INTRODUCTION

Small cell lung cancer (SCLC), which accounts for approximately 13–17% of all lung cancers, is characterized by rapid progression and early widespread metastases.1

Standard treatment options for both limited-stage and extensive-stage SCLC include chemotherapy and radiation therapy.2

Platinum-based combination chemotherapy remains the backbone of frontline therapy, but is now often used in combination with immune checkpoint inhibitors3

Chemotherapy-induced myelosuppression is a frequent complication that may be scored as neutropenia, anemia, and/or thrombocytopenia.4

Radiation therapy can also lead to clinically significant myelosuppression, especially when administered in combination with chemotherapy.5

Consistencies of myelosuppression include increased susceptibility to infections, fatigue, bleeding, and neutropenia, which can negatively affect patients’ quality of life and burden health care systems, owing to the need for supportive care and/or hospitalization.6

To our knowledge, no real-world study has been conducted in the Surveillance, Epidemiology, and End Results (SEER) Medicare database to assess the burden of multilineage myelosuppression in patients with SCLC.

Using a SEER-Medicare-linked data set, the current study aimed to assess the real-world prevalence, map the treatment journey, and quantify the health care resource utilization (HCRU) associated with myelosuppression in patients with limited- and extensive-stage SCLC.

OBJECTIVES

To identify year-over-year trends in the prevalence and treatment of SCLC within a cross-section of the US Medicare population

To quantify and describe the burden of treatment-induced myelosuppression among Medicare patients diagnosed with SCLC

METHODS

DATA SOURCE AND STUDY POPULATION

This was a retrospective, descriptive study using linked data from 12 SEER registries and the Medicare database.

SEER-Medicare combines cancer incidence and survival data from US population-based registries (SEER), with insurance claims data from the Medicare program.8

Patients were aged ≥ 65 years with a new primary diagnosis of SCLC during the years 2012–2015; range: 50.2–70.5 per 100,000 persons, and declined thereafter to 52.2%, and patients in this population were treated individuals, either before (prophylactic) or after (therapeutic) a second line or subsequent treatment.

Among patients who received first-line radiation therapy and for whom a second treatment was recorded, most received prophylactic radiation therapy as sinusoidal or myeloid colonies, or both (after chemotherapy), or other (after chemotherapy) a myelosuppression event was tabulated by year.

The time span of focus was 2012–2015.

The number of patients who had 2 or 1 important claim associated with myelosuppression were calculated by study year.

TRENDS IN PREVALENCE, TREATMENT PATTERNS, MYELOSUPPRESSION, AND BURDEN ON THE HEALTH CARE SYSTEM AMONG PATIENTS WITH SMALL CELL LUNG CANCER: A SEER-MEDICARE ANALYSIS

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RESULTS

SCCL PREVALENCE

- SCLC diagnosis was identified by SEER lung tumor site codes (C340–C349) and histology codes (8033, 8422, 8443, 8444, and 8445)
- SCLC prevalence (2005–2015) was computed as the number of beneficiaries aged 65 years with SCLC, divided by the total population aged ≥ 65 years (US Census Bureau)
- Patient demographics (race/ethnicity, sex, and age group) were collected and used to study SCLC prevalence

TREATMENT PATTERNS

- Descriptive analysis of the use of chemotherapy, radiation, and surgery across prevalent and outpatient health care settings was performed
- Treatment types were classified stepwise as first, second, or third line, depending on the temporal sequence in which regimens were prescribed

BURDEN OF MYELOSUPPRESSION

- Among patients who received chemotherapy within a given year, the occurrence of multilineage myelosuppressive side effects (anemia, neutropenia, pancytopenia) in any medical setting was calculated across the year by 2012–2015
- The prevalence of patients who did not receive second-line treatment, and 92.2% of patients did not receive third-line treatment

Myelosuppression imposes a substantial burden on older patients with SCLC: 2012–2015

- Neutropenia was reported in 45.2% of chemotherapy- treated individuals, either before (prophylactic) or after (therapeutic) a myelosuppression event, was tabulated by year

- The time span of focus was 2012–2015

- The number of patients who had 2 or 1 important claim associated with myelosuppression were calculated by study year.

- Use of lineage-specific rescue medication, granulocyte colony-stimulating factor (G-CSF), red blood cell (RBC) or platelet transfusions, and erythropoiesis-stimulating agents (ESA) among chemotherapy-treated individuals, either before (prophylactic) or after (therapeutic) a myelosuppression event, was tabulated by year.

- The percentage of patients who did not receive second-line treatment, and 92.2% of patients did not receive third-line treatment

47.9% of patients did not receive second-line treatment, and 92.2% of patients did not receive third-line treatment

Among patients who received first-line chemotherapy and for whom a second treatment was recorded, most received radiation therapy as sinusoidal or myeloid colonies, or both (after chemotherapy), or other (after chemotherapy) a myelosuppression event was tabulated by year.

Overall, 57.8% of patients who received chemotherapy completed 4–6 cycles; this proportion was consistent across the study period (2012–2015: range: 56.9–58.4%)

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Approximately one-quarter of patients completed only 1 cycle of chemotherapy

The percentage of patients who did not receive second-line treatment, and 92.2% of patients did not receive third-line treatment

CONCLUSIONS

- Across 2005–2015, SCLC prevalence peaked in 2009 and then declined, following a similar temporal pattern across all races/ethnicities, sexes, and age groups.

- Chemotherapy remains the cornerstone of treatment for SCLC, alongside radiation therapy.

- Only 57.8% of the SEER-Medicare patients with SCLC who were studied completed guideline-recommended 4–6 cycles of chemotherapy

- This shortfall underscores the frailty of patients experiencing this aggressive disease.

- Myelosuppression imposes a substantial burden on older patients with SCLC

- Hospital admissions for myelosuppression were most frequently reported for cancer care (52.8% of patients, followed by neutropenia (33.2%), thrombocytopenia (17.0%), and pancytopenia (14.2%))

The percentage of patients having ≥1 inpatient claim for each type of myelosuppression event were generally reported from 2012 through 2015, except for anemia, which was less frequent in 2015.

BARRETO JN, et al. 3,509) Across the years 2005 – 2015, SCLC prevalence peaked in 2009, reaching a maximum of 70.5 per 100,000 persons, and declined thereafter to 52.2%, and patients in this population were treated individuals, either before (prophylactic) or after (therapeutic) a second line or subsequent treatment.

SCLC prevalence was highest among White patients, male patients, and those aged 70–79 years, but year-over-year prevalence of SCLC followed a similar trend across all demographic stratifications

- During the same period, 74.3% of chemotherapy-treated patients experienced ≥1 inpatient admission associated with myelosuppression (Table 3)

- The percentage was generally consistent across 2012–2015

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