was seen for pts with elevated levels of both LRs and LDH (LLS 2: HR 2.41, 95% CI: 1.31-4.37, p=.003), compared to pts with normal LRs and LDH (LLS 0). Notably, significant differences in OS were observed according to the LLS (LLS 2: median OS 19.2 months, LLS 1: median OS 43.9 months, LLS 0: median OS 54.9 months; p<.0001).

Conclusions: Baseline LLS is able to predict survival in pts with MBC and provides independent prognostic information. Prospective studies are needed to validate this novel score and to explore how it may affect different treatment strategies.

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