

Characterizing the Negative Impact of Delayed On-Demand Treatment of HAE Attacks

Princess Ogbogu,¹ Hilary Longhurst,² Sally van Kooten,³ Neil Malloy,⁴ Markus Heckmann,³ Julie Ulloa,⁵ Ricardo Zwiener⁶

¹Division of Pediatric Allergy, Immunology, and Rheumatology, University Hospitals Rainbow Babies and Children's Hospital, Cleveland, Ohio, United States; ²Department of Medicine, University of Auckland and Department of Immunology, Te Toka Tumai, Auckland City Hospital, Auckland, New Zealand; ³KalVista Pharmaceuticals, Inc., Cambridge, Massachusetts, United States; ⁴Summit Global Health, United States; ⁵Outcomes Insights, Agoura Hills, California, United States; ⁶Servicio de Alergia e Inmunología Clínica, Hospital Universitario Austral, Pilar, Buenos Aires, Argentina.

Abstract

Rationale: Hereditary angioedema (HAE) is characterized by painful and debilitating attacks of tissue swelling in various locations. Although self-administered on-demand parenteral treatment has enhanced overall HAE attack management, patients may delay treatment. This survey aimed to characterize the impact that delaying treatment of an HAE attack may have on people living with HAE.

Methods: People with HAE were recruited by the US Hereditary Angioedema Association to complete a 20-minute, self-reported, online survey between September 6 to October 19, 2022.

Results: Respondents included 107 HAE patients, 80.4% female, mean age 41 yrs. HAE patients reported that it takes 2.2hrs (mean) to feel "in control" of their attack following use of on-demand treatment; only 1.4 hours when the attack was treated within 1 hour, compared to 2.9 hours for those who waited >1 hour. Those taking icatibant injection required 2.5 hours to feel "in control" of their attack, compared to 1.5 hours for other on-demand treatments. Nearly all (97.2%) agreed that it is important to recover quickly from an HAE attack. The majority (80.4%) agreed that attack resolution takes longer when on-demand treatment is delayed. Most (95.3%) reported that their anxiety decreases once they realize they are recovering from the attack. Overall, full attack resolution took 1.6 days (mean); longer (1.9 days) when treatment was delayed for >1 hour. Many (65.2%) experienced attack resolution in <1 day when the attack was treated within 1 hour, compared to 36.1% of those who waited >1 hour.

Conclusions: Results highlight that delayed treatment of HAE attacks negatively impacts the time to feeling in control of an HAE attack and time to full resolution.

Rationale

- HAE is characterized by painful and debilitating attacks of tissue swelling in various locations
- Although self-administered on-demand parenteral treatment has enhanced overall HAE attack management¹, patients may delay treatment^{2,3}
- This survey aimed to characterize the impact that delaying treatment of an HAE attack may have on people living with HAE

Methods

- The US Hereditary Angioedema Association (HAEA) recruited people living with HAE to complete an online survey
 - Recruitment was stratified to include 50% of patients taking on-demand therapy only and 50% receiving long-term prophylaxis plus on-demand therapy
- The survey was self-reported, and took respondents approximately 20 minutes to complete
- The survey was completed by 107 individuals between September 6 and October 19, 2022; response rate was 69% (107/155)
- Respondents provided consent for their data to be used anonymously or in aggregate
- Analysis was performed using descriptive statistics

Results

- Respondents included 107 HAE patients, 80.4% female, mean age 41 years (range 16-83); 50% using on-demand therapy only, 50% using prophylaxis plus on-demand therapy (**Table 1**)

Table 1. Respondent characteristics

| Characteristic | Total (N=107) |
|---|---------------|
| Age, mean (range), years | 41 (16-83) |
| Gender, n (%) | |
| Female | 86 (80.4) |
| Male | 21 (19.6) |
| Type of therapy, n (%) | |
| On-demand only | 53 (49.5) |
| Prophylaxis and on-demand | 54 (50.5) |
| On-demand treatments used | |
| Icatibant | 84 (78.5) |
| C1 esterase inhibitor (recombinant) | 13 (12.1) |
| C1 esterase inhibitor (human) | 9 (8.4) |
| Ecallantide | 1 (0.9) |
| Prophylactic treatments used, n (%) of those using prophylaxis (n=54) | |
| Lanadelumab | 31 (57.4) |
| Berotralstat | 7 (13.0) |
| C1 esterase inhibitor (subcutaneous) | 7 (13.0) |
| Androgens/steroids | 5 (9.3) |
| C1 esterase inhibitor (intravenous) | 4 (7.4) |

- HAE patients reported a mean time of 2.4 hours (median: 1 hour) before initiation of on-demand treatment after the first recognition of an attack (2.0 hours reported by those using prophylaxis + on-demand therapy; 2.7 hours reported by those using on-demand therapy only)
- The mean time to feel "in control" of their attack was 2.2 hours (median: 1 hour) following use of on-demand treatment
 - Time to feel "in control" was 1.4 hours when the attack was treated in 1 hour or less compared with 2.9 hours for those who waited more than 1 hour
- Most (62%) reported feeling "in control" of their attack in 1 hour or less (69% using prophylaxis + on-demand therapy; 55% using on-demand therapy only; **Figure 1**)

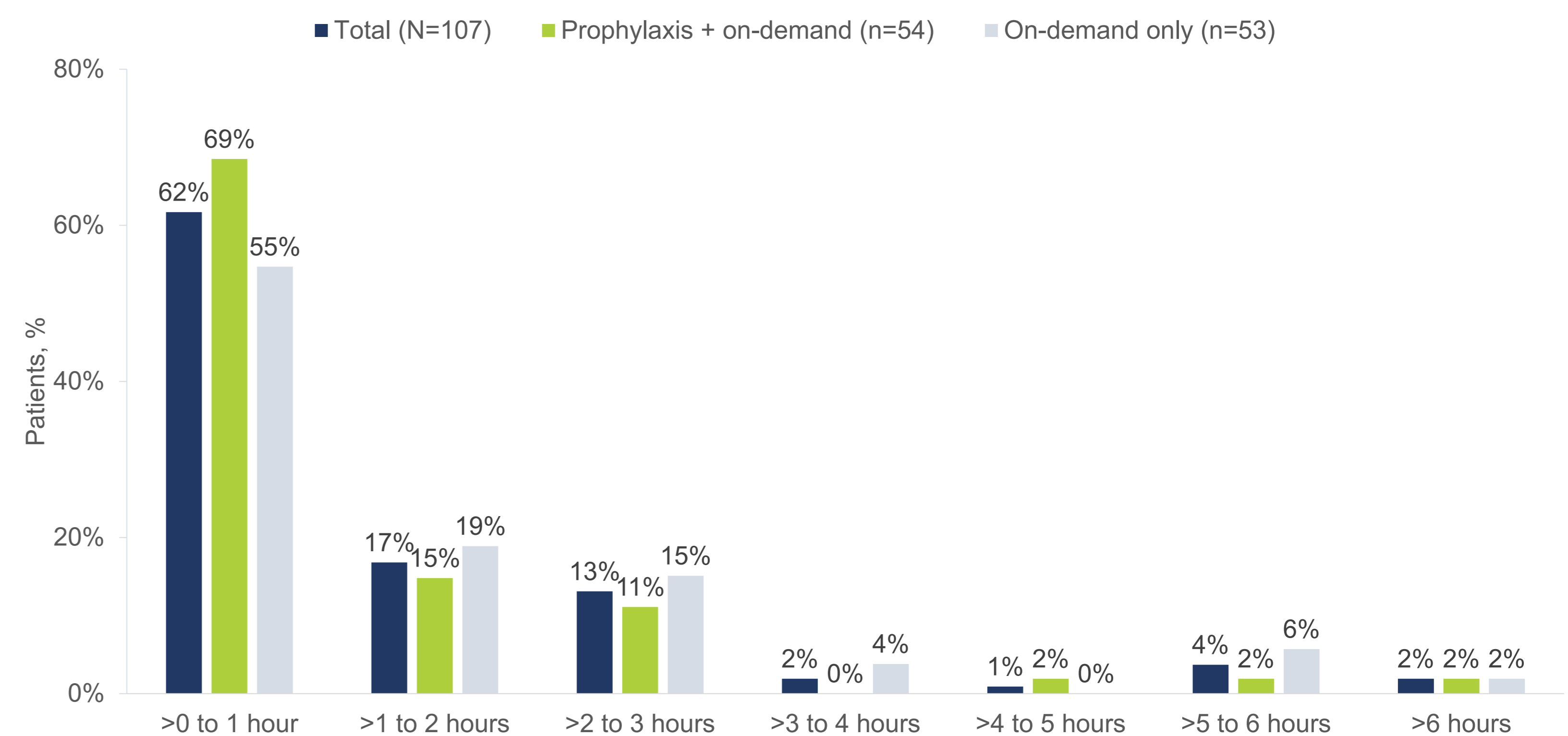
References

- Longhurst HJ, et al. HAE international home therapy consensus document. *Allergy Asthma Clin Immunol*. 2010 Jul 28;6(1):22.
- Hernández Fernández de Rojas D, et al. Treatment of HAE attacks in the Icatibant Outcome Survey: an analysis of icatibant self-administration versus administration by health care professionals. *Int Arch Allergy Immunol* 2015; 167: 21–28.
- Zanichelli A, et al. Safety, effectiveness, and impact on quality of life of self-administration with plasma-derived nanofiltered C1 inhibitor (Berinert) in patients with hereditary angioedema: the SABHA study. *Orphanet J Rare Dis*. 2018; 13: 51.

Disclosures

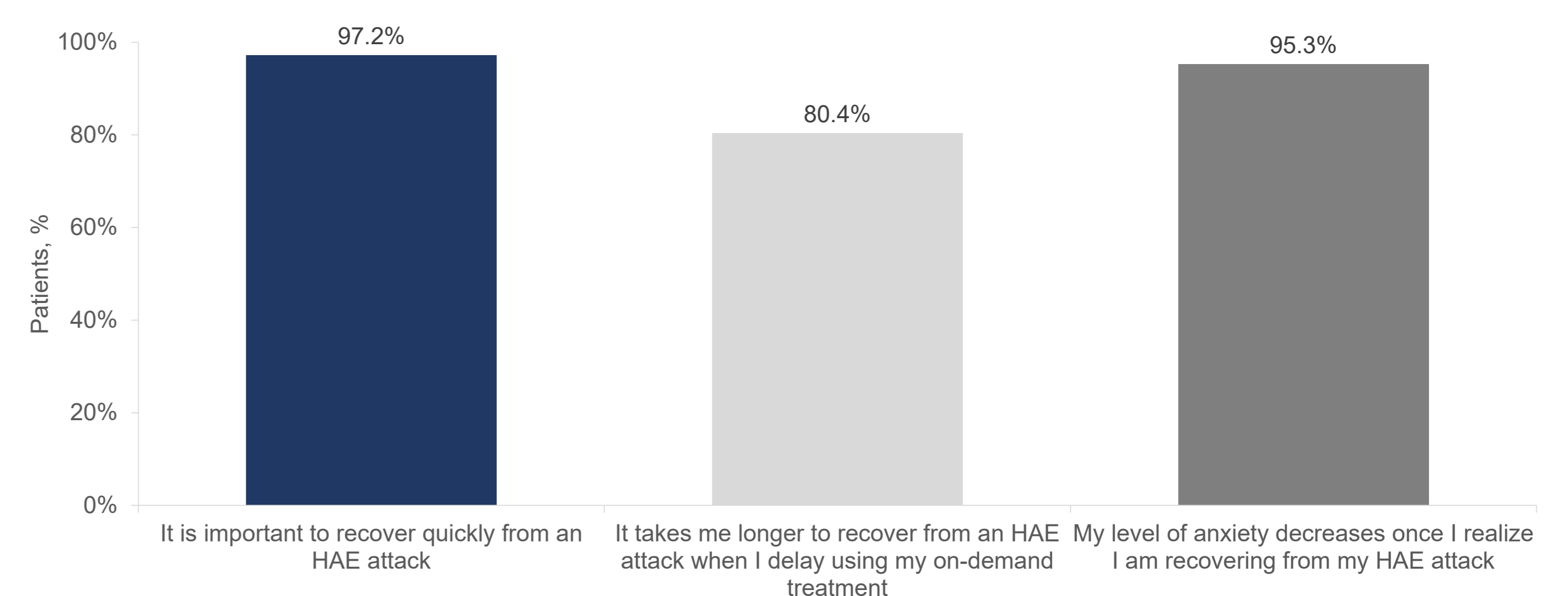
This study was sponsored by KalVista Pharmaceuticals. All authors met the ICMJE authorship criteria and had full access to relevant data. The authors had full editorial control of the data presented and provided final approval of all content. Neither honoraria nor payments were made for authorship. Princess Ogbogu - Advisory Board/Consultant/Speaker/Grant support: AstraZeneca, GlaxoSmithKline, Sanofi; Hilary Longhurst - Honoraria/Travel grants and/or Speaker Bureau and/or Consultant/Clinical Research: BioCryst, CSL Behring, Intellia, Pharming, Shire/Takeda, and KalVista Pharmaceuticals; Sally van Kooten and Markus Heckmann - Employees of KalVista Pharmaceuticals; Neil Malloy - Consultant fees from KalVista Pharmaceuticals; Julie Ulloa - Consultant fees from KalVista Pharmaceuticals; Ricardo Zwiener - Speaker: Takeda, CSL Behring, Novartis, Sanofi, Pint Pharma; Advisor: Takeda, CSL Behring, AbbVie, KalVista, Pint Pharma; Researcher: Takeda, Sanofi

Figure 1. Time to feel "in control" of an HAE attack following use of on-demand treatment



- Nearly all (97.2%) agreed that it is important to recover quickly from an HAE attack (**Figure 2**)
- The majority (80.4%) agreed that attack resolution takes longer when on-demand treatment is delayed
- Most (95.3%) reported that their anxiety decreases once they realize they are recovering from the attack

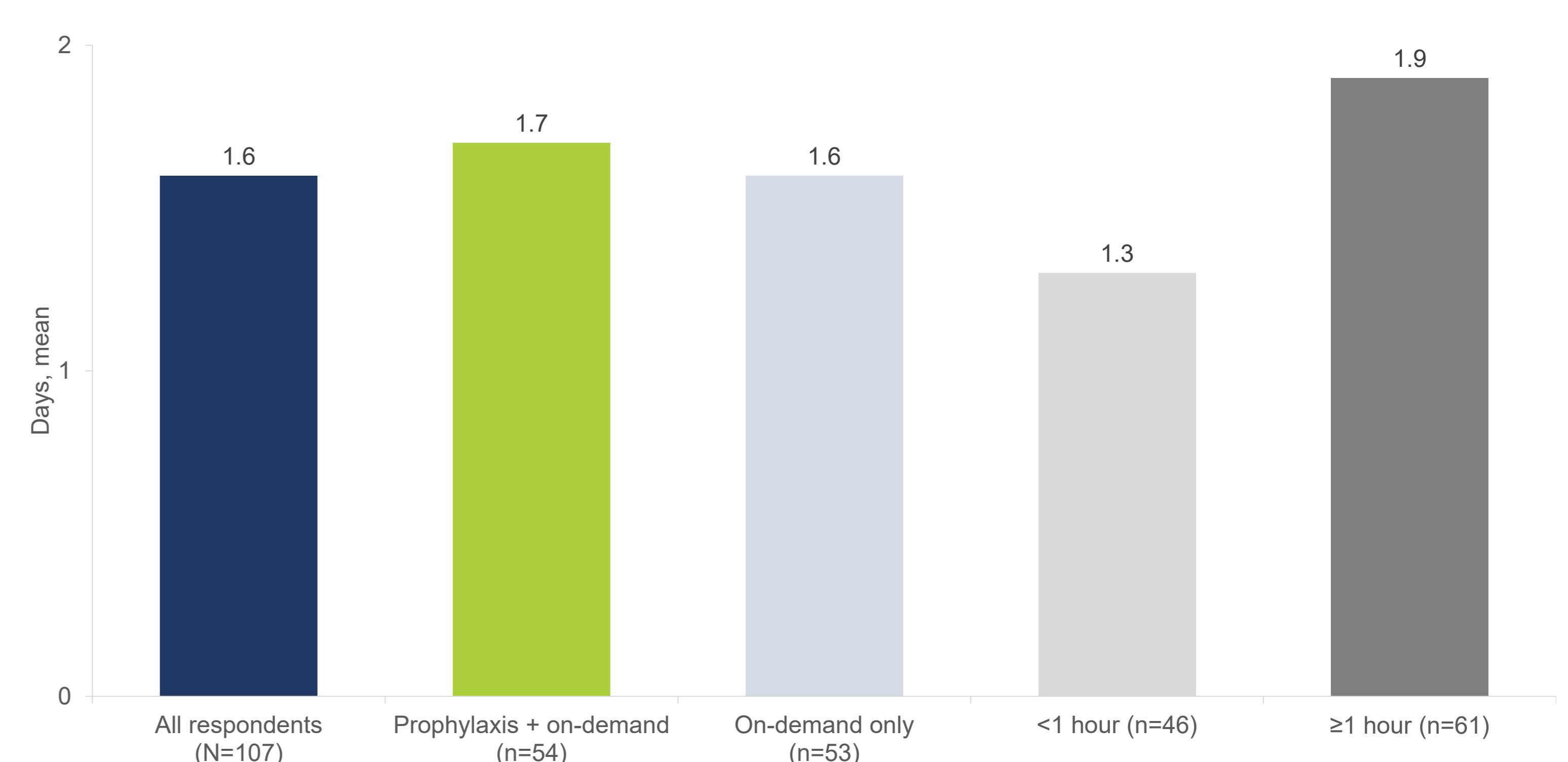
Figure 2. Survey statements and proportion of agreement



Survey participants were asked if they agreed with the presented statements and selected 'Yes' or 'No'.

- Overall, full attack resolution took a mean of 1.6 days (median: 2 days); resolution took longer (1.9 days) when treatment was delayed for ≥1 hour (**Figure 3**)
- Many (65.2%) experienced attack resolution in <1 day when the attack was treated in less than 1 hour compared to 36.1% of those who waited ≥1 hour

Figure 3. Time to feel "fully recovered" from an HAE attack following use of on-demand treatment



Survey participants were asked how long (in days) it takes for them to fully recover from their attack following use of on-demand treatment.

Conclusions

- Results highlight that delayed treatment of HAE attacks negatively impacts the time to feeling in control of the attack and time to feeling fully recovered
- Both the time to feeling in control of an HAE attack and time to feeling fully recovered were shorter for patients who treated HAE attacks in <1 hour compared with those who waited ≥1 hour
- Survey responses indicated that people living with HAE understand the importance of treating early in their HAE attack journey and recognize that earlier treatment translates to quicker recovery and resolution
- Patients also recognized that their level of anxiety decreases once they realize that they are recovering from an attack

Presented at:

HAEI Regional Conference Americas - March 15-17, 2024, Panama City, Panama

To view this poster after the presentation, visit KalVista Virtual Booth (<https://medical.kalvista.com/>).

