1407P Derived neutrophil-to lymphocyte ratio (dNLR) change between baseline and cycle 2 is correlated with benefit during immune checkpoint inhibitors (ICI) in advanced non-small cell lung cancer (NSCLC) patients

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Background: Baseline dNLR is associated with ICI outcomes in advanced NSCLC; we previously reported that the early dNLR change during ICI was correlated to benefit in 292 advanced NSCLC patients. We aimed to confirm the impact of dNLR monitoring in a larger cohort.

Methods: 1225 patients with advanced NSCLC treated with ICI (PD1/PDL1 +/- CTLA4) from 10 European/US centers were identified between Nov. 2012 and Mar. 2018. dNLR at baseline and before cycle 2 were retrospectively collected. dNLR was defined as neutrophils/(leucocytes-neutrophils). dNLR monitoring, combining dNLR at baseline (B) et before cycle 2 (C2) stratified the 3 groups: good (if dNLR$\leq$3 remained low at B and C2), intermediate (if dNLR status increased $\leq$3 at B and >3 at C2 or decreased >3 at B and $\leq$3 at C2), poor (dNLR>3 at B and C2).

Results: 689 (56%) were males, 1058 (87%) smokers, 1066 (87%) with PS $\leq$ 1, with median age 65 years; 926 (76%) had nonsquamous; 108 were KRASm. PDL1 was known in 403/1225 (33%) and was $\geq$1% in 270 (67%). The median PFS and OS were 3.1m [95% CI 3-4] and 12m [10-13.7]. dNLR was >3 at B in 416 (34%) and before C2 in 417 pts (34%). At C2, the dNLR status changed in 267 pts, with 133 (11%) dNLR decreased and 134 (11%) dNLR increased. The median OS was 18.6m [16-21] for the good group when dNLR remained low (n = 675, 55%), 9.2m [8-13.9] for the intermediate when dNLR changed (n = 267, 22%) and 5m [4-6.3] for the poor group when dNLR remained high (dNLR>3, n = 283, 23%) (P < 0.0001). The median PFS was 5m [4-5.5] for the good group, 2.6m [2-4] for the intermediate and 2m [2-2.6] for the poor group (P < 0.0001). The poor group was associated with radiological disease progression (OR 2.22, CI 1.33-3.7, P = 0.002).

Conclusions: Baseline and 2nd cycle dNLR monitoring can early discriminate the benefit to ICI in advanced NSCLC patients on treatment. dNLR should be prospectively studied in clinical trials.

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Table: 1407P

Multivariate analysis	Progression-free Survival (PFS)			Overall Survival (OS)		
	HR	95% CI	P value	HR	95% CI	P value
Age >65 years	0.98	0.79-1.21	0.847	1.15	0.89-1.47	0.292
Gender Male	0.92	0.72-1.18	0.525	1.05	0.79-1.41	0.712
Smoking Former/current smoker	0.56	0.38-0.84	0.005	0.49	0.49-1.23	0.294
Histology Squamous	1.25	0.98-1.60	0.20	1.33	0.99-1.78	0.16
N# line of ICI >2	0.88	0.70-1.09	0.232	0.93	0.72-1.20	0.581
N# metastatic sites >2	1.56	1.26-1.94	<0.0001	1.70	1.31-2.2	<0.0001
Performance status $\geq$2	1.73	.29-2.31	<0.0001	2.05	1.49-2.82	<0.0001
dNLR monitoring Intermediate Poor	1.24 1.62	0.94-1.62 1.22-2.13	0.003	1.23 2.34	0.89-1.70 1.72-3.18	<0.0001