

The neutrophil-to-lymphocyte and platelet-to-lymphocyte predicts efficacy of CDK 4/6 inhibitors in women with Hormone Receptor-Positive/HER2-Negative Advanced Breast Cancer



Emma Zattarin¹, Chiara Fabbroni¹, Francesca Ligorio¹, Federico Nichetti¹, Riccardo Lobefaro¹, Licia Rivoltini², Giuseppe Capri¹, Giulia V. Bianchi¹, Filippo de Braud^{1,3}, Claudio Vernieri^{1,4}

¹ Medical Oncology Department, Fondazione IRCCS Istituto Nazionale dei Tumori, Milan, Italy; ² Unit of Immunotherapy of Human Tumors, Fondazione IRCCS Istituto Nazionale dei Tumori, Milan, Italy. ³ Department of Oncology and Hemato-oncology, University of Milan, Milan, Italy; ⁴ IFOM, the FIRC Institute of Molecular Oncology, Milan, Italy

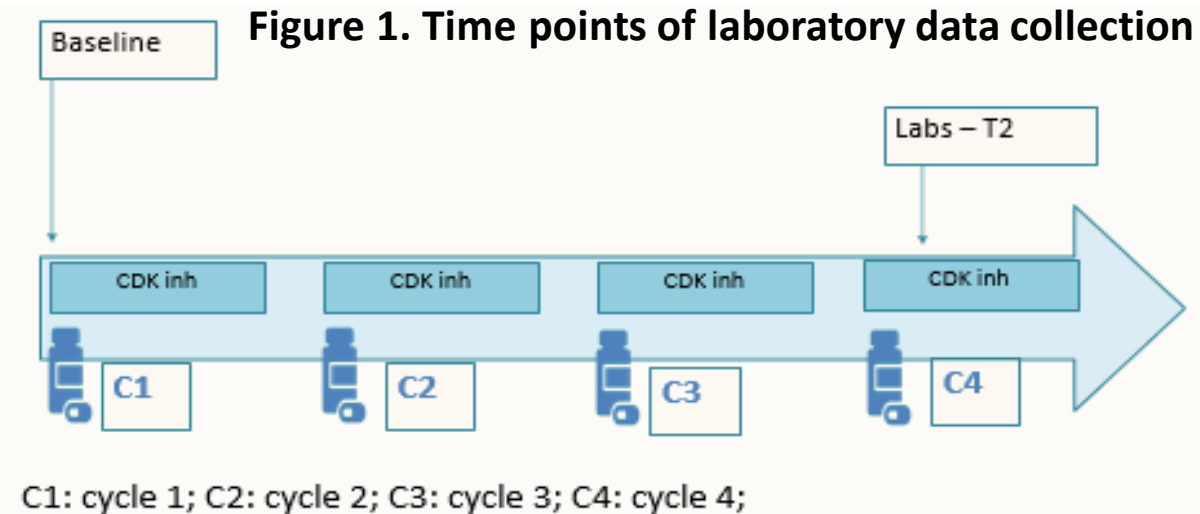
BACKGROUND

Preclinical evidence indicates that cyclin-dependent kinase (CDK) 4/6 inhibitors stimulate antitumor immunity, which may contribute to their anticancer activity. The neutrophil-to-lymphocyte ratio (NLR) and the platelet-to-lymphocyte ratio (PLR) reflect systemic inflammation and immune system functional status, and could be associated with CDK 4/6 inhibitor efficacy in patients (pts) with hormone receptor-positive advanced breast cancer (HR+ aBC).

METHODS

Characteristic	n
Median age, years (range)	61 (26-81)
ECOG Performance Status*	
0	139 (86%)
1	21 (13%)
2	2 (1%)
Liver metastases	
No	136 (84%)
Yes	26 (16%)
Endocrine therapy used in combination	
AI	82 (51%)
Fulvestrant	80 (49%)
Line for metastatic disease	
1	96 (59%)
2	46 (28%)
3	20 (13%)

Table 1. Baseline patients' characteristics.



We performed a retrospective, monocentric study to investigate the association between NLR or PLR, as measured at baseline and after the first three treatment cycles (**Figure 1**), and progression free survival (PFS) in HR+ aBC pts treated with CDK 4/6 inhibitors in combination with endocrine therapies (ETs). The thresholds were defined using the maximally selected rank statistics. Cox proportional hazard model was used at univariate and multivariable analysis.

RESULTS

A total of 162 pts treated with palbociclib (n=142), ribociclib (n=16) or abemaciclib (n=4) plus ETs between January 2017 and December 2019 at our Institution were included (**Table 1**). NLR and PLR at baseline were not associated with PFS. Conversely, high NLR (>3) and high PLR (>323.6) after three treatment cycles were associated with significantly lower PFS (p=0.011 and p=0.013, respectively (**Figure 2**). Multivariable analysis confirmed an independent association between high NLR or PLR and lower PFS (aHR 3.66, 95% CI 1.44-9.33, p=0.007 and aHR 2.79, 95% CI 1.36-5.70, p=0.005, respectively).

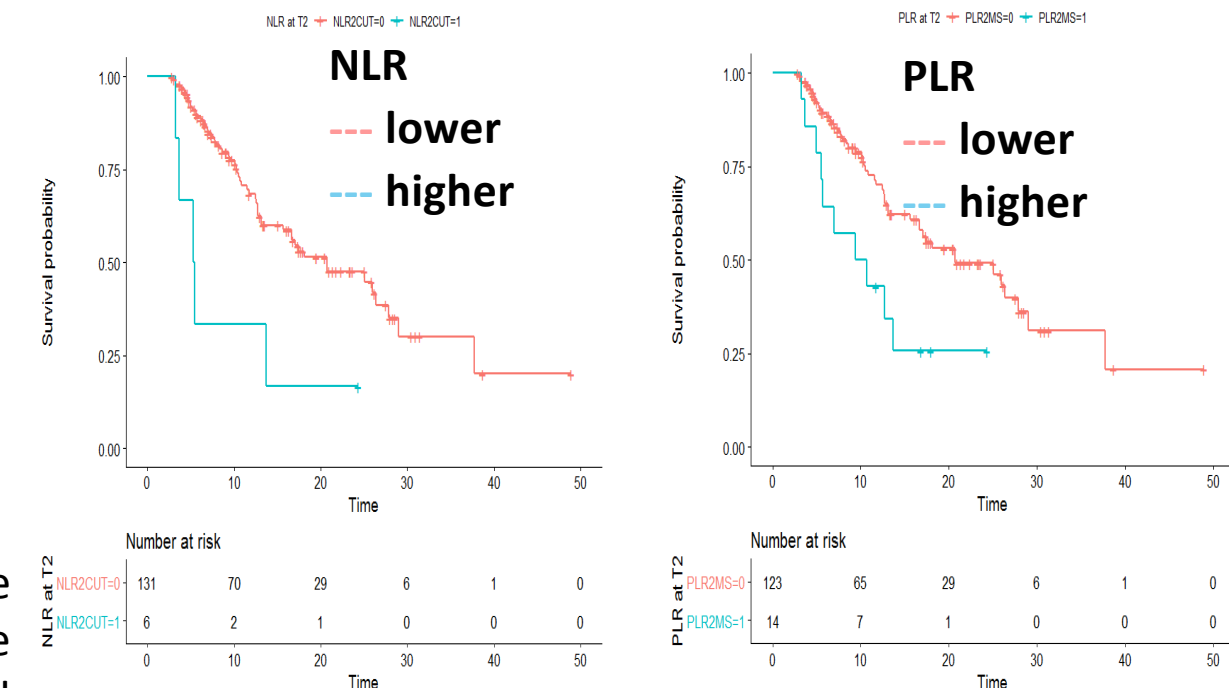


Figure 2 depicts PFS Kaplan-Meier curves of patients with higher vs. equal-lower than the cutpoint NLR (2.a) or MLR (2.b) values after three months of treatment with CDK 4/6 inhibitors.

CONCLUSIONS

This is the first study to show a significant association between high NLR or PLR values during CDK 4/6 inhibitor treatment and lower PFS in HR+ aBC pts, suggesting that they could be used as precocious biomarkers of treatment efficacy. A multicenter observational study to confirm these data in a larger cohort of pts is ongoing.

REFERENCES:

- [@emma.zattarin@istitutotumori.mi.it](mailto:emma.zattarin@istitutotumori.mi.it)
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