1462P Impact of blood-based biomarkers on survival outcomes with pembrolizumab in pre-treated advanced non-small cell lung cancer (NSCLC) patients (pts)

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Background: Elevated neutrophil-lymphocyte ratio (NLR), derived NLR (dNLR) and lactate dehydrogenase (LDH) have been identified as potential prognostic/predictive biomarkers to immune checkpoint inhibitors (ICI). The Lung Immune Prognostic Index (LIPI) utilises dNLR and LDH to define prognostic subgroups associated with overall survival (OS) and overall response rate (ORR) to ICI. The objective of this study was to assess progression free survival (PFS) and OS in pre-treated advanced NSCLC pts who received pembrolizumab and to perform a comparative analysis of pre-treatment NLR, dNLR, LDH, LIPI score and PD-L1 tumour proportion score (TPS) on survival, ORR and toxicity.

Methods: Pre-treated advanced NSCLC pts who received pembrolizumab (Jan '17-Jan '18) at The Christie were identified. Baseline demographics, PD-L1 TPS, NLR, dNLR and LDH were collected. Elevated NLR, dNLR and LDH was defined as ≥ 5, ≥ 3 and $\geq$ upper limit normal (ULN), respectively. LIPI score was calculated (Table). Survival analysis was performed using Kaplan-Meier method. Univariate logistic regression models were used to assess patient characteristics on PFS.

Table: 1462P Lung immune prognostic index (LIPI)

Good	dNLR <3 AND LDH $<$ULN
Intermediate	dNLR ≥ 3 OR LDH $\geq$ULN
Poor	dNLR ≥ 3 AND LDH $\geq$ULN

Results: 58 pts were analysed; median age: 67, males 66%, non-squamous 64%, 53% had PD-L1 TPS 1-49%. After median follow up of 5.2 months, 38/58 (66%) pts progressed. Median PFS and OS was 3.7m (95% CI 2.52-9.54) and 11.2m (95% CI 6.3-NR), respectively. ORR was 22.4%. A non-significant trend towards longer PFS was observed between LDH $<$ULN vs $\geq$ULN (5.5 vs 2.8m; $p = 0.4$), NLR <5 vs ≥ 5 (5.51 vs 3.7m; $p = 0.99$), dNLR <3 vs ≥ 3 (5.51 vs 2.66; $p = 0.31$), PD-L1 TPS ≥ 50 vs 1-49% (9.54 vs 2.82m, $p = 0.29$) and LIPI good/int/poor subgroups (5.8 vs 3.02 vs 1.89m; $p = 0.23$). Impact of blood-based markers on ORR and toxicity will be presented.

Conclusions: Our cohort demonstrated similar survival outcomes to KEYNOTE-010. Baseline NLR, dNLR, LDH, PD-L1 TPS and LIPI score were not significantly prognostic of survival.

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