Original Study

Access to Cancer Specialist Care and Treatment in Patients With Advanced Stage Lung Cancer

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Abstract

MarketScan and Surveillance, Epidemiology, and End Results–Medicare databases were analyzed separately to evaluate the access to cancer specialists and treatment of patients with advanced stage lung cancer. Between 4% and 12% of the patients were never seen by a cancer specialist, and between 6% and 10% did not receive cancer-directed therapy. Patients seen by a cancer specialist were more likely to receive cancer-directed therapy.

Background: Access to specialty care is critical for patients with advanced stage lung cancer. This study assessed access to cancer specialists and cancer treatment in a broad population of patients with advanced stage lung cancer. **Materials and Methods:** Two study samples were extracted from 2 claims databases and analyzed independently: patients aged ≥ 18 years with de novo diagnosis of metastatic lung cancer in the MarketScan database between 2008 and 2014 (commercially insured adult patients; n = 22,268); and patients aged ≥ 65 years in the Surveillance, Epidemiology, and End Results–Medicare database with a diagnosis of advanced non–small-cell lung cancer between 2007 and 2011 (Medicare-insured elderly patients; n = 9651). The study period spanned from 6 weeks before the first lung biopsy tied to the initial lung cancer diagnosis until the end of continuous health insurance enrollment, or data availability, or death. **Results:** Among the commercially insured adults (MarketScan), most patients were seen by a cancer specialist within a month of first lung biopsy (80%), 12% were never seen by a cancer specialist, and 6% did not receive cancer-directed therapy. Among the Medicare-insured elderly patients (SEER–Medicare), the proportions were 79%, 4%, and 10%, respectively. Patients seen by a cancer specialist were more likely to receive cancer-directed therapy (95% vs. 92%, $P < .001$ and 92% vs. 38%, $P < .001$, respectively). **Conclusion:** Between 4% and 12% of patients with advanced stage lung cancer do not have appropriate access to cancer specialist, which appears to negatively affect access to optimal and timely treatment.

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Introduction

Lung cancer is the most common cancer and the leading cause of cancer deaths worldwide.[1] Approximately 75% of patients present with advanced disease in stages III and IV at the time of diagnosis,[2,3] and approximately 85% have non–small-cell lung cancer (NSCLC).[4] The prognosis of advanced stage lung cancer is poor, with only about 4% of patients with stage IV NSCLC surviving 5 years after diagnosis.[5]

Because of the aggressive and progressive nature of the disease, the management of advanced stage lung cancer typically involves different options, including targeted therapy, chemotherapy, and radiotherapy.[6] As such, treatment decisions are often complex, and access to cancer specialists is particularly important to ensure that patients receive appropriate care. Indeed, specialist care has been associated with improved survival and greater use of anticancer treatments among lung cancer patients.[7-9]

Several studies have reported gaps in specialist care for patients with advanced NSCLC in the United States: Goulart et al[8] found that 16% of patients diagnosed between 2000 and 2005 were not

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seen by a cancer specialist within 6 months of diagnosis; Small et al[10] found that 25% of patients diagnosed between 2000 and 2008 did not receive radiotherapy or systemic therapy; and Owonikoko et al[11] found that 66% of patients diagnosed between 2004 and 2005 did not receive systemic therapy. Suboptimal cancer care is a particular concern for elderly patients,[10-14] who represent the majority of the patient population with advanced stage lung cancer (median age at diagnosis is 70 years[4]).

Because most studies to date focusing on access to specialist care and treatment in advanced stage lung cancer were conducted among patients diagnosed more than a decade ago, their findings may not reflect the current clinical practice, which has been rapidly evolving as a result of recent therapeutic advances. A better understanding of how patients with advanced stage lung cancer are currently managed in clinical practice and which factors determine treatment strategies and referral patterns is crucial to improve patients' access to specialist care and treatment.

This study aimed to provide insights into the patterns of access to cancer specialist care and treatment in 2 diverse populations of patients with advanced stage lung cancer in the United States identified in 2 large population-based data sources: adult patients with commercial health care insurance and elderly patients with Medicare health care insurance.

Materials and Methods

Data Sources

The study used data from 2 large population-based claims databases: the Truven Health Analytics MarketScan (MarketScan) between 2008 and 2014, and the Surveillance, Epidemiology, and End Results (SEER)−Medicare database between 2007 and 2011 (SEER component) and 2007 and 2013 (Medicare component). This study did not compare patients between the 2 data sources; rather, it was designed to leverage each data source to analyze outcomes among 2 diverse populations of patients with advanced lung cancer.

MarketScan Database. The MarketScan is a commercial insurance database that contains data on approximately 50 million individuals covered annually by over 130 health plans and self-insured employers. A mix of academic and community settings and all US census regions are represented. The database contains information on patient demographics, enrollment history, claims for inpatient and outpatient medical services, and pharmacy claims. The years 2008 to 2014 were retrospectively analyzed for this study.

SEER−Medicare Database. The SEER−Medicare is a federal insurance database that comprises 2 databases linked at the patient level: the SEER cancer registry and the Medicare claims database. The SEER cancer registry contains data on patients diagnosed with cancer across 20 geographic areas representing approximately 30% of the US population. Available information in the SEER registry include patient demographics and detailed cancer characteristics (eg, cancer site, stage, and histology) at the time of the cancer diagnosis. The Medicare claims database contains administrative claims related to hospital care (Part A), outpatient medical services (Part B), and outpatient drug prescriptions (Part D) for patients with Medicare insurance coverage (ie, primarily patients aged ≥ 65 years). Approximately 94% of SEER patients aged ≥ 65 years are linked to the Medicare database.[15,16] Patients with a lung cancer diagnosis in the SEER registry from 2007 to 2011 were selected for the study. Medicare linkage was available for these patients from 2006 to 2013 inclusive.

In both databases, data are deidentified and fully comply with the patient confidentiality requirements of the Health Insurance Portability and Accountability Act; thus, studies involving these databases are exempt from institutional review board approval.

Study Design

The study used a retrospective cohort design. Patients newly diagnosed with advanced lung cancer in each of the 2 databases were followed until either (1) the end of continuous commercial insurance enrollment in the MarketScan database and the end of continuous Medicare Parts A/B/D insurance plan enrollment in the SEER−Medicare database, (2) the date of death (available in SEER−Medicare data only), or (3) the end of data availability, which was March 31, 2014, for the MarketScan database and December 31, 2013, for the SEER−Medicare database. By design, all patients were required to have ≥ 6 months of continuous health insurance plan enrollment before the lung cancer diagnosis (ie, baseline period) and ≥ 4 months of follow-up after the lung cancer diagnosis. For the commercially insured adult patients in the MarketScan database, where date of the metastatic lung cancer was not directly available, the date of the first lung biopsy that was followed by a lung cancer diagnosis within a 6-week period was used as a proxy for the date of diagnosis. For the Medicare-insured elderly patients in the SEER−Medicare database, the date of diagnosis was extracted from the SEER records. Access to cancer specialists and treatments was measured from the first lung biopsy date.

Study Samples

Figure 1 details the selection of the 2 study samples that were analyzed independently: the sample of commercially insured adult patients in the MarketScan database (study sample 1) and the sample of Medicare-insured elderly patients in the Medicare database (study sample 2).

The sample of commercially insured adult patients in the MarketScan database comprised individuals aged ≥ 18 years diagnosed with de novo metastatic lung cancer between January 1, 2008, and March 31, 2014. Metastatic lung cancer at the time of diagnosis was identified in the MarketScan claims data based on the presence of International Classification of Diseases, 9th Revision (ICD-9), diagnosis codes for both primary lung cancer (codes 162.xx, excluding 162.0x) and secondary malignant neoplasms (codes 196.xx-198.xx, excluding 196.1x) using previously published algorithms.[17] Such algorithms are used to proxy advanced stage lung cancer because information on histology and cancer grade is not available in the MarketScan database.

The sample of Medicare-insured elderly patients in the SEER−Medicare database included individuals aged ≥ 65 years with a pathologically confirmed lung cancer diagnosis from January 2007 to December 2011. NSCLC histology and advanced cancer stage (IIIB or IV) at the time of diagnosis were identified on the basis of the cancer records in the SEER database.