Understanding Patient Reasons Not to Treat All Hereditary Angioedema Attacks and Patient Satisfaction With On-Demand Treatment: Results From the HAE Wave II Disease Specific Programme™ (DSP™) 2023

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Rationale

- Hereditary angioedema (HAE) is a rare genetic condition characterized by painful, often debilitating swelling attacks that can affect multiple locations in the body.[1,2]
- Current HAE clinical guidelines recommend that all patients with HAE carry sufficient medication for on-demand treatment (ODT) of attacks.[3]
- Despite the US HAE Association Medical Advisory Board and WAO/EAACI recommendations that all HAE attacks be considered for ODT to limit disease morbidity, functional impairment, and mortality,[3,4] patients with HAE do not treat all attacks. However, the incidence of and reasons for this patient decision have not been thoroughly studied.
- The objective of this analysis was to understand patient reasons not to treat their HAE attacks. Characteristics of untreated attacks and physician- and patient-reported satisfaction with current ODT were also evaluated.

Methods

- Data were drawn from the Adelphi HAE Wave II DSP™, a real-world, cross-sectional survey of physicians and their patients in France, Germany, Italy, Spain, the United Kingdom, and the United States.[5]
- Physicians were eligible for inclusion if they made treatment decisions and managed ≥2 patients with HAE in a typical month.
- Physicians used patients' medical chart data alongside clinical judgment to report demographics, current ODT prescriptions, characteristics of the most recent attack and use of ODT, reasons not to use ODT to treat HAE attacks, and satisfaction with ODT.
- Patients were recruited via their physician and were eligible for inclusion if they had a physician-confirmed diagnosis of HAE and provided informed consent.
- Patients voluntarily recorded data via self-report forms that included information about their recent attack history, current ODT prescriptions, use of ODT to treat their most recent attack and time to symptom improvement, reasons for not treating their most recent attack if applicable, and treatment satisfaction.
- Institutional review board approval was obtained. Descriptive statistics were reported.

References

1. Bernstein JA. *Am J Manag Care.* 2018;24(suppl 14):S292-8. **2.** Banerji A, et al. *Ann Allergy Asthma Immunol.* 2020; 124:600-7. **3.** Busse PJ, et al. *J Allergy Clin Immunol Pract.* 2021;9:132-50.e3. **4.** Maurer M, et al. *Allergy.* 2022;77:1961-90. **5.** Anderson P, et al. *Curr Med Res Opin.* 2023;39:1707-15.

Results

- In total, 191 physicians reported data for 968 patients with HAE (52.0% female; mean age [years] ± SD, 33.8 ± 14.5; **Table 1**). Of these, 229 patients provided self-reported data.
- In the physician-reported group, most patients had type 1 HAE (77.1%), and mean time since diagnosis was 7.5 years (**Table 1**).
- Notably, physicians reported that 223 (23%) of patients had not been prescribed ODT at the time of their attack.

Table 1. Baseline demographics and clinical characteristics

	Physician reported (N=968)	Patient reported (N=229)
Age (years), mean ± SD	33.8 ± 14.5	33.0 ± 12.8
Female, n (%)	503 (52.0)	117 (51.1)
Patients in employment or education, n (%)	867 (90.4) (n=959)	205 (89.9) (n=228)
Number of comorbidities, mean ± SD	0.6 ± 0.9	0.4 ± 0.8
Years since diagnosis, mean ± SD	7.5 ± 8.3 (n=885)	7.9 ± 7.7 (n=215)
HAE type[a], n (%)	**(n=942)**	**(n=227)**
Type 1	726 (77.1)	172 (75.8)
Type 2	176 (18.7)	46 (20.3)
HAE with normal C1-INH	40 (4.2)	9 (4.0)
Receiving long-term prophylaxis treatment, n (%)	577 (59.6)	120 (52.4)
Receiving ODT, n (%)	745 (77.0)	171 (74.7)
Number of HAE attacks in the 12 months prior to data collection, mean ± SD	2.2 ± 3.3	2.8 ± 2.7

C1-INH, C1-inhibitor; HAE, hereditary angioedema; ODT, on-demand treatment. [a]Unknown HAE type excluded from base.

- Most patients (77.0%; **Table 1**) had been receiving ODT for a mean of 4.1 years (**Table 2**).

Table 2. Currently prescribed ODT

	Physician reported (n=745)	Patient reported (n=171)
Prescribed ODT, n (%)		
Icatibant (branded or generic)	475 (63.8)	79 (46.2)
Plasma-derived C1-INH concentrate	205 (27.5)	59 (34.5)
Recombinant human C1-INH concentrate	88 (11.8)	27 (15.8)
Ecallantide	14 (1.9)	3 (1.8)
Other treatments	8 (1.1)[a]	3 (1.8)[b]
Time (years) receiving current ODT, mean ± SD	4.1 ± 4.0 (n=692)	4.4 ± 4.1 (n=162)

C1-INH, C1-inhibitor; ODT, on-demand treatment. More than 1 ODT can be prescribed. [a]Other treatments used include steroids (n=3), antihistamine (n=2), human C1-INH concentrate (n=2), and epinephrine (n=1). [b]Other treatments used include antihistamine (n=1), steroids (n=1), and human C1-INH concentrate (n=1).

- More than 80% of patients had treated their most recent HAE attack (**Table 3**).
- Of those who treated their most recent attack, physicians reported the following ODTs were used: icatibant (55.5%), plasma-derived C1-INH (30.9%), recombinant human C1-INH (9.3%), ecallantide (1.6%), or other treatments (3.2%).

Table 3. Treatment of most recent HAE attack

	Physician reported (N=968)	Patient reported (N=229)
Did patients treat their most recent attack?, n (%)	**(n=920)**	**(n=223)**
Yes	742 (80.7)	188 (84.3)
No	178 (19.3)	35 (15.7)
Time (minutes) waited before administering ODT, median (IQR)	NR	0.0 (0.0–10.0) (n=187)
Time (minutes) to symptom improvement, median (IQR)	NR	30.0 (20.0–60.0) (n=186)
ODT used to treat the attack, n (%)	**(n=742)**	**(n=188)[a]**
Icatibant (branded or generic)	412 (55.5)	85 (45.2)
Plasma-derived C1-INH concentrate	229 (30.9)	68 (36.2)
Recombinant human C1-INH concentrate	69 (9.3)	26 (13.8)
Ecallantide	12 (1.6)	2 (1.1)
Other treatments	24 (3.2)[b]	8 (4.3)[c]

C1-INH, C1-inhibitor; HAE, hereditary angioedema; IQR, interquartile range; NR, not recorded; ODT, on-demand treatment. [a]One patient used 2 treatments. [b]Other treatments used include steroids (n=8), antihistamine (n=7), adrenaline/epinephrine (n=2), danazol (n=3), human C1-INH concentrate (n=3), tranexamic acid (n=2), and non-steroidal anti-inflammatory drug (n=1). [c]Other treatments used include steroids (n=1), antihistamine (n=4), danazol (n=2), and human C1-INH concentrate (n=1).

- Of the untreated HAE attacks, 40.3% (n=71/176) were reported by physicians to be moderate or severe (**Figure 1**); 175 physician-reported untreated attacks had the following symptoms: 99 (56.6%) patients experienced external swelling of the hands, arms, feet, legs, fingers, toes; 65 (37.1%) experienced external swelling of the face, lips, eyes/eyelids, nose, neck; and 42 (24.0%) experienced abdominal pain.
- Notably, 11.8% (n=21/178) of attacks resulted in the patient going to the emergency department or being admitted to hospital for treatment (**Figure 2**).

Figure 1. Physician-reported severity of untreated attacks[a]

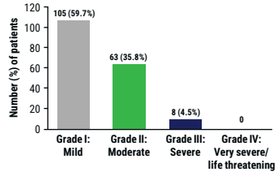
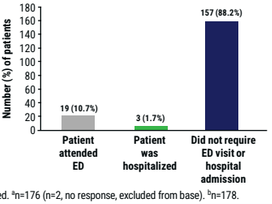


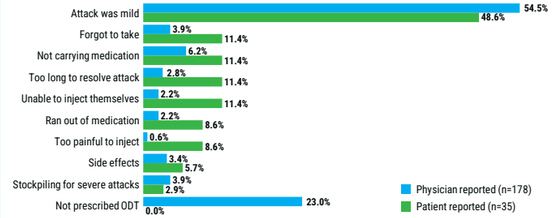
Figure 2. Physician-reported hospital use for untreated attacks[b]



ED, emergency department. Only the last attack for each patient is reported. [a]n=176 (n=2, no response, excluded from base). [b]n=178.

- The most frequent physician- and patient-reported reason for not treating an HAE attack was "attack was mild/not severe or limiting" (54.5% and 48.6%, respectively) (**Figure 3**).
- Patients also reported that reasons not to treat attacks were not having their medication with them (11.4%), medication takes too long to resolve attacks (11.4%), forgot to take (11.4%), or inability to inject themselves (11.4%).

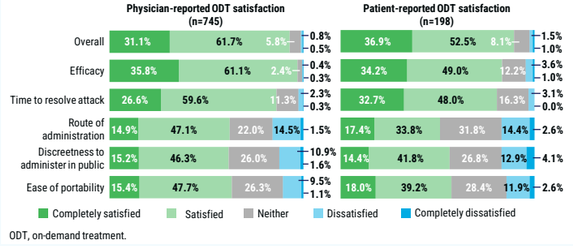
Figure 3. Physician- and patient-reported reasons for not treating attacks



ODT, on-demand treatment.

- Most patients reported they were either satisfied (52.5%) or completely satisfied (36.9%) with their current HAE ODT medication overall (**Figure 4**).
- However, almost half of patients did not report satisfaction with factors such as the discreetness (43.8%), route of administration (48.8%), and portability (42.9%) of their current treatment.

Figure 4. Physician- and patient-reported satisfaction with ODT



ODT, on-demand treatment.

Conclusions

- **Among patients who did not treat their most recent HAE attack, the most common physician- and patient-reported reason was that the attack was mild. However, factors relating to route of administration, including injection pain or inability to self-inject, also impacted compliance with medical recommendations.**
- **Overall, most patients who did treat their attack were satisfied or completely satisfied with their HAE treatment, but almost half did not express satisfaction with factors relating to route of administration, discreetness, and portability.**
- **Increasing ODT use among patients with HAE for all HAE attacks (including mild) may reduce HAE attack severity and the need for emergency healthcare services. Willingness to treat may be facilitated by the availability of oral therapies.**

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