Patient Reported Outcome Data from Acromegaly Patients Treated with Injectable Somatostatin Analogues in Routine Clinical Practice: Preliminary Results

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BACKGROUND & OBJECTIVES

- The disease and treatment burden of acromegaly has been previously documented in a large, observational study in Germany, the UK, and the Netherlands.[1] This study showed that, despite being biochemically-controlled, most patients managed by the standard of care injectable somatostatin analogues (SSAs) report acromegaly symptoms that interfere with their daily life, leisure, and work
- The current study was undertaken to understand the disease and treatment burden for US acromegaly patients treated with long-acting SSAs in routine clinical practice setting in the US

METHODS

- In this cross-sectional US-based study, acromegaly patients with stable disease (no change to SSA-based treatment in the past 12 months), recruited by Acromegaly Community, completed an online survey focusing on disease characteristics and management; symptoms; adverse reactions; general health; and the Acro-TSQ (an acromegaly-specific patient reported outcome measure) assessing symptom and GI side effect interference, treatment satisfaction, treatment bother, and treatment convenience[2]
- To be eligible, patients were required to:
  - have a diagnosis of acromegaly
  - be receiving a stable dose of injectable SSA
  - have been seen by their treating physician within the past year
  - be a resident of the US
- IRB approval was obtained; eligible patients were required to provide consent
- Preliminary data from the first 65 patients enrolled were analyzed descriptively (frequencies and percentages, or means, standard deviations and ranges)

RESULTS

Demographic and Clinical Characteristics

- Data from 65 eligible acromegaly patients were available (75% F, mean age = 49 ± 12 years, mean time since diagnosis = 10 ± 8 years; 40% on octreotide, 60% on lanreotide, 68% on SSA monotherapy) (**Table 1**)

Injection/Health Care Visits

- SSA injections were administered at home (54%), at a local doctor's office (32%), at an outpatient hospital (9%), or at a regional community clinic (3%)
- Only 15% of patients self-inject. Over 50% of patients reported that a nurse or health care professional <u>other</u> than a doctor administered the injection, 34% have a friend/spouse, and 6% have a doctor administer it. (Note: Subjects could select >1 response)
- Most patients (86%) have seen their doctor within the past 6 months
- Mean number of doctor visits during the past year was 3.3 ± 2.5 (range: 1-13)

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Table 1: Demographic and Clinical Characteristics*

Characteristic	Results
Female, % (N)	75% (49)
Age, Years, Mean ± SD	49 ± 12
Duration of Acromegaly, Years, Mean ± SD	10 ± 8
Current SSA, % (N)	65
Octreotide (n=26)	
Low dose (<20 mg total/month)	31% (8)
Middle dose (20 mg to <30 mg total/month)	35% (9)
High dose (≥ 30 mg total/mg total/month)	35% (9)
Lanreotide (n=39)	
Low dose (<90 mg total/month)	18% (7)
Middle dose (90 mg to < 120 mg total/month)	41% (16)
High dose (≥ 120 mg total/month)	41% (16)
Either octreotide or lanreotide (n=65)	
Low dose	23% (15)
Middle dose	38% (25)
High dose	38% (25)
Procedure, % (N)	
Pituitary surgery only	58% (38)
Radiotherapy only	0
Both pituitary surgery and radiotherapy	32% (21)
Neither pituitary surgery or radiotherapy	9% (6)
Time Since Last Surgery, Years, Mean ± SD (n=59)	8 ± 7
Time Since Radiotherapy, Years, Mean ± SD (n=21)	8 ± 7
Medications for Acromegaly, % (N)	
SSA only	68% (44)
Pegvisomant (Somavert®) in combo with SSA	17% (11)
Bromocriptine (Parlodel® or Cycloset®) in combo with SSA	2% (1)
	5% (3)
Cabergoline (Dostinex® or Cabaser®) in combo with SSA	5% (3)
	5% (3)
SSA+ Pegvisomant+ Dopamine	
Not sure	

* n=65 unless otherwise specified

Symptoms

- 69% of patients reported they are well controlled biochemically, but only 31% reported their symptoms were well controlled
- Patients reported headaches (78%), fatigue/weakness (80%), excessive sweating (6%), joint pain (85%), soft tissues swelling (83%), carpal tunnel symptoms (63%), vision problems (54%), snoring (66%), forgetfulness, and short-term memory loss or feeling in a daze (referred to as "acro-fog") (86%). Many of these symptoms were "moderate" or "severe" (**Table 2**)
- Most symptoms were experienced constantly; however, >20% of patients experienced headaches, excessive sweating, joint pain, and soft tissue swelling at the end of the injection cycle

Table 2: Frequency, Severity, and Pattern of Symptoms

Symptom	Experienced % Yes (N†)	Mild % (n*)	Moderate % (n*)	Severe % (n*)	Experience Symptom Constantly % (n*)	Experience at End of Injection Cycle (n*)
Headache	78% (51)	47% (24)	33% (17)	20% (10)	39% (20)	37% (19)
Fatigue/Weakness/Feeling Tired	80% (52)	15% (8)	56% (29)	29% (15)	77% (40)	13% (7)
Excess Sweating	69% (45)	29% (13)	38% (17)	33% (15)	51% (23)	22% (10)
Joint Pain	85% (55)	16% (9)	38% (21)	45% (25)	62% (34)	24% (13)
Swelling of Soft Tissue	83% (54)	35% (19)	35% (19)	30% (16)	48% (26)	31% (17)
Carpal Tunnel Syndrome	63% (41)	59% (24)	29% (12)	12% (5)	56% (23)	15% (6)
Vision Problems	54% (35)	49% (17)	40% (14)	11% (4)	66% (23)	9% (3)
Snoring	66% (43)	37% (16)	28% (12)	35% (15)	77% (33)	9% (4)
Acro-Fog	86% (56)	39% (22)	38% (21)	23% (13)	68% (38)	16% (9)

Injection Site Reactions

- Many patients (>30%; range: 31% to 41%) reported that severity of injection site reactions was moderate to severe (**Table 3**)

Table 3: Frequency and Severity of Injection Site Reactions

Injection Site Reaction	Experienced % Yes (N†)	Mild % (n*)	Moderate % (n*)	Severe % (n*)
Pain at injection site **during** injection	78% (51)	59% (30)	31% (16)	10% (5)
Pain at injection site **several hours** after injection	69% (45)	60% (27)	31% (14)	9% (4)
Pain at injection site **several days** after injection	45% (29)	62% (18)	28% (8)	10% (3)
Bruising at the injection site(s)	46% (30)	67% (20)	33% (10)	0
Swelling at the injection site(s)	46% (30)	67% (20)	33% (10)	0
Nodules (knots and bumps under the skin) at the injection site(s)	62% (40)	48% (19)	40% (16)	13% (5)
Scar tissue/hardness of the skin at the injection site(s)	40% (26)	42% (11)	46% (12)	12% (3)

†Of total sample of 65 patients *Of those that experienced an injection site reaction

Acro-TSQ

- Items in the Acro-TSQ are scored into 5 domains (Symptom Interference, GI Interference, Treatment Satisfaction, Treatment Bother, and Treatment Convenience)
- Patients reported lowest (worse) scores on Symptom Interference and GI Interference (**Table 4**)

Acro-TSQ (continued)

- 66% of patients experienced GI side effects, lasting on average 11 ± 11 days post injection (range: 2-42) (data not shown)
  - 91% of patients reported GI side effects affected daily life, 93% said they interfered with leisure activities, 91% reported they interfered with work
- Patients were bothered by amount of time they experienced symptoms (100%), bothered by injection site reactions during the first few days (74%), need to schedule injections (65%), and having to travel for injections (85%)
- 14% of patients were Very Satisfied, 23% were Satisfied, and 26% were Somewhat Satisfied with their current treatment overall

Table 4: Acro-TSQ Domain Scores

Domain	Mean ± SD (Range)
Symptom Interference (n=59)	38 + 22 (0-75)
GI Interference (n=46)	50 ± 28 (0-100)
Treatment Satisfaction (n=65)	55 ± 20 (8–92)
Treatment Bother (n=65)	67 ± 25 (17-97)
Treatment Convenience (n=65)	54 ± 31 (0-100)

Lower scores represent greater interference, lower satisfaction, greater bother, and greater inconvenience

General Health Rating

- Mean overall ratings of general health, on a scale ranging from 0 (worst health imaginable) to 100 = best health imaginable, was 62 ± 19 (range: 23-92)

Limitations

- Data were analyzed from this cross-sectional study of acromegaly patients receiving a stable dose of injectable SSA that had seen their treating physician within the past year. It is unclear to what extent these findings are generalizable to other patient populations with acromegaly
- There may be some recall bias (when patients do not remember previous experiences accurately or omit details), as all data were based on self-report

Discussion

- Patients report a variety of symptoms including headaches, fatigue/weakness, excessive sweating, joint pain, soft tissues swelling, carpal tunnel symptoms, vision problems, snoring, and "acro-fog." Many of these symptoms are experienced at the end of the injection cycle.
- Over one half of all patients reported injection site reactions and a large majority experienced GI side effects, which lasted for approximately one-third of every month
- On the Acro-TSQ, patients reported the lowest domain scores on Symptom Interference and GI Interference, suggesting that both symptoms and GI side effects greatly impact patients
- Patients reported a mean general health rating of 62 (out of 100). This score represents significantly worse general health ratings than those of a US population aged 45-54 years of age (79.2)[3]

CONCLUSIONS

- These preliminary findings highlight the importance of collecting patient-reported data. Despite being on a stable dose of an injectable SSA, seeing their physician regularly, and reporting adequate biochemical control, US acromegaly patients in routine clinical practice report significant burden of disease including inadequate symptom control and treatment dissatisfaction, suggesting an unmet needs exists in this population.
- Data were limited to the first 65 patients enrolled. Analyses will be replicated once all patients are enrolled in the study to confirm these initial findings.

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