Patient Characteristics and Treatment Patterns in Extensive-Stage Small Cell Lung Cancer

HSD69

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Background

- In 2024, approximately 234,580 new cases of lung cancer were estimated in the United States, with 10-15% of these cases being small cell lung cancer (SCLC)[1]
- Nearly 60-70% of patients with SCLC present with extensive-stage (ES) disease at diagnosis[2]
- Clinical management of SCLC is difficult due to the aggressive nature of the disease; survival time is 2-4 months after diagnosis when left untreated[3]
- The current first-line (1L) standard of care for ES-SCLC is platinum-based chemotherapy with immunotherapy (IO) followed by 1L maintenance with IO. After 1L therapy, subsequent options include lurbinectedin, topotecan, platinum rechallenge, and tarlatamab[4]

Objectives

- This study sought to understand current treatment patterns and clinical characteristics of patients with ES-SCLC

Methods

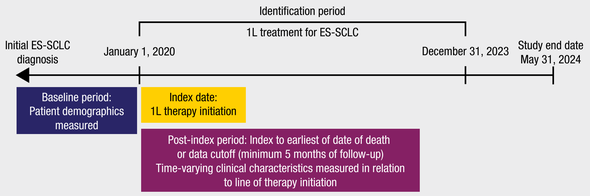
- A retrospective cohort study included adult patients with ES-SCLC identified in the electronic health record-derived deidentified Flatiron Health Research Database[5]
- Patients who initiated 1L treatment (platinum-based treatment ± durvalumab/atezolizumab) between January 1, 2020, and February 28, 2024, were included in the evaluation cohort (**Figure 1**); **Table 1** shows key eligibility criteria and outcomes

Table 1. Key Eligibility Criteria and Outcomes

Key Eligibility Criteria	Key Objectives
• Received a diagnosis of SCLC on or after January 1, 2013 • Initial diagnosis of ES-SCLC on/after August 1, 2019 • Received 1L treatment for ES-SCLC on or after January 1, 2020 (index date) • Had at least 5 months of follow-up before the data cutoff (May 31, 2024)	• Baseline demographic characteristics • Baseline and time-varying clinical characteristics • Treatment sequencing (including prior therapy before index date) • Treatment duration

1L, first line; ES, extensive-stage; SCLC, small cell lung cancer.

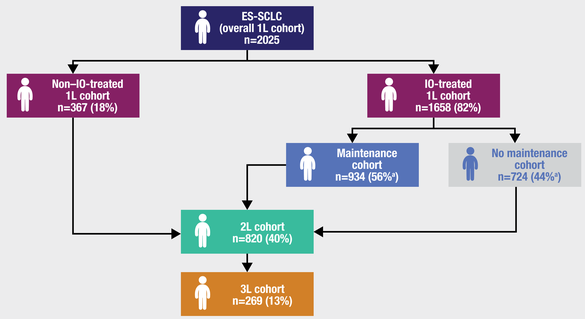
Figure 1. Study Design



1L, first line; ES-SCLC, extensive-stage small cell lung cancer.

Results

Figure 2. Treatment Cohorts in the Overall Study Population



[a]Percentage based on the 1658 patients with ES-SCLC who received 1L IO treatment.

1L, first line; 2L, second line; 3L, third line; ES-SCLC, extensive-stage small cell lung cancer; IO, immunotherapy.

- A total of 2025 patients with ES-SCLC were identified (**Figure 2**), with a mean age of ~68 years and 52% were female (**Table 2**)
  - Of these, 59% and 25% of patients had Eastern Cooperative Oncology Group performance status (ECOG PS) of 0-1 and 2-3, respectively
- 1658/2025 (82%) patients received IO + chemotherapy in the 1L, with 934/1658 (56%) patients receiving maintenance therapy with IO
- Overall, 820/2025 (40%) patients received second-line (2L) therapy, and 230/2025 (13%) patients received third-line (3L) therapy
- Patients who received 2L and 3L therapies after 1L maintenance therapy were younger and had lower ECOG PS than the overall 1L cohort

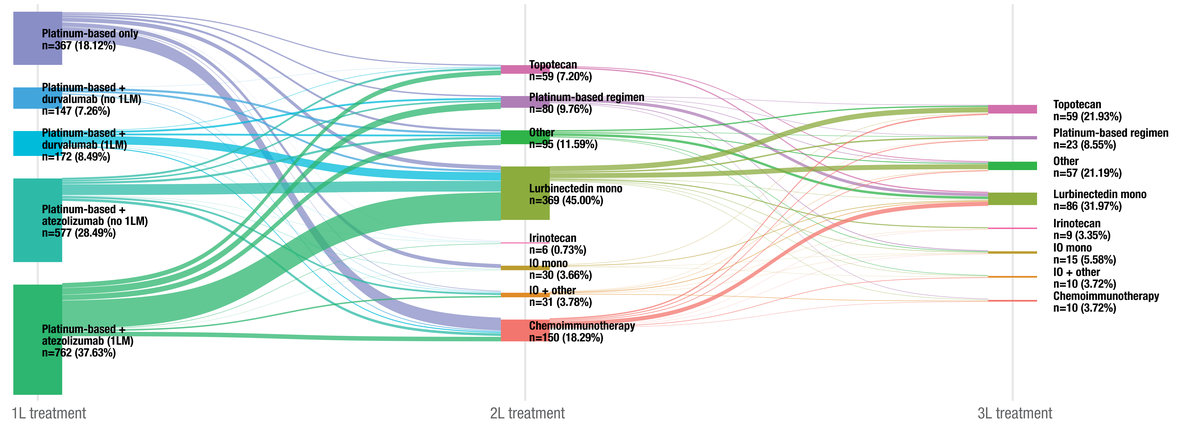
Table 2. Patient Characteristics

	Overall 1L Cohort n=2025	1L Induction Therapy		1L Maintenance Therapy Cohort n=934	2L Cohort n=820	3L Cohort n=269
		IO-Treated Cohort n=1658	Non–IO-Treated Cohort n=367			
Age,[a] years						
Mean (SD)	68.3 (8.8)	68.4 (8.6)	67.6 (9.4)	68.4 (8.5)	67.3 (8.6)	66.3 (8.7)
Sex, n (%)						
Female	1056 (52)	866 (52)	190 (52)	484 (52)	433 (53)	137 (51)
Male	969 (48)	792 (48)	177 (48)	450 (48)	387 (47)	132 (49)
Race, n (%)						
White	1442 (71)	1174 (71)	268 (73)	687 (74)	599 (73)	215 (80)
Black or African American	152 (8)	120 (7)	32 (9)	61 (7)	56 (7)	13 (5)
Other or unknown/undocumented	431 (21)	364 (22)	67 (18)	186 (20)	165 (20)	41 (15)
US region, n (%)						
Northeast	214 (11)	185 (11)	29 (8)	106 (11)	85 (10)	30 (11)
Midwest	242 (12)	193 (12)	49 (13)	123 (13)	101 (12)	37 (14)
South	911 (45)	777 (47)	134 (37)	440 (47)	351 (43)	106 (39)
West	185 (9)	158 (10)	27 (7)	86 (9)	69 (8)	22 (8)
Other/unknown	473 (23)	345 (21)	128 (35)	179 (19)	214 (26)	74 (28)
Insurance status, n (%)						
Commercial	1086 (54)	898 (54)	188 (51)	519 (56)	450 (55)	159 (59)
Medicare	225 (11)	173 (10)	52 (14)	94 (10)	87 (11)	29 (11)
Other or unknown	714 (35)	587 (35)	127 (35)	321 (34)	283 (35)	81 (30)
Practice type at index, n (%)						
Community	1568 (77)	1321 (80)	247 (67)	758 (81)	617 (75)	199 (74)
Academic	398 (20)	284 (17)	114 (31)	146 (16)	177 (22)	64 (24)
Both	31 (2)	28 (2)	3 (1)	15 (2)	15 (2)	2 (1)
Unknown	28 (1)	25 (1)	3 (1)	15 (2)	11 (1)	4 (1)
ECOG PS,[a] n (%)						
0-1	1193 (59)	990 (60)	203 (55)	645 (69)	568 (69)	183 (68)
2-4	513 (25)	418 (25)	95 (26)	188 (20)	190 (23)	64 (24)
Unknown	319 (16)	250 (15)	69 (19)	101 (11)	62 (8)	22 (8)
Upfront chest radiotherapy status at index, n (%)						
Yes	321 (16)	246 (15)	75 (20)	180 (19)	163 (20)	54 (20)
No/unknown	1704 (84)	1412 (85)	292 (80)	754 (81)	657 (80)	215 (80)
Median time from initial diagnosis to upfront chest RT, months (IQR)	3.4 (0.8, 4.5)	3.6 (1.0, 4.5)	1.5 (0.6, 4.1)	3.7 (1.7, 4.6)	3.6 (1.0, 4.5)	3.6 (0.8, 4.8)
Median duration of upfront chest RT, months (IQR)	0.5 (0.4, 1.2)	0.5 (0.4, 1.1)	0.6 (0.3, 1.4)	0.5 (0.4, 1.2)	0.5 (0.4, 1.3)	0.7 (0.4, 1.4)

[a]Age and ECOG PS were recorded at the beginning of line of therapy.

1L, first line; 2L, second line; 3L, third line; ECOG PS, Eastern Cooperative Oncology Group performance status; IO, immunotherapy; IQR, interquartile range; RT, radiotherapy; SD, standard deviation; US, United States.

Figure 3. Patient Flow in ES-SCLC Treatment



1L, first line; 1LM, first-line maintenance; 2L, second line; 3L, third line; ES-SCLC, extensive-stage small cell lung cancer; IO, immunotherapy; mono, monotherapy.

Table 3. 1L ES-SCLC Treatment Patterns

	Overall 1L Cohort n=2025
Median time to initiation of 1L induction therapy from initial diagnosis, months (IQR)	0.7 (0.4, 1.1)
Median duration of 1L therapy,[a] months (IQR)	2.1 (1.0, 2.7)
1L therapy category, n (%)	
No evidence of 1L IO induction therapy	367 (18)
Evidence of 1L IO induction therapy	1658 (82)
Median number of cycles for 1L IO treatment,[b] n (IQR)	4 (3, 4)
Median number of cycles for 1L platinum-based chemotherapy,[b] n (IQR)	4 (3, 4)
Initiated maintenance therapy after induction therapy among 1L IO-treated patients,[c] n (%)	934 (56)
Median time to maintenance therapy after induction therapy among 1L IO-treated patients, months (IQR)	3.0 (2.8, 3.5)
Median duration of 1L maintenance therapy, months (IQR)	2.8 (1.6, 5.5)

[a]Duration of therapy was calculated arithmetically using the start date of line of therapy and the date of last systemic therapy administration within the same line of therapy; [b]Among patients receiving 1L IO treatment; [c]Percentage was calculated based on the number of 1L IO-treated patients (n=1658).

1L, first line; ES-SCLC, extensive-stage small cell lung cancer; IO, immunotherapy; IQR, interquartile range.

- The median time to initiation of 1L induction therapy was 0.7 months from initial diagnosis, and the median duration of 1L induction therapy was 2.1 months (**Table 3**)
  - The median duration of 1L maintenance therapy was 2.8 months
- Overall, most (82%) patients received IO treatments for 1L induction therapy, and 56% of these patients received maintenance therapy after 1L induction therapy
- Among patients receiving 1L IO treatment, the median number of cycles was 4 for administration of either IO or platinum-based chemotherapy

Table 4. 2L ES-SCLC Treatment Patterns

	2L Cohort n=820
Median time to initiation of 2L therapy from initiation of 1L induction therapy, months (IQR)	5.7 (3.7, 8.0)
CTFI from last episode of 1L platinum chemotherapy to 2L initiation, n (%)	
30 days or less	164 (20)
31-90 days	203 (25)
91-180 days	249 (30)
>180 days	160 (20)
Median duration of 2L therapy,[a] months (IQR)	1.9 (0.7, 3.8)
Type of 2L therapy, n (%)	
Lurbinectedin monotherapy	369 (45)
IO + chemotherapy combination regimens	150 (18)
Platinum-based chemotherapy regimen only	80 (10)
Topotecan monotherapy	59 (7)
IO + other regimens	31 (4)
IO monotherapy	30 (4)
Irinotecan monotherapy	6 (1)
Other	95 (12)

[a]Duration of therapy was calculated arithmetically using the start date of line of therapy and the date of last systematic therapy administration within the same line of therapy.

1L, first line; 2L, second line; CTFI, chemotherapy-free interval; ES-SCLC, extensive-stage small cell lung cancer; IO, immunotherapy; IQR, interquartile range.

- The median duration of 2L therapy was 1.9 months (**Table 4**)
- Most common 2L therapy were lurbinectedin monotherapy (45%) and platinum-rechallenge with or without IO (28%)
  - Among the 369 patients treated with 2L lurbinectedin monotherapy, 28 (8%) received 1L chemotherapy alone and 341 (92%) received 1L IO + chemotherapy: 253 went on to receive IO maintenance therapy (atezolizumab, n=196 [53%]; durvalumab, n=57 [15%]) and 88 (24%) did not

Table 5. 3L ES-SCLC Treatment Patterns

	3L Cohort n=269
Median time to initiation of 3L therapy from initiation of 2L therapy, months (IQR)	4.4 (2.7, 6.5)
Median duration of 3L therapy,[a] months (IQR)	1.4 (0.7, 3.1)
Type of 3L therapy, n (%)	
Lurbinectedin monotherapy	86 (32)
Topotecan monotherapy	59 (22)
Platinum-based regimen only	23 (9)
IO + chemotherapy combination regimens	10 (4)
IO + other regimens	10 (4)
IO monotherapy	15 (6)
Irinotecan monotherapy	9 (3)
Other	57 (21)

[a]Duration of therapy was calculated arithmetically using the start date of line of therapy and the date of last systemic therapy administration within the same line of therapy.

2L, second line; 3L, third line; ES-SCLC, extensive-stage small cell lung cancer; IO, immunotherapy; IQR, interquartile range.

- The median duration of 3L therapy was 1.4 months (**Table 5**)
- The most common 3L therapies were lurbinectedin (32%), topotecan (22%), platinum (9%), and IO monotherapy (6%)

Conclusions

- Platinum-based chemotherapy + IO remains the standard-of-care 1L therapy for ES-SCLC
- Only a slight majority of patients receiving chemotherapy + IO for 1L induction therapy were treated with IO for 1L maintenance
- Lurbinectedin monotherapy was the most common 2L and 3L therapy
- Patients with ES-SCLC who received 1L maintenance and subsequent therapy tended to have lower ECOG PS compared to the overall cohort of patients receiving 1L therapy
- Reasons for not proceeding with maintenance therapy after 1L therapy should be further investigated

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