



Real-World Comparative Effectiveness and SHAP-Guided Subgroup Insights for First-Line PD-1 Inhibitor Plus Chemotherapy in Advanced NSCLC

Yunhuan Liu¹, Chao Zhao², Xuefei Li², Caicun Zhou¹, Lei Cheng²

¹Department of Clinical Oncology, Shanghai East Hospital, ²Department of Clinical Oncology, Shang Pulmonary Hospital

Correspondence: Caicun Zhou: caicunzhoudr@163.com, Lei Cheng: Chenglei_2008@126.com



IASLC 2026 World
Conference on Lung Cancer

SEPTEMBER 12 – 15, 2026
SEOUL, REPUBLIC OF KOREA

INTRODUCTION

Immune checkpoint inhibitor plus chemotherapy is standard first-line therapy for advanced NSCLC without actionable driver alterations. Direct comparisons of PD-1 inhibitor regimens are limited, and PD-L1 alone may not fully capture treatment heterogeneity.

METHODS

In this retrospective real-world cohort, 331 patients received first-line camrelizumab, pembrolizumab, sintilimab, or tislelizumab plus platinum-based chemotherapy. PFS and OS were analyzed using Kaplan-Meier curves and log-rank tests; ORR was analyzed via logistic regression overall and by PD-L1 TPS subgroups. Eleven machine-learning algorithms were evaluated in the ORR complete-case cohort, with SHAP analysis prioritizing baseline variables for ORR and DCB subgroup analyses.

DISCUSSION AND CONCLUSION

The four PD-1 inhibitor–based regimens exhibited comparable efficacy overall and across PD-L1 subgroups. Machine-learning and SHAP-guided analyses suggest that baseline features, particularly pathology, bone metastasis, albumin, basophil count, and PLR, may refine short-term benefit stratification beyond PD-L1. These results support individualized first-line immunochemotherapy strategies in advanced NSCLC and warrant prospective validation.

REFERENCES & ACKNOWLEDGEMENTS

Artificial Intelligence (AI) Use Disclaimer

In accordance with the standards and guidance set forth by the Accreditation Council for Continuing Medical Education (ACCME), individuals in control of content are required to disclose the use of artificial intelligence (AI) in the development of educational materials. This includes identification of the specific AI tool(s) utilized and a description of how AI contributed to content creation as a slide reference.

IASLC maintains oversight of all educational content and conducts a thorough review process to ensure that materials are evidence-based, fair-balanced, and free from commercial bias, consistent with ACCME Standards for Integrity and Independence.

While AI may be used as a supportive tool in content development, it does not replace clinical expertise or independent medical judgment. Learners are advised to critically evaluate all information presented and apply their own professional judgment when incorporating knowledge into clinical practice.

**All individuals responsible for content must disclose within the slides if AI was used in the development of the material and specify which AI tool was utilized.*

RESULTS

Baseline characteristics were balanced across regimens. Overall, no significant differences were observed in PFS, OS, or ORR after PD-L1 stratification, except for OS in the PD-L1 TPS 1–49% subgroup. SHAP analysis identified pathology, bone metastasis, age, smoking, neutrophil count, PDW, basophil count, eosinophil count, monocyte count, hemoglobin, ALT, platelet count, albumin, PLR, and clinical stage as contributors to early response. Subgroup analyses showed higher ORR with camrelizumab versus pembrolizumab in adenocarcinoma, significant interactions for basophil count and PLR, higher DCB with tislelizumab in patients without bone metastasis, and lower DCB with sintilimab in patients with high albumin, compared with pembrolizumab.

Characteristic	Camrelizumab (n=96)	Pembrolizumab (n=138)	Sintilimab (n=48)	Tislelizumab (n=49)	P value
Gender					0.21
Male	81 (84.4%)	119 (86.2%)	40 (83.3%)	47 (95.9%)	
Female	15 (15.6%)	19 (13.8%)	8 (16.7%)	2 (4.1%)	
Age					0.08
Age (years)	64.00 (54.00, 68.50)	65.00 (59.00, 71.00)	65.00 (58.50, 69.50)	66.00 (61.00, 70.00)	
Smoking history					0.31
Never smoker	18 (18.8%)	32 (23.2%)	7 (14.6%)	13 (26.5%)	
Ever smoker	72 (75.0%)	89 (64.5%)	36 (75.0%)	34 (69.4%)	
ECOG performance					0.63
status					
ECOG PS 1	96 (100.0%)	137 (99.3%)	47 (97.9%)	49 (100.0%)	
ECOG PS 2	0 (0.0%)	1 (0.7%)	1 (2.1%)	0 (0.0%)	
Pathology					<0.001
Adenocarcinoma	69 (71.9%)	66 (47.8%)	15 (31.2%)	11 (22.4%)	
Squamous cell carcinoma	25 (26.0%)	44 (31.9%)	26 (54.2%)	31 (63.3%)	
carcinoma					
NSCLC	2 (2.1%)	25 (18.1%)	7 (14.6%)	7 (14.3%)	
Clinical stage					0.84
Stage III	21 (21.9%)	37 (26.8%)	11 (22.9%)	12 (24.5%)	
Stage IV	75 (78.1%)	101 (73.2%)	37 (77.1%)	37 (75.5%)	
Brain metastasis					0.86
Yes	10 (10.4%)	11 (8.0%)	3 (6.2%)	4 (8.2%)	
No	86 (89.6%)	127 (92.0%)	45 (93.8%)	45 (91.8%)	
Liver metastasis					0.12
Yes	7 (7.3%)	13 (9.4%)	2 (4.2%)	0 (0.0%)	
No	89 (92.7%)	125 (90.6%)	46 (95.8%)	49 (100.0%)	
Bone metastasis					0.14
Yes	31 (32.3%)	38 (27.5%)	12 (25.0%)	7 (14.3%)	
No	65 (67.7%)	100 (72.5%)	36 (75.0%)	42 (85.7%)	
PD-L1 TPS					<0.05, 0.048
<1%	30 (31.2%)	40 (29.0%)	14 (29.2%)	15 (30.6%)	
1-49%	27 (28.1%)	20 (14.5%)	5 (10.4%)	7 (14.3%)	
≥50%	16 (16.7%)	24 (17.4%)	5 (10.4%)	10 (20.4%)	

