A Systematic Review of Healthcare Resource Utilization and Direct Medical Costs in Hereditary Angioedema

Timothy Craig, DO1; Kristen A. Cribbs, PhD MPH2; Shawn Czado3

1The Pennsylvania State University, College of Medicine, Allergy, Asthma and Immunology, Hershey, PA, USA; 2Alkemi LLC, Manchester Center, VT, USA; 3KalVista Pharmaceuticals, Inc., Cambridge, MA, USA

Background

- Hereditary angioedema (HAE) is a rare, genetic disease characterized by debilitating swelling episodes in various parts of the body.
- HAE is associated with substantial and multifaceted burden for patients, caregivers, health systems.
- While previous literature has documented the economic impact of HAE on direct costs, productivity, and other indirect costs, no systematic literature reviews (SLRs) to date on this topic have been published.
- As the HAE treatment landscape evolves, there is a need to better understand the economic value of HAE treatments, to inform decisions as well as to improve disease management, patient satisfaction, and quality of life.

Methods

- We conducted an SLR on economic outcomes, including healthcare resource utilization (HRU) and costs, among patients with HAE, including those using prophylactic and/or on-demand HAE therapies, in accordance with PRISMA guidelines.
- Searches were conducted in PubMed, Embase, and Google Scholar.
- Article inclusion was limited to English peer-reviewed and grey literature published between January 1, 2007 and July 1, 2022.
- Two independent reviewers assessed literature eligibility and abstracted data.
- We adjusted all costs for inflation to 2022 USD.

Results

- We identified 66 studies. The majority of studies were observational (64%) and peer-reviewed (59%), and the common study location was the United States (42%) (Table 1).
- Among 53 peer-reviewed and congress proceedings, 79% assessed HRU and direct costs in HAE.
- Findings in the HAE publications revealed that total annual direct medical costs reached up to $950,361 per patient, with medication accounting for the majority total direct costs (up to 85%, or $808,322) (Figure 1).
- Prophylaxis treatment was found to cost 2.42 times that of on-demand treatment only.

- For HRU outcomes, 92% of HAE patients using prophylactic and/or on-demand therapy required at least one outpatient visit, 45% required at least one emergency department (ED) visit, and 21% required at least one inpatient stay annually (Figure 2).
- Patients required between 2.7 – 3.7 outpatient visits, 1.94 ED visits, and 1.04 inpatient visits annually with a length of stay (LOS) per admission of up to 8 days.
- Most HAE patients required specialist office visits, where the most common type of medical profession seen was an allergist/immunologist (28.3%) (Figure 3).

Figure 1. Annual Medical Costs and Drivers Associated with HAE

Figure 2. Percent of Patients Requiring at Least 1 Resource Visit Per Year

Conclusion

- This SLR found that, despite the emergence of new HAE therapies in the past decade, individuals with HAE still experience high HRU, regardless of using prophylaxis.
- We found high costs to be largely driven by medication costs, with prophylactic therapies costing more than twice that of on-demand therapies.
- As the HAE treatment landscape evolves, there is opportunity to introduce patient-centered treatment options that improve disease control, thereby minimizing HRU and costs, as well as enhance patient satisfaction and quality of life.

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