



Using Health Care Claims Data to Assess the Prevalence of Hodgkin Lymphoma and Relapsed or Refractory Hodgkin Lymphoma in the United States

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ABSTRACT

Purpose: Although most patients with Hodgkin lymphoma (HL) respond to primary therapy, some patients experience relapses or are refractory to treatment (RR-HL). The objectives of this study were to investigate the prevalence of HL and RR-HL in the United States by using a large health care claims database.

Methods: Patients with ≥ 1 diagnosis for HL between January 1, 2013, and September 30, 2014 (prevalence assessment period), in the MarketScan Commercial and Medicare databases were identified. RR-HL patients were identified as any HL patient with any record for either an autologous stem cell transplantation (ASCT) or brentuximab vedotin (BV) treatment between January 1, 2010, and September 30, 2014 (entire study period). Prevalence rates of HL and RR-HL were calculated as the number of patients with HL or RR-HL divided by the total number of persons with insurance enrollment during the prevalence assessment period (January 1, 2013–September 30, 2014) in the MarketScan databases. Age- and sex-specific prevalence rates for HL and RR-HL were estimated. The estimated prevalence rates based on the claims database analysis were applied to the US national population estimates from the US Census Bureau to project the national prevalence of HL and RR-HL in the United States.

Findings: Of persons with any insurance enrollment in the MarketScan databases during the prevalence assessment period ($N = 58,968,235$), 24,812 (0.04%) were identified as having HL (mean age, 48.6 years) between January 1, 2013, and September 30, 2014. Of this HL population, 712 (2.87%) were identified as RR-HL patients, with 432 (1.74%) having received ASCT, 199 (0.80%) having received BV, and 81 (0.33%) having received both ASCT and BV

treatments during the study period. According to the national projection according to the US Census population estimate, the overall number of persons with HL in the United States was estimated at 149,615 (469.2 per 1 million) in 2014, with 2.72% ($N = 4077$; 12.8 per 1 million) having RR-HL.

Implications: Among patients in the United States with HL, the proportion of RR-HL patients during the study period was estimated at $<3\%$ of the HL population. (*Clin Ther.* 2017;39:303–310) © 2017 Elsevier HS Journals, Inc. All rights reserved.

Key words: Hodgkin lymphoma, prevalence, relapsed or refractory Hodgkin lymphoma.

INTRODUCTION

Hodgkin lymphoma (HL) is an uncommon type of lymphoma that originates in the lymphocytes. Based on 2009–2013 data, the annual incidence rate of HL is 2.6 cases per 100,000 persons, accounting for 0.5% of all new cancer cases in the United States.¹ HL has a bimodal incidence curve, with peak incidences occurring in young adulthood (age 15–35 years) and in those >55 years of age.² The overall 5-year survival rate in the United States for patients with HL is relatively high at 86%, based on patient data between 2004 and 2010.¹ However, between 5% and 10% of patients with HL are refractory to initial systemic treatment and between 10% and 30% will have a relapse of the disease during their lifetime.^{3,4}

Autologous stem cell transplantation (ASCT) is the most widely used therapy for the treatment of patients

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with refractory or relapsed HL (RR-HL), and it is recommended in the treatment guidelines of the National Comprehensive Cancer Network (NCCN).^{5,6} However, up to only one half of RR-HL patients who have ASCT experience complete remission.⁶ Maintenance treatment with the antibody–drug conjugate brentuximab vedotin (BV) after ASCT is included in the NCCN guidelines as a treatment option for patients with RR-HL.

There are limited data on the prevalence of RR-HL in the United States. The goal of the present study, therefore, was to determine the prevalence of HL and RR-HL by using a large health care claims database analysis. We then used the estimated prevalence rates from the database claims analysis to project the national prevalence of HL and RR-HL in the United States.

PATIENTS AND METHODS

Data Source

Patient data were extracted from the Truven Health Analytics MarketScan Research databases. Encompassing >60 million employees, spouses, and dependents, these databases contain health care claims data that include fully integrated health information, such as inpatient and outpatient health care resource utilization, and detailed drug data, reflecting real-world treatment patterns and costs. In compliance with the Health Insurance Portability and Accountability Act of 1996, the databases consist of fully de-identified datasets, with synthetic identifiers applied to patient- and provider-level data to protect the identities of both the patients and the data contributors. Because the prevalence of HL is bimodal with peaks in incidence at ~15 to 35 years of age and >55 years of age, patient data were extracted from both the commercial and Medicare databases to include a study sample of all ages.

Prevalence of HL and RR-HL Based on Claims Database Analysis

Patients with ≥ 1 diagnosis for HL between January 1, 2013, and September 30, 2014 (prevalence assessment period), in the MarketScan Commercial and Medicare databases were identified by using *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD-9-CM), code 201.x. The prevalence estimated in the present study is thus

the period prevalence between January 1, 2013, and September 30, 2014, and represents the count of all living patients with HL during this prevalence assessment period, regardless of disease treatment history, current treatment status, or future disease progression status. RR-HL patients were identified as any patient with HL with ≥ 1 record for either an ASCT (based on ICD-9-CM procedure codes or Healthcare Common Procedure Coding System codes) or BV treatment (based on National Drug Code or Healthcare Common Procedure Coding System code) between January 1, 2010, and September 30, 2014 (entire study period). These treatments were chosen to identify patients with RR-HL because they are the unique treatments recommended for RR-HL in the NCCN guidelines.⁶ High-dose chemotherapy followed by ASCT is recommended in the NCCN guidelines for patients with RR-HL⁶; however, we did not identify RR-HL patients with high-dose chemotherapy because this treatment may also identify patients with advanced-stage HL. Prevalence rates of HL and RR-HL were calculated as the number of patients with HL or RR-HL divided by the total number of persons with insurance enrollment during the prevalence assessment period (January 1, 2013–September 30, 2014) in the MarketScan databases. RR-HL prevalence estimates from the database claims analysis were stratified for patients who had received ASCT only, BV only, and both ASCT and BV. These estimated prevalence rates were additionally calculated according to sex within age groups (5-year increments).

Patient Demographic and Clinical Characteristics

Patient characteristics, including age, sex, US geographic region, health plan type, and Charlson Comorbidity Index (CCI) score, were evaluated during the prevalence assessment period. The count and associated percentage of the total were reported for categorical variables. For continuous variables, the mean, SD, and median were reported.

Projected National Prevalence Rates

The estimated prevalence rates based on the database claims analysis were applied to the US national population estimates from the US Census Bureau (2014) to project the national prevalence of HL and RR-HL in the United States. Age group (each 5-year age category [eg, 0–4 years old, 5–9 years old]) and sex-specific prevalence rates for HL and RR-HL estimated from the MarketScan

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