RWD175

Assessment of Real-World Treatment Patterns and Survival Outcomes Of Small Cell Lung Cancer Patients in England Utilising the English Cancer Registry Data

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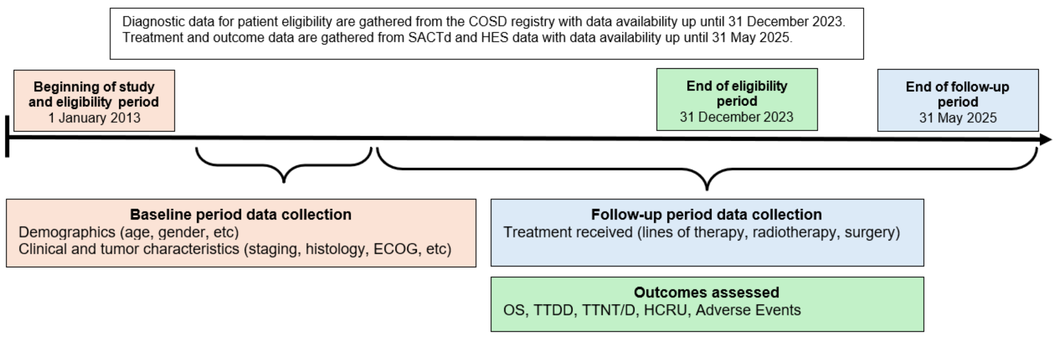
BACKGROUND AND OBJECTIVES

- Small cell lung cancer (SCLC) is an aggressive form of lung cancer characterised by rapid growth and early metastasis.[1]
- Progression of disease following a first-line (1L) treatment is associated with an extremely poor prognosis, especially for patients with extensive-stage (ES) SCLC.[2]
- SCLC is commonly categorised into limited or extensive stage disease to guide treatment.[3] Frontline treatment for patients with extensive stage SCLC (ES-SCLC) typically includes platinum chemotherapy and etoposide, with or without atezolizumab or durvalumab immunotherapy (TA638; TA1041).[4,5]
- Treatment options in the United Kingdom (UK) for patients with SCLC that has progressed beyond 1L treatment are significantly more limited, are all reliant on chemotherapy-based regimens, and have not changed in over 15 years.[6]
- The objective of this study was to evaluate real-world outcomes and treatment pathways in patients with ES SCLC who received systemic anti-cancer therapy (SACT) in England.

STUDY DESIGN

- English Cancer Registry (ECR) is a dataset linking the England National Cancer Registration and Analysis Service with data on cancer treatment, hospital records, and the national death registry.
- Patients diagnosed between January 2013 and December 2023 in the England National Cancer Registration and Analysis Service were included if they received at least one SACT in the Systemic Anti-Cancer Therapy dataset between January 2013 and May 2025 **(Figure 1).**
- The study reported patient characteristics, treatment patterns across lines of therapy (LoT), overall survival (OS), time to treatment discontinuation or death (TTDD), time to next treatment or death (TTNT/D); healthcare resource utilisation (HCRU); adverse events (AEs).
- Pre-specified subgroup stratifications included LoT, ECOG status, platinum sensitivity, and treatment regimens.

Figure 1: Study Design



Inclusion criteria

- Patients with SCLC (ICD-10 codes C34 and morphology codes 8041/3, 8042/3, 8043/3, 8044/3, 8045/3) with an incident diagnosis during the diagnostic inclusion period
- Patients with extensive staging (Stage IV or T3-4) at the time of incident SCLC diagnosis
- Patients who are at least 18 years of age at the time of incident SCLC diagnosis
- Patients treated with at least 1 SACT treatment included in Table 3 within 30 days prior to, on, or at any time after incident diagnosis (up to the end of treatment observation period).

Statistical analyses

- All analyses were descriptive, performed to gain an understanding of the data collected and the characteristics of the sample studied.
- Time-to-event outcomes (OS, TTDD, TTNT/D) were estimated using Kaplan–Meier methods, with censoring at loss to follow-up or end of study, whichever occurred first. Descriptive analyses summarised patient characteristics, treatment patterns, HCRU, AE incidence.
- Analysis of all outcomes were conducted for all patients and separately for patients in each LoT if sufficient numbers were obtained.

RESULTS

- The final cohort included 18,275 patients, with a mean age at diagnosis of 67 years and 50.8% male patients.
- Across all LoTs, the predominant treatment received was platinum-based chemotherapy. Most patients (92.3%) received platinum-based chemotherapy and etoposide at 1L. Only 22.8% and 4.6% received second- (2L) and third-line (3L) treatment, respectively.
- Median OS declined across LoTs (approximately 8.1, 5.6, and 4.9 months at 1L, 2L, and 3L) and was similar across subgroups. TTD and TTNT/D were short.
- Over 50% of patients experienced ≥1 AE, most commonly pneumonitis/pneumonia, agranulocytosis, anaemia/pallor, renal failure.
- HCRU was substantial, with high inpatient and outpatient use.

Patient characteristics

- The mean age at diagnosis was 67 years, with 41% of patients were aged 65–74 years. The gender distribution was balanced, with 49.2% of patients being female. Approximately 62% patients had an ECOG performance status of 0–1 at diagnosis **(Table 1).**
- The median time to 1L and 2L treatment was 18.0 days and 306.5 days, respectively.
- Hypertension was the most frequent comorbidity at diagnosis (44%).

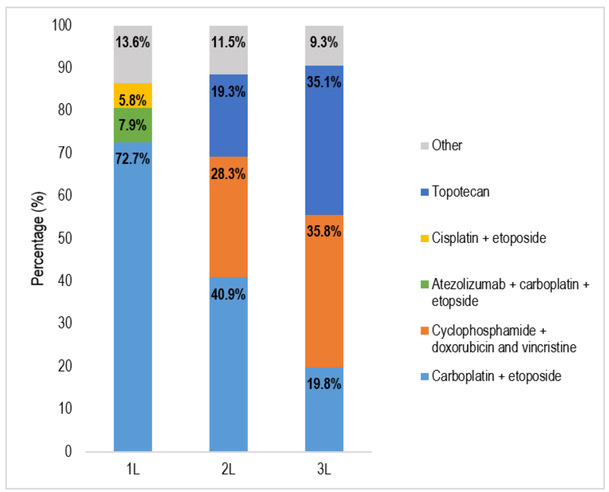
Table 1: Baseline demographic and clinical characteristics

	Overall cohort (n=18,275)
Age at diagnosis, years, mean (SD)	67.0 (9.13)
18-64 years, n (%)	6,744 (36.9)
65-74 years, n (%)	7,503 (41.1)
>=75 years, n (%)	4,028 (22.0)
Female, n (%)	8,990 (49.2)
Ethnicity – White, n (%)	1,7117 (93.7)
ECOG performance status at diagnosis, n (%)	
ECOG <= 1	1,1256 (61.6)
ECOG >1	5,362 (29.3)
Anti-PD-L1 therapy at 1L, n (%)	2,136 (11.7)
Patients with at least one radiotherapy event, between diagnosis and end of follow-up, n (%)	11,140 (61.0)
Patients with at least one surgery performed, between diagnosis and end of follow-up, n (%)	3,781 (20.7)
Most frequent comorbidities at diagnosis, n (%)	
Hypertension	8,039 (44.0)
Chronic obstructive pulmonary disease	6,196 (33.9)
Ischemic heart disease	3,281 (18.0)
Diabetes mellitus	3,090 (16.9)

Treatment patterns

- Of the 18,275 eligible patients, all of whom had at least one LoT, attrition between LoTs was high, with 22.8% proceeding to receive two or more LoTs (**Figure 2).**
- Among 11.7% patients who received anti-PD-L1 therapy at 1L, the most common 2L regimens were cyclophosphamide plus doxorubicin and vincristine (47%), topotecan (33.8%), and carboplatin plus etoposide (10.7%).
- Among 88.3% patients who did not receive anti-PD-L1 therapy at 1L, the most common 2L regimens were carboplatin plus etoposide (45.6%), cyclophosphamide plus doxorubicin and vincristine (25.4%), and topotecan (17%).

Figure 2: Treatment patterns



Note: Data presented in this figure includes treatment patterns for the overall cohort of eligible patients, regardless of prior anti-PD-L1 therapy status

RESULTS (Continued)

Clinical outcomes

- All primary clinical outcomes decreased with subsequent LoTs. From first to third LoT, median OS decreased from 8.0 to 4.9 months, median TTDD decreased from 2.3 to 1.4 months, and median TTNT/D decreased from 7.3 to 4.5 months **(Figures 3-5).**

Figure 3: OS by LoT

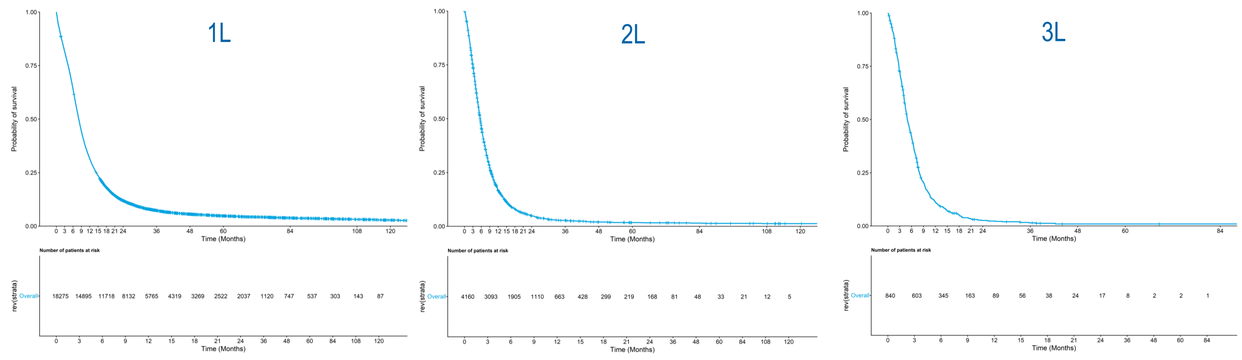


Figure 4: TTDD by LoT

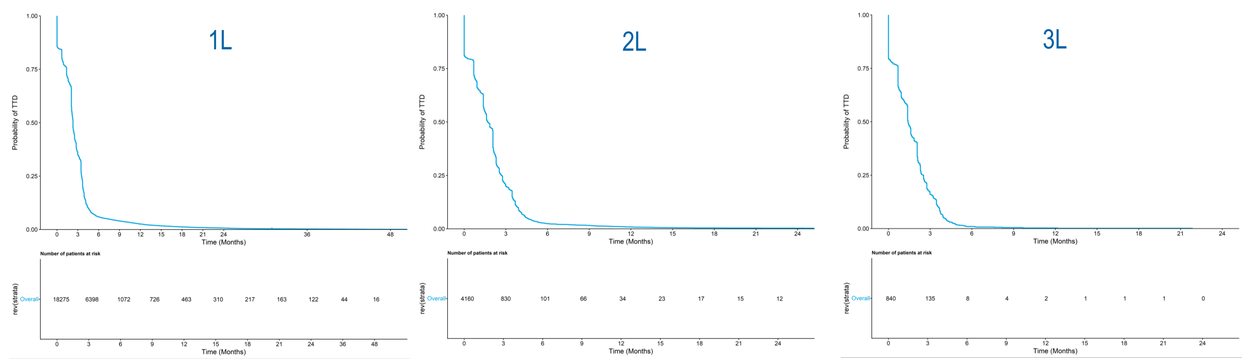
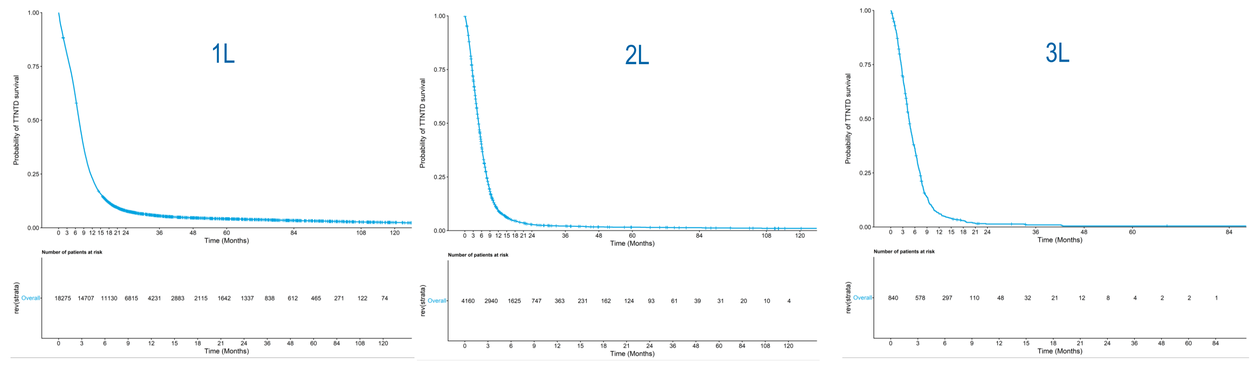


Figure 5: TTNT/D by LoT



Adverse events

- More than 50% of patients experienced at least one AE during follow-up after each LoT index date.
- The most commonly observed AE types were agranulocytosis (19.0%/20.4%/16.2% at 1L/2L/3L), anaemia/pallor (16.8%/17.5%/19.5% at 1L/2L/3L), renal failure (15.0%/11.5%/12.3% at 1L/2L/3L) and pneumonitis/pneumonia (23.0%/20.8%/17.9% at 1L/2L/3L).
- Trends in AE rates across LoTs varied by AE type; the rates of anaemia/pallor had a marginal increase from 1st to 3rd LoT, while the rates of renal failure and pneumonitis/pneumonia experienced a small decrease at every subsequent LoT.

HCRU

- Median follow-up from first LoT in the overall cohort was 7.3 months, with shorter follow-up from later LoTs.
- Over 90% of patients had at least one inpatient and outpatient hospital admission during follow-up.
- Emergency visits were less frequent, with only 35.4% patients having a recorded emergency department visit **(Table 2).**

Table 2: HCRU at each LoT for ES SCLC

HCRU category	1L (n=18,275)		2L (n=4,160)		3L (n=840)	
	Mean per patient (SD)	Median	Mean per patient (SD)	Median	Mean per patient (SD)	Median
Follow-up time (months)[1]	7.2 (3.9)	7.3	5.5 (3.4)	4.9	5.1 (3.2)	4.5
Number of inpatient hospital episodes during follow-up per month	1.4 (1.5)	1.0	1.4 (1.5)	1.2	1.3 (1.4)	1.0
Number of inpatient hospital days during follow-up per month	3.7 (4.9)	2.0	3.7 (4.7)	2.0	3.6 (4.6)	1.9
Number of outpatient visits during follow-up per month	3.0 (2.3)	2.5	2.8 (2.1)	2.3	2.8 (2.4)	2.2
Number of emergency department visits during follow-up per month	0.2 (0.5)	0.0	0.1 (0.4)	0.0	0.1 (0.3)	0.0

[1]*For HCRU outcomes, patient follow-up time begins from the start date of a given LoT and continues up to censoring.*

CONCLUSIONS

- **Real-world outcomes for ES SCLC in England remain poor, with limited progression to later LoTs, short survival, and high clinical burden.**
- **During the study period, chemotherapy remained a dominant treatment type in ES SCLC, with over 90% of the overall patient cohort receiving platinum plus etoposide at 1L.**
- **Progression to later LoTs was limited, less than 23% patients receiving 2L and less than 5% receiving 3L treatment for ES SCLC.**
- **Healthcare use was substantial for ES SCLC patients, with over 90% having had inpatient and outpatient hospital use, while 35% had a recorded A&E visit.**
- **Clinical outcomes including OS, TTD and TTNTD progressively worsened from 1L to 3L treatment.**
- **Outcomes were consistently unfavourable across subgroups, highlighting a persistent unmet need for more effective and durable treatment options in the ES SCLC patient population.**

LIMITATIONS

- Despite a robust and transparent methodology, this study had several limitations. Because the analysis was descriptive in nature with no formal statistical comparisons, internal validity depended primarily on data quality. This study uses secondary data from the ECR, a tool that links NCRAS data (including the SACTd, COSD, and RTDS datasets) with HES data and ONS mortality data. These datasets have built-in validation procedures; however, data quality relies on the source data from clinical records submissions from secondary care services, and the data quality may vary between services.
- AE data are collected from diagnostic codes from hospital and outpatient records; hence, AE data is subject to underreporting bias.
- Limited follow-up for patients diagnosed near study end may have led to underestimation of LoT transition rates and overestimation of attrition.

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DISCLOSURE: All authors contributed to and approved the presentation. Tijana, Stanic, Ilana Gibbons, Stephen Puntis, and Tahira Akram are employees of Amgen and hold stock in Amgen. Nikolay Trankov and Kieran Brooks are employees of IQVIA, sponsored by Amgen Inc. for conducting the English Cancer Registry real-world evidence study in small cell lung cancer. Stephen Puntis, Tijana Stanic, Kieran Brooks, and Nikolay Trankov contributed to medical writing, and Tijana Stanic developed the poster with input from all authors.

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