REAL-WORLD ASSESSMENT OF CURRENT TREATMENT PATTERNS AND CLINICAL OUTCOMES AMONG PATIENTS WITH EGFR AND ALK WILD TYPE NON-SMALL CELL LUNG CANCER (NSCLC) IN THE US

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Background Treatment for advanced non-small cell lung cancer (NSCLC) has dramatically advanced in the past 5 years with the advent of immunotherapy (IO). This study sought to describe treatment patterns and clinical outcomes in a representative sample of NSCLC patients.

Methods Patients were identified by physicians from a voluntary sample of community practices across the US. Stage IIIB/IV NSCLC patients with EGFR/ALK wild-type initiating any first-line (1L) systemic therapy between 01/01/2016 and 12/31/2019 with at least 2 months of follow-up (unless deceased) were included, and were followed until November 2020. Sampling quotas included 250 patients who initiated 1L in 2016/2017 and 250 patients who did so in 2018/2019. Best tumor response was collected from patient charts during each line of therapy (LOT). Progression-free survival (PFS) and overall survival (OS) were calculated from initiation of 1L by Kaplan-Meier method. Baseline characteristics and clinical outcomes are described and presented by treatment regimen received.

Results Of 500 submitted patients, 497 were included post QA/QC. Across all patients, mean age at 1L initiation was 65 years, 57.3% were male, 92.9% had stage IV disease, and 68.6% were ECOG-OS 0/1 (Table 1). Overall, 60.2% (n=299), 33.2% (n=165), and 6.6% (n=33) received 1, 2, or =3 LOTs during the study period. Most common 1L regimens (%) were platinum-doublet chemotherapy plus IO (PDC+IO) (40.6%), PDC (29.4%), IO monotherapy (20.7%), PDC+bevacizumab (6.2%); while most common 2L regimens were IO monotherapy (42.4%), single-agent chemotherapy (SAC) (18.2%), SAC+VEGF inhibitor (15.7%), PDC (8.1%), and PDC+bevacizumab (5.6%). Over 90% of pts who received IO monotherapy had PD-L1 >50%. Moving from 2016/2017 to 2018/2019, utilization of 1L PDC declined from 45.0% to 13.7% while utilization of 1L PDC+IO increased from 27.3% to 54.0%. Among those who received only one LOT (n=299), 44.5% were still on 1L, 14.0% stopped receiving 1L, and 41.5% were deceased. Overall response rates were 67.3%, 35.6%, 60.2%, and 61.3% for 1L PDC+IO, PDC, IO monotherapy, and PDC+bevacizumab, respectively (Table 1). First-line median PFS/OS (months) was 15.6/26.5, 5.3/13.7, 17.8/NR, and 10.8/18.6, respectively for PDC+IO, PDC, IO monotherapy, and PDC+bevacizumab (table 1).

Conclusions Data from 2016 to 2020 was used provide a contemporary assessment of treatment patterns among EGFR/ALK wild-type NSCLC patients. Although 1L treatment utilization shifted to IO-based regimens in recent years, 41.5% of patients did not survive to receive second-line therapy, 1L PFS did not exceed 1.5 years, and median OS remained limited across all 1L treatment groups.

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	All Patients (n=497)		PDC+IO (n=202)		PDC (n=146)		IO monotherapy (n=103)		PDC+ bevacizumab (n=31)	
Years of 1L Initiation (n, row %)										
2016/2017	249	50.1%	68	27.3%	112	45.0%	41	16.5%	22	8.8%
2018/2019	248	49.9%	134	54.0%	34	13.7%	62	25.0%	9	3.6%
Age at 1L initiation, years (mean, SD)	65	9.5	63.0	9.2	64.7	8.4	69.1	10.6	65.5	7.4
Male (n, %)	285	57.3%	120	59.4%	85	58.2%	53	51.5%	21	67.7%
Non-squamous*	349	70.2%	146	72.3%	73	50.0%	86	83.5%	31	100%
Stage IVA/B at diagnosis (n, %)	462	92.9%	185	91.6%	135	92.5%	98	95.1%	30	96.8%
ECOG-PS 0/1 (n, %)	339	68.6%	156	77.2%	80	55.9%	66	64.1%	29	93.5%
PD-L1 (n, %)										
<1%	99	19.9%	37	18.3%	47	32.2%	0	0.0%	10	32.3%
1-49%	219	44.1%	133	65.8%	59	40.4%	10	9.7%	9	29.0%
≥ 50%	127	25.6%	29	14.4%	4	2.7%	93	90.3%	0	0.0%
Unknown	52	10.5%	3	1.5%	36	24.7%	0	0.0%	12	38.7%
1L response (PR or CR) (n, %)	275	55.3%	136	67.3%	52	35.6%	62	60.2%	19	61.3%
1L PFS (median, 95% CI)	11.6 (10.4-12.7)		15.6 (13.4-17.1)		5.3 (4.0-6.0)		17.8 (15.7-32.5)		10.8 (8.4-12.2)	
1L OS (median, 95% CI)	21.2 (18.6-23.0)		26.5 (21.0 - NR)		13.7 (9.4-17.3)		NR (24.0-NR)		18.6 (16.9-30.1)	

* All remaining patients with either squamous or mixed histology.

Keys: 1L – first-line; CI – confidence interval; CR – complete response; ECOG-PS – Eastern Cooperative Oncology Group performance status; IO – immunotherapy; NR – not reached; OS – overall survival; PDC – platinum doublet chemotherapy; PDC – platinum doublet chemotherapy; PDC+IO – platinum doublet chemotherapy plus immunotherapy; PD-L1 – programmed death-ligand 1; PFS – progression-free survival; PR – partial response; SD – standard deviation.

Ethics Approval On August 20, 2020, Western Institutional Review Board (WIRB) approved a request for a waiver of authorization for use and disclosure of protected health information (PHI) for this research. The study is exempt under 45 CFR § 46.104(d)(4).

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