# Impact of Delayed Treatment of Hereditary Angioedema Attacks: Insights from Patient Surveys Across France, the United Kingdom, and the United States

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## BACKGROUND

- International guidelines recommend prompt on-demand treatment of hereditary angioedema (HAE) attacks to reduce morbidity and mortality[1-3]
- All approved on-demand therapies require injection, which has been previously shown to delay treatment[4]
- We sought to examine the impact of delayed treatment on attack severity and patients' quality of life (QoL) during an attack

## METHODS

- Patients with Type 1 and 2 HAE due to C1 inhibitor deficiency from France, the UK, and US were recruited by patient organizations (AMSAO, HAEUK, and HAEA respectively) to complete an online survey
- Eligible respondents had to have treated ≥1 HAE attack within 3 months prior to the survey with an approved on-demand therapy
- QoL during last treated attack was assessed using EuroQol Five-Dimensions Five-Level (EQ-5D-5L), with recall period adapted to "during last treated attack"

## RESULTS

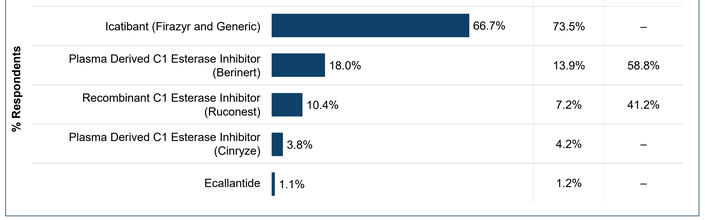
### Table 1. Respondent Characteristics

| Characteristic | Total (N=183) | Adults (N=166) | Adolescents (N=17) |
|---|---|---|---|
| **Current Age; years mean** (SD) | 42.4 (16.5) | 45.3 (14.4) | 14.1 (1.5) |
| **Age of Diagnosis; years mean (SD)** | 18 (12.3) | 19.3 (12.2) | 5.8 (4.1) |
| **Gender, N (%)** | | | |
| Male | 53 (29%) | 41 (24.7%) | 12 (70.6%) |
| Female | 129 (70.5%) | 124 (74.7%) | 5 (29.4%) |
| **Country, N (%)** | | | |
| United States | 94 (51.4%) | 80 (48.2%) | 14 (82.4%) |
| United Kingdom | 48 (26.2%) | 46 (27.7%) | 2 (11.8%) |
| France | 41 (22.4%) | 40 (24.1%) | 1 (5.9%) |
| **HAE Type** | | | |
| Type I | 164 (89.6%) | 150 (90.4%) | 14 (82.4%) |
| Type II | 19 (10.4%) | 16 (9.6%) | 3 (17.6%) |
| **Days Since Last Attack, mean (SD)** | 21.7 (20.4) | 21.8 (20.6) | 20.9 (19.6) |
| **Long-Term Prophylaxis, N (%)** | 113 (61.7%) | 101 (60.8%) | 12 (70.6%) |

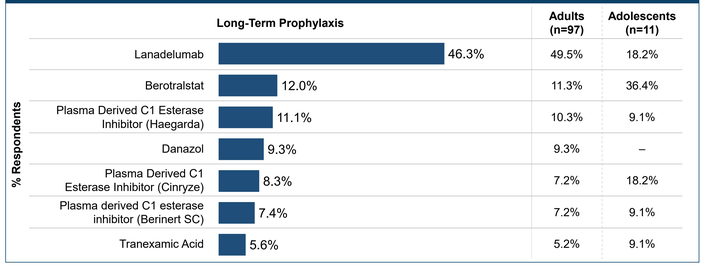
- Respondents included 183 patients (90.2% White, 70.5% female, 89.6% Type 1) from France (n=41), the UK (n=48), and the US (n=94)

## RESULTS

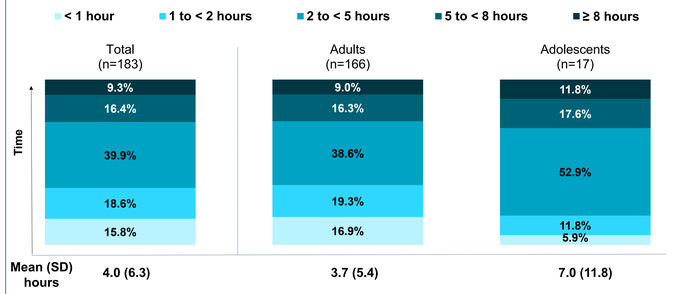
### Figure 1. On-demand Therapy Used for Last Treated Attack




### Figure 2. Long-term Prophylaxis at Time of Last Treated Attack

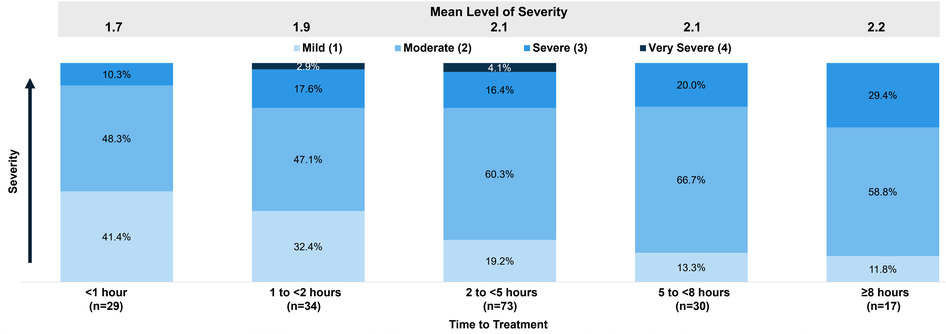



### Figure 3. Time to Treatment with On-demand Therapy



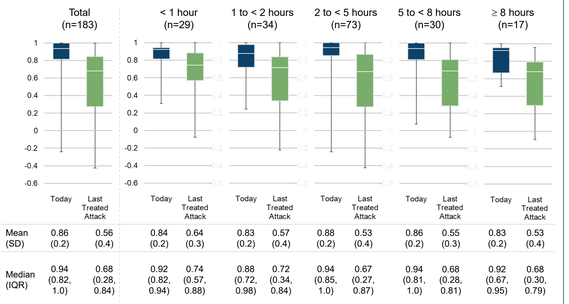

- The mean (SD) time from onset to on-demand treatment for the last attack was 4.0 hours (6.3) (adults: 3.7 hours [5.4]; adolescents 7 hours [11.8]) with 15.8% of respondents treating in <1 hour (adults: 16.9%; adolescents 5.9%)

### Figure 4. Time to On-demand Treatment and Attack Severity



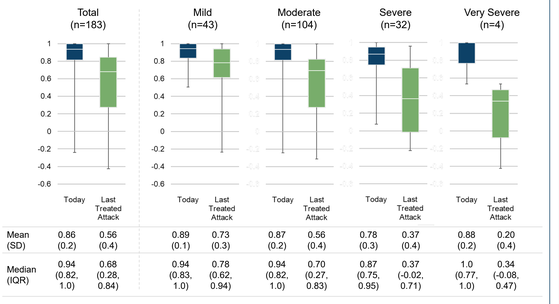

- Most attacks had progressed to moderate (56.8%), severe (17.5%) or very severe (2.2%) by the time of treatment administration
- At the time of treatment, attacks were mild for 41.4% of those who treated <1 hour from attack onset and for 11.8% to 32.4% of those who treated ≥1 hours, depending on the time to treatment

### Figure 5. EQ-5D-5L Index Values Today and Last Treated Attack




- The mean EQ-5D-5L score (SD) was substantially lower during the last treated attack [0.56 (0.4)] than today [0.86 (0.2)]
- The mean EQ-5D-5L score was higher among respondents who treated <1 hour (0.64 [0.30]) than those who treated ≥1 hours (range: 0.57 [0.4] - 0.53 [0.4])

### Figure 6. EQ-5D-5L Index Values Today and Last Treated Attack by Attack Severity




- Mean EQ-5D-5L scores (SD) were higher for those who treated while symptoms were mild (0.73 [0.3]) compared to those who treated once symptoms had progressed to moderate (0.56 [0.4]), severe (0.37 [0.4]), or very severe (0.20 [0.4])

## CONCLUSIONS

- **In this analysis, delayed treatment of HAE attacks was associated with increased severity and reduced QoL**
- **These results support additional patient education on early treatment of attacks**

## REFERENCES

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## DISCLOSURES

Bocquet: receives honoraria and/or meetings/travel support from BioCryst, CSL Behring and Takeda. Busse: reports consulting fees: Takeda, KalVista, CVS Specialty, BioCryst, CSL, Behring, ADAnx, Astria, Pharvaris. Craig: reports research support and consultancy: CSL Behring, Ionis, Takeda, BioCryst, BioMarin, KalVista, Pharvaris, Intellia, Astria; speaker fees: CSL Behring and Takeda; travel support: CSL Behring, Takeda, BioCryst. El-Shanawany: educational support, research support, speaker fees and/or consultant fees from ALK-Abello, Allergy Therapeutics, CSL, KalVista Pharmaceuticals, Inc., Octapharma, Novartis, Takeda and Viatris. Garcez: consulting, advisory work and educational support from: BioCryst, CSL Behring, KalVista, Novartis, Octapharma, Pharming, Pharvaris and Takeda. Garcez: consulting, advisory work and educational support from: BioCryst, CSL Behring, KalVista, Novartis, Octapharma, Pharming, Pharvaris and Takeda. Gurugama: Advisory board for KalVista Pharmaceuticals, Inc. Jain: advisory board for KalVista Pharmaceuticals, Inc. Kiani-Alikhan: Honorarium for consulting work and advisory boards: StrineTakeda, CSL Behring, BioCryst, Biotest, KalVista, Pharvaris, Astria, Ionis. X4 pharmaceuticals. O'Connor: speaker/consultant/advisor or research: KalVista, Pharming, CSL, GSK, Blueprint, TEVA, AZ, Sanofi, Grifols, Abbvie. She is the Chief Medical Officer of the CIC. Radojicic reports honoraria/um from the following participation: Medical Advisory Board- KalVista, BioCryst, CSL Behring, Astria, Safety Monitoring Board- Astria, Speakers Bureau: CSL Behring Savic: Consulting fees and/or honoraria from CSL Behring, BioCryst, KalVista Pharmaceuticals, Inc, Pharvaris, Novartis, and Astra Zeneca. Savic: Consulting fees and/or honoraria from CSL Behring, BioCryst, KalVista Pharmaceuticals, Inc, Pharvaris, Novartis, and Astra Zeneca. Wedner: Receives research funds from Arista, BioCryst, BioMarin, GlaxoSmithKline, ImmunoTherapeutics, Ionis, KalVista Pharmaceuticals, Pharvaris, and Takeda; Receives consulting fees from Arista, BioMarin, BluePrint, CSL, Grifols, Ionis, KalVista Pharmaceuticals, Pharvaris, and Takeda; and is a speaker for BioCryst, BluePrint, CSL, GlaxoSmithKline, Grifols, and Takeda. Yong: Consulting fees, honoraria and/or support for attending meetings from BioCryst, CSL Behring, KalVista Pharmaceuticals, Inc., Pharming, Pharvaris and Takeda. Danese: consulting fees from KalVista. Ulloa: Consulting fees from KalVista. Desai: is a former employee of and owns stock in Kalvista. Audhya: is an employee of and owns stock in Kalvista. Christiansen:reports advisory boards: KalVista, BioCryst, US HAEA Medical Advisory Board.

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