INTRODUCTION

- Myelosuppressive hematological adverse events (HAEs) anemia, neutropenia, and thrombocytopenia are common complications of chemotherapy among patients with cancer.
- Cytotoxic chemotherapy remains the cornerstone of treatment for extensive-stage small cell lung cancer (ES-SCLC).

OBJECTIVE

- To assess health care resource utilization (HCRU), costs, and treatment patterns associated with myelosuppressive HAEs among patients with ES-SCLC treated with chemotherapy in the community oncology setting.

METHODS

DATA SOURCE

- This retrospective observational study was conducted using structured data from The US Oncology Network’s KnowMed electronic health record system.

- Data on vital status from the Social Security Administration’s Limited Access Death Master File and HCRI data from the Financial Data Warehouse were included.

STUDY POPULATION

- Adult patients with ES-SCLC who initiated chemotherapy between January 1, 2015, and December 31, 2016, were stratified into 2 study cohorts on the basis of the presence of grade ≥ 3 HAEs after chemotherapy initiation (Table 1). The cohort with grade ≥ 3 HAEs comprised patients who had 1 of the following events after index: grade 3 or grade 4 anemia (hemoglobin < 6.0 g/dL or < 7.0 g/dL), grade 3 or grade 4 neutropenia (absolute neutrophil count < 5000/µL, or < 1000/µL), or grade 3 or grade 4 thrombocytopenia (platelets < 100,000/µL).
- The cohort without grade ≥ 3 HAEs comprised patients who had no grade 3 anemia, grade 3 neutropenia, or grade 3 thrombocytopenia after index.

- The first course of chemotherapy initiated after diagnosis of ES-SCLC was defined as chemotherapy induction; patients must have had no evidence of receiving any chemotherapy within the 12 months prior to diagnosis.

- Patients were followed longitudinally from the index date until December 31, 2020, or the last patient visit, whichever occurred first.
- Patients diagnosed with other primary tumors or enrolled in clinical trials during the study period were excluded.

OUTCOME AND ANALYSIS

- HAEs were identified using laboratory values from iKnowMed on the basis of Common Terminology Criteria for Adverse Events version 5 definition.
- The prevalence and frequency of HAEs at base and grade, treatment patterns, HCRU (including supportive care utilization [granulocyte colony-stimulating factor (G-CSF), erythropoiesis-stimulating agents (ESA), intravenous (IV) hydration], and health care costs during the follow-up period were evaluated) for both cohorts. Costs were adjusted to the 2021 year.

RESULTS

DEMOGRAPHIC AND CLINICAL CHARACTERISTICS

- The study population included 778 patients who had 1 grade 3 or 3-HAEs and 596 patients who did not have a grade 3 HAE after chemotherapy initiation. Demographic and clinical characteristics at baseline are shown in Table 1.

MYELOSUPPRESSIVE EVENTS

- Among 778 patients in the grade ≥ 3 HAE cohort, 47.3% of patients had grade ≥ 3 anemia, 58.8% had grade ≥ 3 neutropenia, and 23.9% had grade ≥ 3 thrombocytopenia within 12 months post index. — Mean numbers of events within 12 months post index were 2.0, 1.8, and 2.4 for patients who experienced grade 3 anemia, grade 3 neutropenia, and grade 3 thrombocytopenia, respectively. — 12.5% of patients with grade ≥ 3 HAEs had evidence of major bleeding events (platelets < 20,000/µL).
- Grade ≥ 3 leukopenia and thrombocytopenia also occurred in a notable number of patients (Table 2).

TREATMENT PATTERNS

- Almost all patients (> 99%) received frontline chemotherapy at index (approximately 80% received a platinum-doublet-containing regimen and 59% received platinum/carboplatin in combination with immunotherapy) in both cohorts.
- Patients with grade ≥ 3 HAEs had a higher proportion of dose reductions (46.7% vs 32.2%), treatment hold (12.7% vs 5.5%), and treatment delays between 14–44 days (62.3% vs 13.4%) after chemotherapy initiation (P < 0.01) compared with patients without grade ≥ 3 HAE (Table 2).

TREATMENT OUTCOMES DURING FOLLOW-UP

- Patients with grade ≥ 3 HAEs had a mean of 10.7 outpatient visits within 12 months post index, versus 7.7 outpatient visits for those with grade ≥ 3 HAE (P < 0.01).
- Compared with patients without grade ≥ 3 HAEs, patients with grade ≥ 3 HAEs also had greater:
  - Grade ≥ 3 leukopenia and lymphopenia events also occurred in a notable number of patients (12.2% of patients with grade ≥ 3 HAEs had evidence of major bleeding events [platelets < 20,000/µL]).
  - Compared with patients without grade ≥ 3 HAEs, patients with grade ≥ 3 HAEs also had greater:
    - IV hydration use (46.0% vs 30.4%; mean number of administrations 2.3 vs 1.2; mean cost per patient $16,310 vs $787; P < 0.01).
    - CSF use (64.1% vs 57.2%; mean number of administrations 3.5 vs 2.4; mean cost per patient $36; P < 0.01).

LIMITATIONS

- Results were based on data from community oncology settings and may not be generalizable beyond this setting.
- Data in the inpatient settings were not captured; inpatient costs or costs for transfusions were not documented.

CONCLUSIONS

- The results suggest 1-hazard benefit of myelosuppressive HAEs on patients with ES-SCLC in a community oncology setting.
- Patients with grade ≥ 3 HAEs had more dose reductions, treatment delays, and HCRU than those without grade ≥ 3 HAE.
- Therapies to protect bone marrow from myelosuppression may have the potential to reduce such burden.

Future research should investigate HCRI and cost burden in the index setting to better understand the full scope of HAE management.