

P1.274: Radiological Tumor Burden and Blood Immune Dynamics Stratify Survival in First-Line ICI-Treated NSCLC

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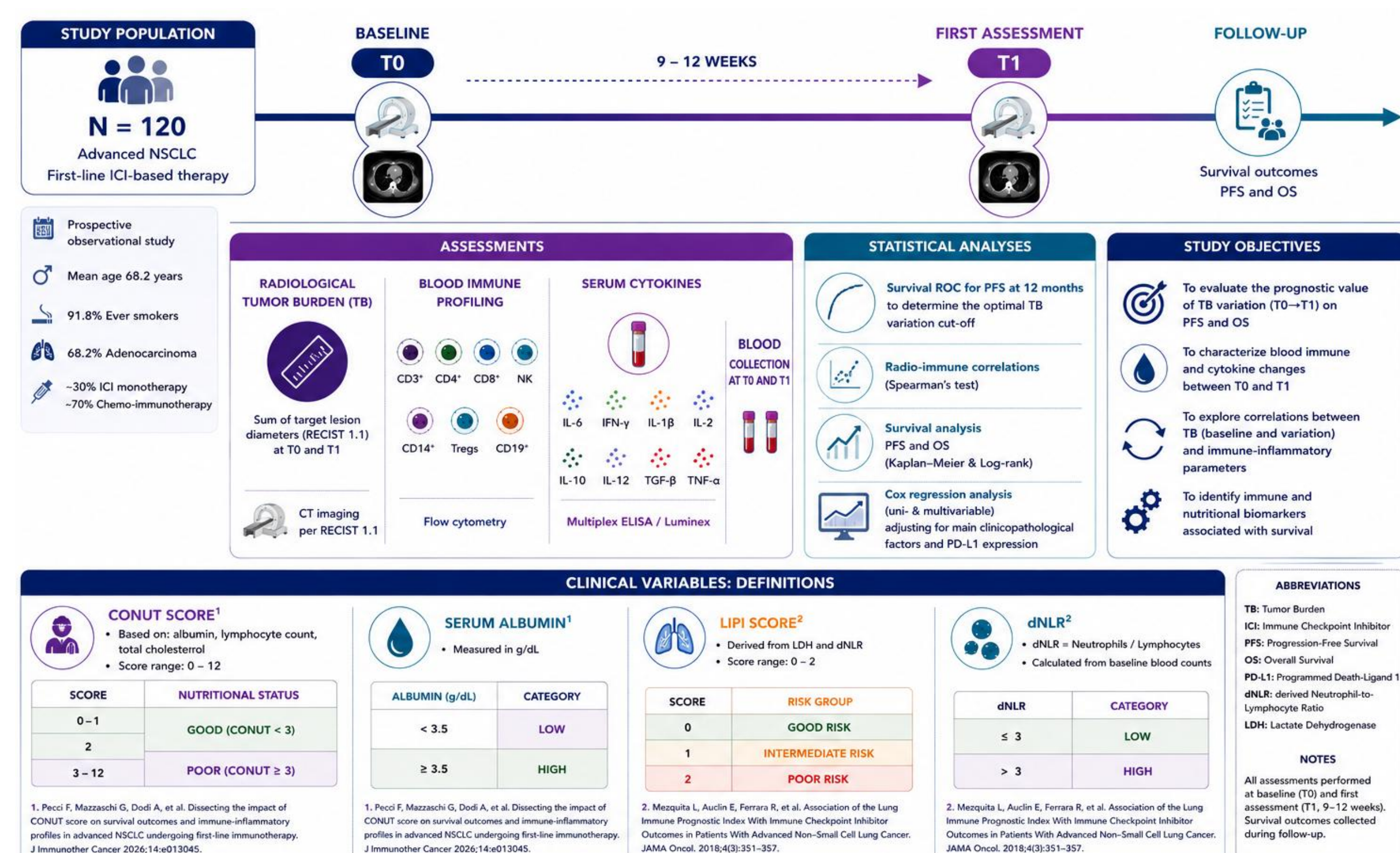
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INTRODUCTION

In patients with advanced non-small-cell lung cancer (NSCLC) treated with immune checkpoint inhibitors (ICIs), RECIST 1.1 may fail to fully capture biologically relevant response patterns. Integrating tumor burden (TB) dynamics with systemic immune-inflammatory features could significantly improve prognostic stratification and clinical management.

METHODS AND PATIENT POPULATION

Study Design

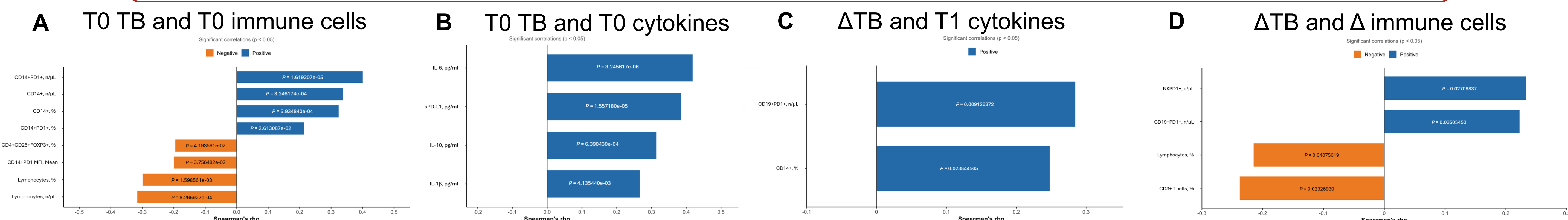


Patient Population

Overall (N= 120)			Overall (N= 120)		
Age			Antibiotics before IO		
Mean (SD)	68.2 (9.05)		No	108 (90.8%)	
Sex			Yes	12 (9.2%)	
Female	39 (32.5%)		Steroids before IO		
Male	81 (67.5%)		No	84 (70.6%)	
Smoking status			Yes	36 (29.4%)	
Current	51 (42.5%)		PPI before IO		
Former	59 (49.2%)		No	63 (52.1%)	
Never	10 (8.3%)		Yes	57 (47.9%)	
ECOG PS			CONUT score		
0-1	110 (91.7%)		Bad	39 (38.2%)	
2	10 (8.3%)		Good	63 (61.8%)	
Histology			Missing	18 (15.0%)	
ADC	82 (68.3%)		Number of metastatic sites		
SCC	20 (16.7%)		≥ 4	59 (49.2%)	
Others	18 (15%)		< 4	61 (50.8%)	
PD-L1 status			Metastatic involvement		
High	33 (28.9%)		Bone	33 (27.5%)	
Low	54 (47.4%)		Brain	35 (29.2%)	
Neg	27 (23.7%)		Liver	13 (10.8%)	
Missing	6 (5.0%)		Baseline tumor burden		
Type			Mean (SD)	81.8 (53.7)	
Chemo-immunotherapy	81 (67.5%)		Tumor burden variation (T0-T1)		
ICI single agent	39 (32.5%)		Mean (SD)	-2.63 (86.2)	

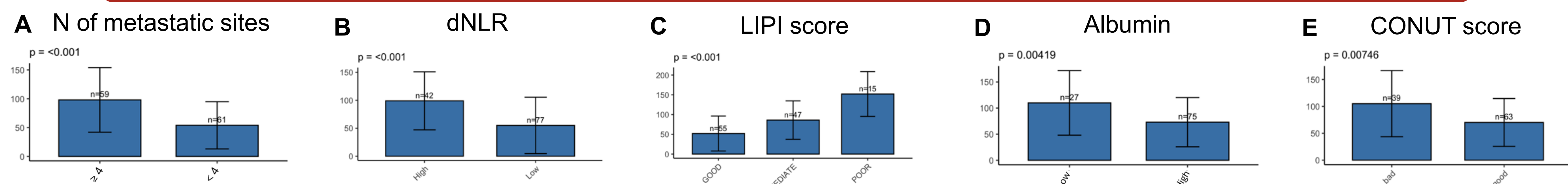
RESULTS

Correlations between radiological tumor burden (TB) and blood immune-inflammatory profile



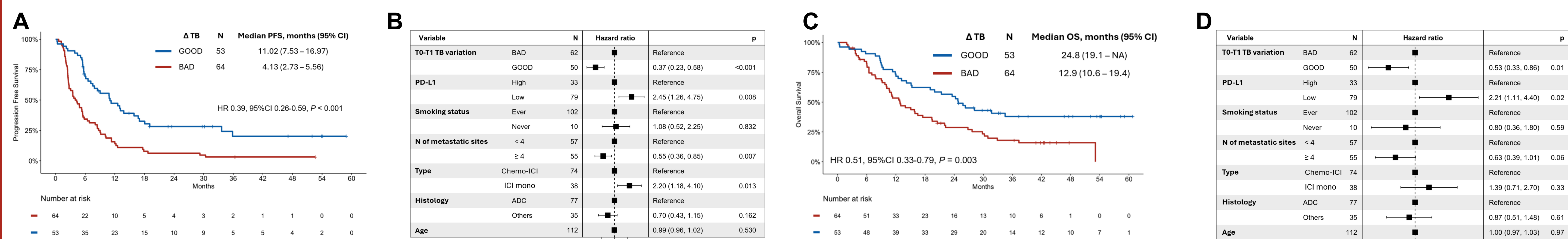
Baseline (T0) TB showed significant direct correlations with CD14⁺ cells, including CD14⁺PD1⁺ cells expressing the inhibitory PD-1 receptor (A), and with pro-inflammatory mediators, including IL-6 and sPD-L1 (B), while showing inverse associations with T regulatory cells and total lymphocytes (A). Dynamic analysis of TB variation from T0 to T1 (Δ TB) revealed that TB increase significantly correlated with higher T1 IL-6 levels and expansion of CD19⁺PD1⁺ B cells and CD14⁺ cells (C). Moreover, Δ TB was directly correlated with expansion of circulating NKPD1⁺ and CD14⁺PD1⁺ populations (D).

Correlations between radiological tumor burden (TB) and clinicopathological features



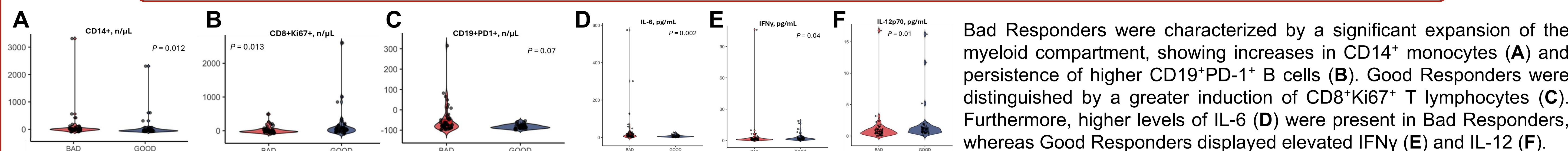
Baseline (T0) radiological tumor burden (TB) showed significant direct associations with a higher number of metastatic sites (A) and adverse systemic inflammatory and nutritional profiles, including poor CONUT and LIPI scores, lower serum albumin levels, and higher dNLR (B-E).

Impact of radiological tumor burden variation (Δ TB) on survival outcome



ROC analysis identified an optimal TB reduction cut-off of -15.7% (AUC: 0.618; Sensitivity: 0.671; Specificity: 0.697) to distinguish "Good" (n=53) from "Bad" (n=64) responders. Good Responders achieved significantly superior survival outcomes compared to Bad Responders both in terms of PFS (A) and OS (C). In multivariable analysis, adjusting for main clinicopathological factors, TB variation remained an independent prognostic factor for both PFS (B) and OS (D), alongside PD-L1 expression.

Blood immune-inflammatory profiles according to radiological tumor burden variation (Δ TB)



CONCLUSION

TB dynamics, using a threshold of -15.7%, independently stratified PFS and OS in advanced NSCLC treated with ICIs. The distinct immune trajectories observed in Good versus Bad Responders - characterized by CD8⁺ T-cell activation versus myeloid/B-cell expansion - support the integration of radiological tumor burden dynamics with systemic immune profiling to refine response assessment beyond RECIST 1.1.