Real-world Healthcare Resource Utilization and Associated Costs in Patients With Eosinophilic Esophagitis

Tom Tencer, 1 Qian Xia, 1 Greeta Jobson, 1 Ellen Qian, 1 Evan S. Dellon 2

1Bristol Myers Squibb, Princeton, NJ, USA; 2Wu Sigma, Bengaluru, India; 2Center for Esophageal Diseases and Swallowing Division of Gastroenterology and Hepatology, Department of Medicine, University of North Carolina School of Medicine, Chapel Hill, NC, USA

Introduction
• Eosinophilic esophagitis (EoE) is a chronic, immune/T cell inflammatory esophageal disease characterized clinically by symptoms related to esophageal dysfunction and histologically by eosinophilic predominate inflammation.1
• Pathogenesis of EoE is associated with familial inheritance and environmental exposures.1
• From a worldwide systematic review, including studies from 2004 to 2019, the estimate of overall prevalence for patients with EoE is 0.2-1.3/10,000 inpatients.2
• In the US, estimated overall prevalence of EoE ranges from 2.9 to 56.7/100,000 (2001-2015) and for those individuals, most are male and of Caucasian origin.3
• Worldwide incidence and prevalence increased from 2014 to 2019.4
• Chronic inflammatory conditions to tissue remodeling, inflammation, and stricture formation; this inflammatory results in a range of symptoms including dysphagia, food impaction, abdominal pain, and symptoms of gastrointestinal reflux disease, resulting in a major cause of gastrointestinal morbidity and associated financial burden.5

EoE is associated with high economic burden in the US—Total annual medical healthcare costs in 2010 per case control: $5104 ± 1510 ($3202 EoE-attributable costs);
• Estimated total annual costs in 2010: $3632 to $14 1 billion ($320-3474 million; EoE-related excess costs)5
• Few real-world studies have investigated healthcare resource utilization (HCRU) and associated costs.5

Objective
• To compare HCRU and costs in patients with EoE and matched controls without EoE

Methods
Study design
• The matched case-control study used US medical and pharmacy claims from OptumInsight®Claims Data Wave (1/1/2008-12/31/2017) to identify eligible patients with EoE cases and matched controls (EoE controls) and their associated HCRU and costs (Figure 1).
• Index date was defined as the date of first EoE diagnosis (index period: 1/1/2009-12/31/2015) and follow-up was 12-month period (12/31/2015-12/31/2016).

Inclusion criteria
• Patients with at least 1 claim with an EoE diagnosis (ICD-9 code: 533.13; ICD-10 code: K20.0) during the index period
• Patients with ≥3 claims with an EoE diagnosis on 2 different dates (separated by at least 1 day)

Exclusion criteria
• Patients with at least 1 claim with an onychopagia or esophageal cancer diagnosis at any time during the pre-index period
• Patients with a diagnosis of any malignancy at any time during the study period

Matched cohorts
• Cases (with EoE)
• Controls (without EoE): a random sample of enrollees in the database were selected from a group of people at risk of EoE, if the cases were also allowed to be controls until they had a diagnosis of EoE.

Cases were matched by sex, age, geographic region (as of the index date), Charlson comorbidity index (CI) classification during the pre-index period, and the cohort entry date (+120 days), so that they enter the cohort around the same time and length of continuous enrollment from the eligibility start date to the index date to make sure controls are still at risk for having the outcome event after the same number of days after cohort entry as the case (Figure 2)

Results
Baseline characteristics
• All-cause HCRU and costs
• Across the study period, the majority of patients had multiple or unknown cancer diagnosis at any time during the study period

Adjusted all-cause HCRU and costs
• EoE was associated with 186.8 more outpatient visits, 14.7 more ER visits, and 2.8 more inpatient visits per (1000PPM) (Table 3)

Conclusions
• EoE was associated with greater economic burden compared with matched controls, driven primarily by outpatient visits.

References

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Reprints
Requests for reprints should be sent to Evan S. Dellon, MD, PhD, Center for Esophageal Diseases and Swallowing Division of Gastroenterology and Hepatology, Department of Medicine, University of North Carolina School of Medicine, Chapel Hill, NC, USA.

Endnotes
a GEH.1
b Designated this support was sponsored by Robarts/Alimentiv, Salix, Sanofi, Shire/Takeda, and Target RWE.

Limitations
• Claims data are collected primarily for billing and reimbursement purposes and therefore may not completely capture medical conditions that are found in medical records; medical coding is imperfect and may lead to misclassification bias due to misdiagnoses or coding errors.
• Claims databases only capture data from patients covered by the health plan, therefore, results may not be generalizable to all individuals with EoE.

Table 1. Treatment pattern terminology

Table 2. Baseline characteristics

Table 3. Adjusted all-cause HCRU and costs

Figure 1. Study design

Figure 2. Cohort selection

Figure 3. All-cause HCRU (Per 1000PPM) and costs (SSPM)

Figure 4. All-cause costs PPPM among treatment patterns across settings

All-cause costs by treatment pattern
• Outpatient costs accounted for the greatest proportion of costs among settings and treatment patterns (Figure 4A).
• Switchers ($1379.40 PPPM) had the highest all-cause costs and pure discontinuers ($144.19 PPPM) had the lowest among treatment patterns.

Across settings, switchers were lower after switch in all settings compared with continuers.

Adj usted all-cause HCRU and costs
• EoE was associated with 186.8 more outpatient visits, 14.7 more ER visits, and 2.8 more inpatient visits per (1000PPM) (Table 3)

Across settings, most HCRU and costs were higher during follow-up than baseline.
• Outpatient visits were a significant driver of resource use and costs during baseline and follow-up (Figure 3).