

FPN 13P High Neutrophils-to-Lymphocyte Ratio (NLR) Predicts Poor Survival of High-PD-L1-expressing metastatic Non Small Cell Lung Carcinoma Patients Undergoing First Line Immunotherapy with Pembrolizumab

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BACKGROUND

Systemic inflammatory response has independent prognostic value, across tumour types and geographical locations, in patients with advanced cancer: an elevated ratio of peripheral neutrophils-to-lymphocytes (NLR) has been recognized as a poor prognostic indicator in various cancers. This study aimed to determine whether NLR and platelets-to-lymphocytes ratio (PLR) reflect poor treatment benefits in patients suffering from metastatic Non Small Cell Lung Cancer (mNSCLC) who underwent first-line pembrolizumab monotherapy.

METHODS

We retrospectively analyzed 87 mNSCLC patients with programmed cell-death ligand 1 (PD-L1) TPS ≥50%, who received pembrolizumab monotherapy in our institution between 2017 and 2020. NLR and PLR were calculated from pre-treatment complete blood counts. We evaluated univariate Kaplan Meier estimated overall survival and multivariate Cox Regression Hazard Ratio: cut-point of NLR and PLR were obtained with a Survival Analysis for Continuous Explanatory Variable

RESULTS

Patients with NLR lower than 8.59 had a median OS of 19 months vs 2,8 months of NLR high counterpart (*p-value* 0,0005); patients with PLR higher and lower than 207 have a median OS of 18,8 vs 12,1 months, respectively (*p-value* 0,173). Multivariate analysis revealed that high NLR, bone and liver metastases significantly and independently correlated to poor overall survival.

Fig 1. Survival Analysis for Continuous NLR Variable

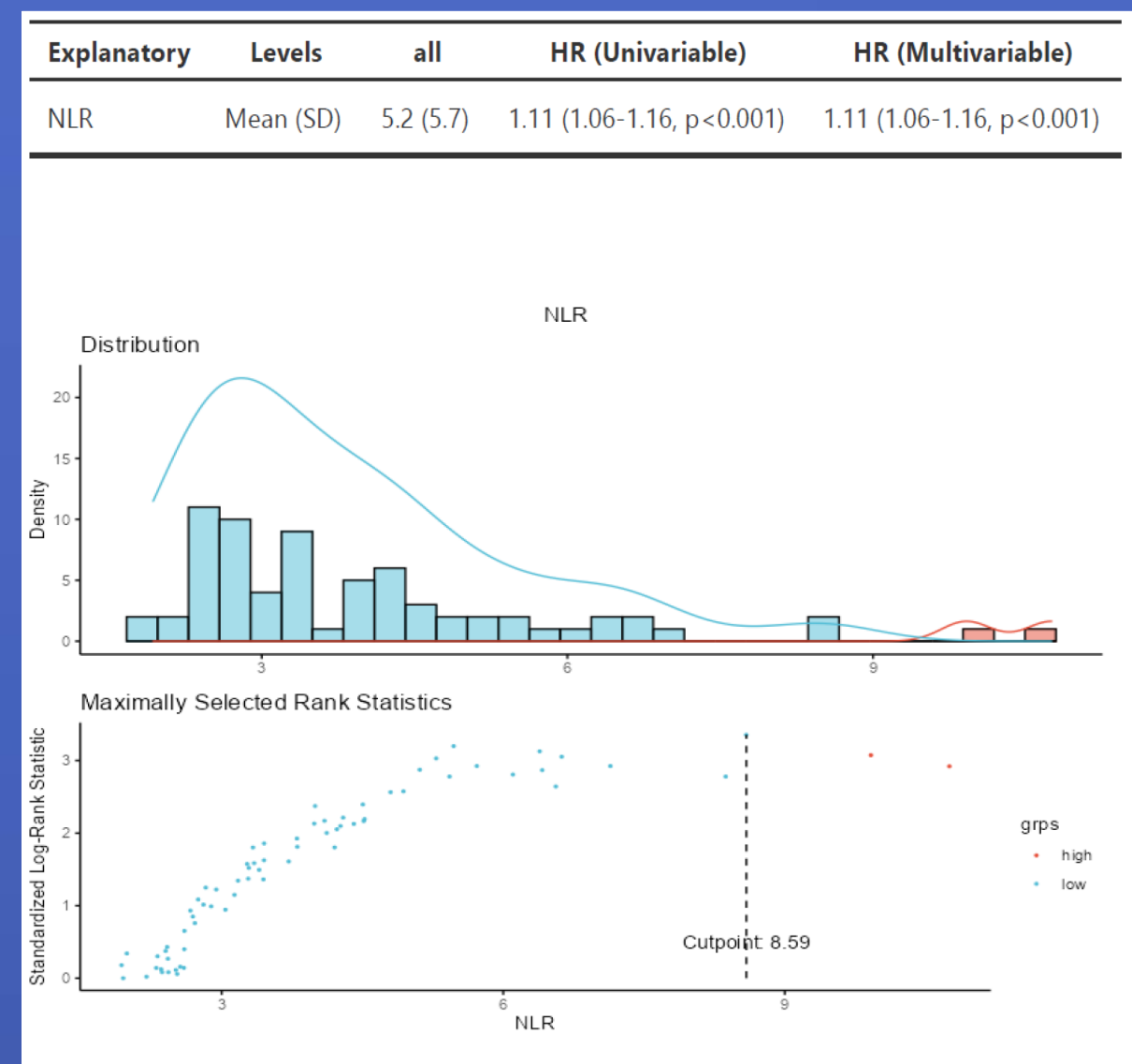


Fig 2. Survival Analysis for Continuous PLR Variable

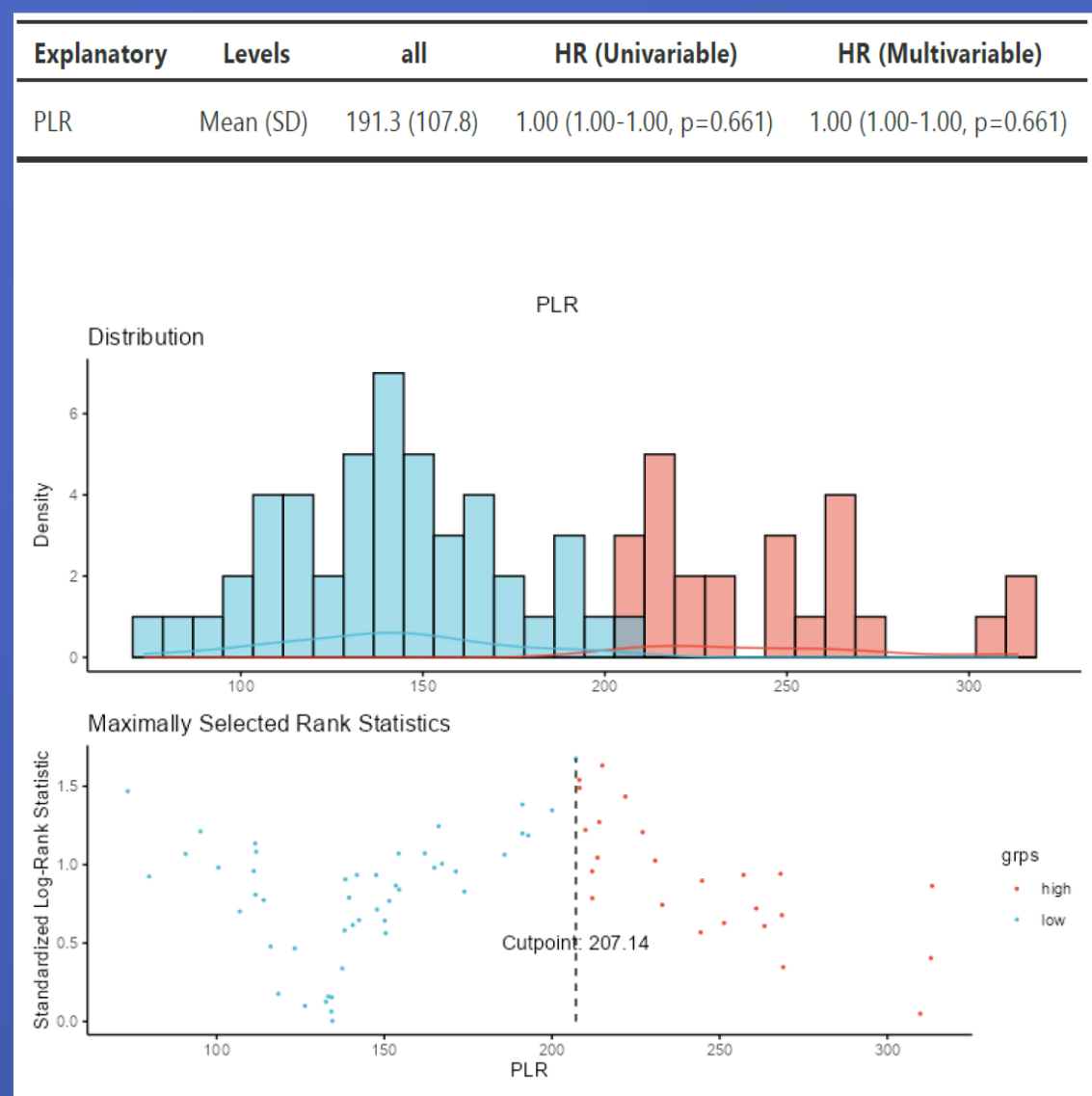


Fig 3. Overall Survival by NLR cut-off – log rank test Kaplan Meier

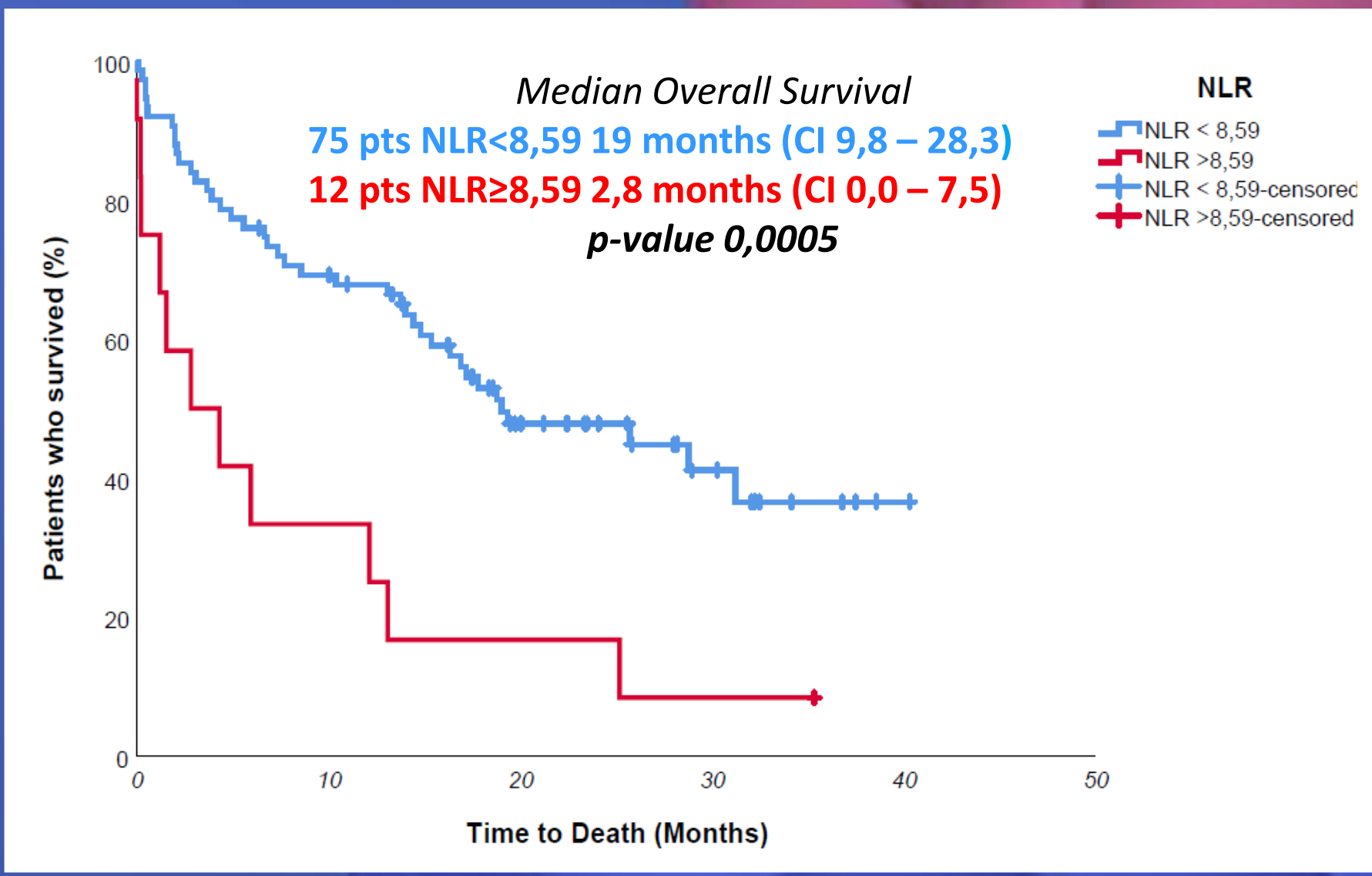


Table 1. Cox Model for Multivariate Analysis

	HR	CI 95%	p value
Gender (M vs F)	0,72	0,27 – 1,9	0,5
Age (continuous)	1	0,97 – 1,04	0,8
PD-L1 % (continuous)	1	0,98 – 1,02	0,72
Tumor Histology			0,75
Adenocarcinoma	1		
Squamous	0,81	0,33 – 2	0,64
NSCLC NOS	1,27	0,51 – 3,2	0,61
NLR ≥ 8.59	5	2 – 12,6	0,001
PLR ≥ 207	1,2	0,61 - 2,34	0,61
Metastatic sites			
Lymphnodes	1,18	0,44 – 3,14	0,74
Lung	1,68	0,64 – 4,07	0,26
Pleura	1,23	0,49 – 3,12	0,66
Bone	2,64	1,29 – 5,4	0,008
Brain	0,72	0,28– 1,89	0,5
Liver	4,17	1,51 – 11,5	0,006
Adrenal glands	0,59	0,25 - 1,38	0,22
Other	1,04	0,49 – 2,2	0,92

CONCLUSIONS

High NLR is significantly associated to shorter overall survival in previously untreated patients suffering from metastatic NSCLC with high expression of PD-L1 treated with pembrolizumab monotherapy.