Characterizing Attack-Related Health Utility 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.
- Health-state utilities are proxies for patient quality-of-life and important inputs for health economic models.
- As such, utilities facilitate the assessment of new medical technology impacts and guide healthcare decision-making.
- To date, no comprehensive assessments of health utilities in HAE have been conducted; this study aimed to fill this gap.

Methods

- We conducted a systematic literature (SLR) on economic outcomes, including utility values, among patients with HAE, including those using prophylactic and/or on-demand HAE therapies, in accordance with PRISMA guidelines.
- We conducted searches in PubMed, Embase, and health technology assessment (HTA) websites.
- Article inclusion was limited to English peer-reviewed articles published between January 1, 2007, and July 1, 2022.
- Two independent reviewers assessed literature eligibility and abstracted data.

Results

- We identified 66 studies. The majority of studies were observational (64%) and peer-reviewed (59%), and the most common study location was the United States (42%) (Table 1).
- Among studies reviewed, 15 (23%) reported on HAE utilities, with mean non-attack utility ranging from 0.72 – 0.83 and mean utility during an attack ranging from 0.44 – 0.51.
- We observed an inverse relationship between utility and attack severity, with mean weights of 0.61, 0.47, and 0.08 for mild, moderate, and severe attacks, respectively (Figure 1).
- Utilities also varied by attack location, with the lowest mean utility values observed for abdominal and laryngeal attacks (0.35 and 0.13, respectively) (Figure 2).
- Modeling of on-demand HAE therapies suggest that treatment may improve attack-associated disutility to non-attack levels (0.75 – 0.80) that fall within population norms (Figure 3).

Conclusions

- This SLR revealed that the burden of HAE attacks translates into substantial health status disutility.
- Laryngeal and abdominal attacks yielded the greatest disutility compared to attacks in other locations.
- While treatment with on-demand therapy attenuates attack-associated disutility, we found that increasing attack severity substantially impacts patient utility.
- New therapeutics that facilitate early treatment, thereby mitigating attack severity and hastening attack resolution, are needed to yield the greatest patient benefit.

References


Table 1. SLR Study and Sample Characteristics

<table>
<thead>
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<th>Characteristic</th>
<th>n (%)</th>
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<td>Sample Size, number of patients</td>
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<tr>
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<td>Maximum</td>
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<td>Europe 23 (35.6)</td>
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<tr>
<td>Prophylactic Treatment</td>
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*32 studies assessed HAE therapies; some assessed both on-demand and prophylactic treatments.

Figure 1. Inverse Relationship Between Utility Value and Attack Severity

Figure 2. Mean Utility Values by Attack Location

Figure 3. Utility Values for On-Demand HAE Treatments

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