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Real-World Treatment Patterns Among Patients with Advanced NSCLC Treated with Amivantamab

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Key Takeaway

Prior to initiating amivantamab, a high proportion of NSCLC patients received inappropriate treatment with immunotherapy agents, potentially exposing them to suboptimal treatment and avoidable toxicity risk

Conclusions

Among patients receiving amivantamab in 2L+, the majority initiated treatment as monotherapy following prior treatment with PBC, in line with the US FDA approval at the time of this study

Irrespective of the line of therapy within which amivantamab was initiated, more than half of patients had prior use of immunotherapy in combination with PBC, demonstrating persistent use of suboptimal treatment among a clinically challenging patient population

Future research with longer follow-up and amivantamab use in earlier lines of therapy is warranted, to reflect newer US FDA approvals and to provide a deeper understanding of amivantamab use and treatment sequencing in real-world settings

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Disclosures
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Background

- Epidermal growth factor receptor mutations (EGFRm) are present in approximately 17% of patients with non-small cell lung cancer (NSCLC),[1] and among those with EGFRm, up to 12% of patients have Exon 20 insertion (Ex20Ins) mutations, making it the third most common *EGFR* mutation[2-4]
- Ex20Ins mutations, specifically, have been associated with worse prognosis and shorter survival rates compared to other forms of NSCLC[5]
- While immunotherapy and chemotherapy are common classes of therapies used to treat NSCLC, immunotherapy monotherapy has shown limited effectiveness in EGFRm advanced NSCLC,[6] and when used with platinum-based chemotherapy (PBC), treatment with immunotherapy increases toxicity risk without adding therapeutic benefit[7-9]
- The United States (US) Food and Drug Administration (FDA) approved amivantamab on 5/21/2021 for patients with EGFRm Ex20Ins advanced NSCLC who progressed after PBC,[10] for first-line (1L) EGFRm Ex20Ins on 3/1/2024,[11] and for 1L (8/19/2024)[12] and second-line (2L) (9/19/2024) EGFRm Exon 19 deletion and L858R[13]
- Given the evolving treatment landscape for patients with advanced EGFRm Ex20Ins NSCLC, real-world data on the use of amivantamab in clinical practice is needed

Objective

- To describe real-world treatment patterns among patients with advanced NSCLC initiating amivantamab in 2L or later (2L+)

Methods

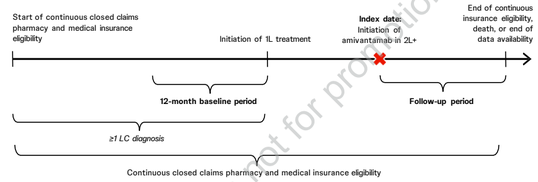
Data source

- Closed administrative insurance claims from Komodo Research Database (KRD) were used (1/1/2016-10/31/2023)
- KRD captures a US census-level representation of ages, incomes, and ethnicities to characterize a diverse patient cohort and ensures socioeconomic diversity by sourcing closed claims from Commercial, Medicare, Medicaid, Managed Medicaid, and other payers
- Data were de-identified and comply with the patient health information requirements of the Health Insurance Portability and Accountability Act

Study design

- A retrospective cohort study design was used (**Figure 1**)

Figure 1: Study Design Scheme



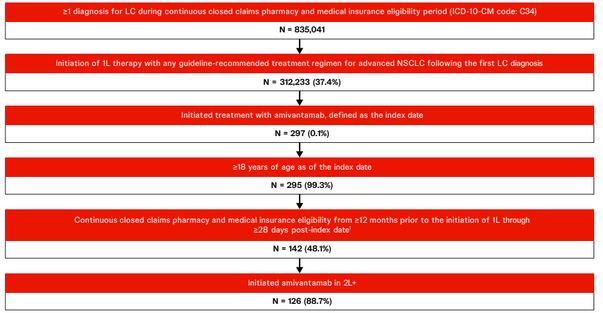
Abbreviations: 1L: first-line; 2L+: second-line or later; LC: lung cancer.

- The index date was defined as the date of amivantamab initiation in 2L+
- Patient demographics and clinical characteristics were described during the 12-month period preceding the initiation of 1L therapy (baseline period)
- The follow-up period was defined as the time between the index date and the end of continuous insurance eligibility, death, or end of data availability, whichever occurred first

Study population

- Adult patients with advanced NSCLC who initiated amivantamab in 2L+ on or after 5/21/2021 were selected according to the criteria presented in **Figure 2**

Figure 2: Sample Selection



Abbreviations: 1L: first-line; 2L+: second-line or later; ICD-10-CM: International Classification of Disease, Tenth Revision, Clinical Modification; LC: lung cancer; NSCLC: non-small cell lung cancer.
Note: 1. A washout period of 12 months of continuous closed claims pharmacy and medical insurance eligibility was required to accurately identify 1L and ensure that patients did not have other NSCLC treatments prior to 1L. A minimum of 28 days post-index was required (corresponding to the amivantamab cycle length) to identify whether amivantamab was initiated as monotherapy or combination therapy.

Study measures and statistical analysis

- Treatment patterns, including prior treatments received, were described separately for patients initiating amivantamab in 2L, third-line (3L), and fourth-line or later (4L+)
- Results were reported descriptively using means, standard deviations (SDs), and medians for continuous variables, and frequencies and proportions for categorical variables

Results

Study sample and baseline characteristics

- A total of 126 patients initiated amivantamab in 2L+, with 51.6% receiving the treatment in 2L, 32.5% in 3L, and 15.9% in 4L+ (**Figure 2**)
- The mean age of patients at the initiation of amivantamab was 60.2 years, 63.5% were female, and 61.1% were covered by commercial insurance (**Table 1**)
- The mean Quan-Charlson Comorbidity Index (Quan-CCI) score was 7.2 and 30.2% of patients had brain metastases
- The mean time between the first observed lung cancer diagnosis and initiation of 1L therapy was 5.5 months, and the mean time between the first observed lung cancer diagnosis and initiation of the amivantamab line of therapy was 20.8 months

Table 1: Baseline Demographic and Clinical Characteristics

	Study population N=126
Demographic characteristics[1]	
Age (years), mean ± SD [median]	60.2 ± 11.3 [59.5]
Female, n (%)	80 (63.5)
Year of index date, n (%)	
2021	19 (15.1)
2022	66 (52.4)
2023	41 (32.5)
Insurance plan, n (%)	
Commercial	77 (61.1)
Medicare	32 (25.4)
Medicaid	17 (13.5)
Clinical characteristics[2]	
Quan-CCI, mean ± SD [median]	7.2 ± 2.5 [7.0]
Time from first observed LC diagnosis to initiation of 1L (months), mean ± SD [median]	5.5 ± 12.1 [1.5]
Time from first observed LC diagnosis to initiation of amivantamab (months), mean ± SD [median]	20.8 ± 17.3 [15.3]
Prior care received, n (%)	121 (96.0)
QT-prolonging medications	115 (91.3)
Corticosteroids	94 (74.6)
Radiotherapy	41 (32.5)
Anticoagulant therapy	23 (17.5)
Topical corticosteroids for the treatment of rash	20 (15.9)
Tetracyclines for EGFR-related dermatological issues	19 (15.1)
Respiratory support	15 (11.9)
Lung-related surgery[3]	7 (5.6)
Antidiarrheals	3 (2.4)
Presence of brain or cerebral meninges metastases, n (%)	38 (30.2)

Abbreviations: 1L: first-line; EGFR: epidermal growth factor receptor; LC: lung cancer; Quan-CCI: Quan-Charlson Comorbidity Index; SD: standard deviation.
Notes: 1. Demographic characteristics were evaluated on the index date. 2. Clinical characteristics were reported in the 12-month baseline period prior to the initiation of 1L therapy, unless otherwise specified. 3. The first LC diagnosis was evaluated at any time during the period of continuous insurance eligibility prior to the initiation of 1L therapy. 4. Surgery included lung lobectomy, segmentectomy, sleeve resection, and pneumectomy.

Treatment patterns

- For patients initiating amivantamab in 2L, the median follow-up duration was 6.5 months (3L: 5.9 months; 4L+: 6.8 months), and the median duration of the amivantamab line of therapy was 6.2 months (3L: 4.0 months; 4L+: 5.2 months; **Table 2**)
- Amivantamab was received as monotherapy in 92.3% of 2L patients (3L: 73.2%; 4L+: 80.0%)
  - Among patients receiving amivantamab in combination therapy, the most common combination was amivantamab + osimertinib (2L: 4.6%; 3L: 19.5%; 4L+: 15.0%)

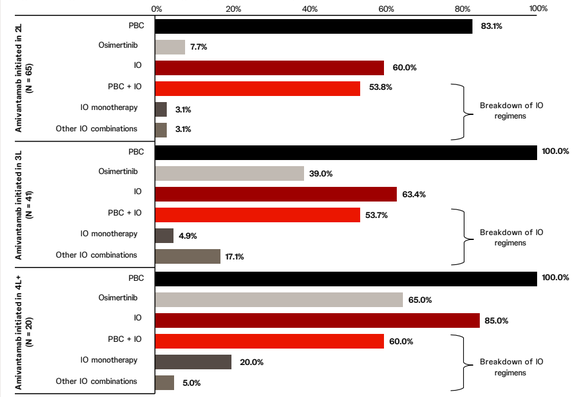
Table 2: Characteristics of the Amivantamab Line of Therapy

	Line of therapy during which amivantamab was initiated		
	2L therapy	3L +4L+ therapy	
	N=65	N=41	N=20
Duration of follow-up period from the start of the amivantamab line of therapy (months), mean ± SD [median]	8.5 ± 6.0 [6.5]	7.8 ± 6.2 [5.9]	9.2 ± 6.7 [6.8]
Duration of the amivantamab line of therapy (months)[1], mean ± SD [median]	7.5 ± 5.5 [6.2]	5.8 ± 5.6 [4.0]	7.0 ± 6.3 [5.2]
Characteristics of the amivantamab line of therapy, n (%)			
Monotherapy	60 (92.3)	30 (73.2)	16 (80.0)
Combination therapy	5 (7.7)	11 (26.8)	4 (20.0)
Amivantamab + Osimertinib	3 (4.6)	8 (19.5)	3 (15.0)
Amivantamab + Afatinib	1 (1.5)	1 (2.4)	-
Amivantamab + Gemcitabine	1 (1.5)	-	-
Amivantamab + Carboplatin + Gemcitabine	-	1 (2.4)	-
Amivantamab + Osimertinib + Trastuzumab	-	1 (2.4)	-
Amivantamab + Gemcitabine + Osimertinib	-	-	1 (5.0)

Abbreviations: 2L: second-line; 3L: third-line; 4L+: fourth-line or later; SD: standard deviation.
Note: 1. Duration of the line of therapy was defined as the time from the date of initiation of the line of therapy until the day preceding the initiation of the next line of therapy (or end of the follow-up period for patients without a next line of therapy).

- Prior PBC use was observed in 83.1% of patients initiating amivantamab in 2L (3L: 100.0%; 4L+: 100.0%) (**Figure 3**)
- Prior immunotherapy use was observed in 60.0% of patients initiating amivantamab in 2L (3L: 63.4%; 4L+: 85.0%), including 53.8% in combination with PBC (3L: 53.7%; 4L+: 60.0%) and 3.1% in monotherapy (3L: 4.9%; 4L+: 20.0%)

Figure 3: Agents Received During Any Line of Therapy Prior To Amivantamab Initiation[1,2]



Abbreviations: 2L: second-line; 3L: third-line; 4L+: fourth-line or later; IO: immunotherapy; PBC: platinum-based chemotherapy.
Notes: 1. Breakdown of IO regimens are not mutually exclusive; patients may have used multiple different immunotherapy regimens in multiple prior lines. 2. Other immunotherapy combination regimens included immunotherapy used in combination with non-PBC (i.e., pemetrexed, docetaxel, or paclitaxel), or osimertinib.

Limitations

- By initiating amivantamab, it was assumed that patients were treated for EGFRm advanced NSCLC; however, in the absence of clinical information in claims data, the specific disease stage and mutation type could not be confirmed
- Results may not be generalizable to uninsured patients or those with other types of insurance
- As with all claims-based studies, there may be inaccuracies due to coding errors and missing data

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