First-generation somatostatin receptor ligands in the treatment of acromegaly: real-world patient journey

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Background

- Acromegaly is a rare disease characterized by elevated levels of growth hormone and insulin-like growth factor 1.[1]
- Recommended medical therapies include somatostatin receptor ligands (SRLs), dopamine agonists (DAs), and growth hormone receptor antagonists (GHRAs).[1]
- It is important to determine the optimal course of treatment with the best long-term outcomes for patients with acromegaly; however, real-world evaluations of acromegaly treatments are limited.

Objective

To evaluate the treatment journey of patients receiving medications for acromegaly.

Methods

- De-identified patient data were extracted from MarketScan®, a US claims database, from Jan. 1st, 2010, to May 31st, 2020.
- Eligible patients had ≥2 claims associated with an acromegaly diagnosis with >30 days between the first and second claim.
- Lines of therapy (LOTs) were defined, with each patient receiving either monotherapy with a first-generation SRL (lanreotide depot or octreotide long-acting release), a second-generation SRL (pasireotide), a DA, or a GHRA, or combination therapy (≥2 treatments [SRL and a DA, SRL and GHRA, or DA and GHRA] overlapping for >3 months) for ≥90 days, without treatment gaps >3 months.
- Outcomes for all eligible patients: proportion of patients receiving each first-line therapy and changes in LOT throughout the study period.
- Outcomes for patients receiving monotherapy without treatment gaps >3 months:
  - Proportion of patients receiving each medication class (SRLs, DAs, GHRAs);
  - Treatment adherence (indicated by mean medication possession ratio [MPR], calculated by dividing days of medication supply by days in LOT; variance of MPR between medication classes analyzed with an F-test);
  - Treatment persistence (determined by time between first treatment record and change in LOT or censoring; pairwise survival curves between medication classes compared with a log-rank test).

Results

- This analysis included 981 patients receiving either first-line monotherapy (n=924) or combination therapy (n=57) at baseline; mean (standard deviation [SD]) age was 48.9 (SD: 13.9) years and 485 patients (51%) were female.
- The majority of patients (80.8%) did not switch treatments over the duration of the study period **(Figure 1)**.
  - Of the 474 and 334 patients who initiated monotherapy with first-generation SRLs and DAs, respectively, 78.7% and 86.8% maintained treatment throughout the study period.
- The most common medication classes for patients receiving monotherapy for the duration of the study period (N=742) were first-generation SRLs (n=381; lanreotide depot [n=201] and/or octreotide long-acting release [n=195]), and DAs (n=241), followed by GHRAs (n=109) and second-generation SRLs (pasireotide [n=11]).
- Treatment adherence was similar among all medication classes, with no significant differences in mean MPR between any two treatments **(Figure 2)**.
- DAs were associated with significantly lower median treatment persistence (19.1 months) than first-generation SRLs (44.2 months) or GHRAs (75.1 months; **[Figure 3]**).

CONCLUSIONS

- Most patients initiated treatment with monotherapy (a finding which could be due in part to data being collected up to 2020), and most did not switch medications after initiation, emphasizing the importance of identifying the optimal course of treatment for best long-term outcomes.
- Although SRLs are recommended as first-line therapy for most patients with acromegaly,[1] interestingly, many patients in this analysis initiated and maintained treatment with DAs, despite DA usage having lower treatment persistence than usage of first-generation SRLs or GHRAs.
- While we cannot exclude that the high use of DAs as initial treatment may have been due to mild disease and/or lower medication cost, it also highlights the importance of considering current treatment guidelines and recommendations, as well as the treatment persistence records of different medications; although biochemical control values were not available, lengthier persistence duration may indicate that a therapy exhibits long-term disease control.[2]

Figure 1. Changes in lines of therapy among patients with acromegaly in the MarketScan® database (N=981)

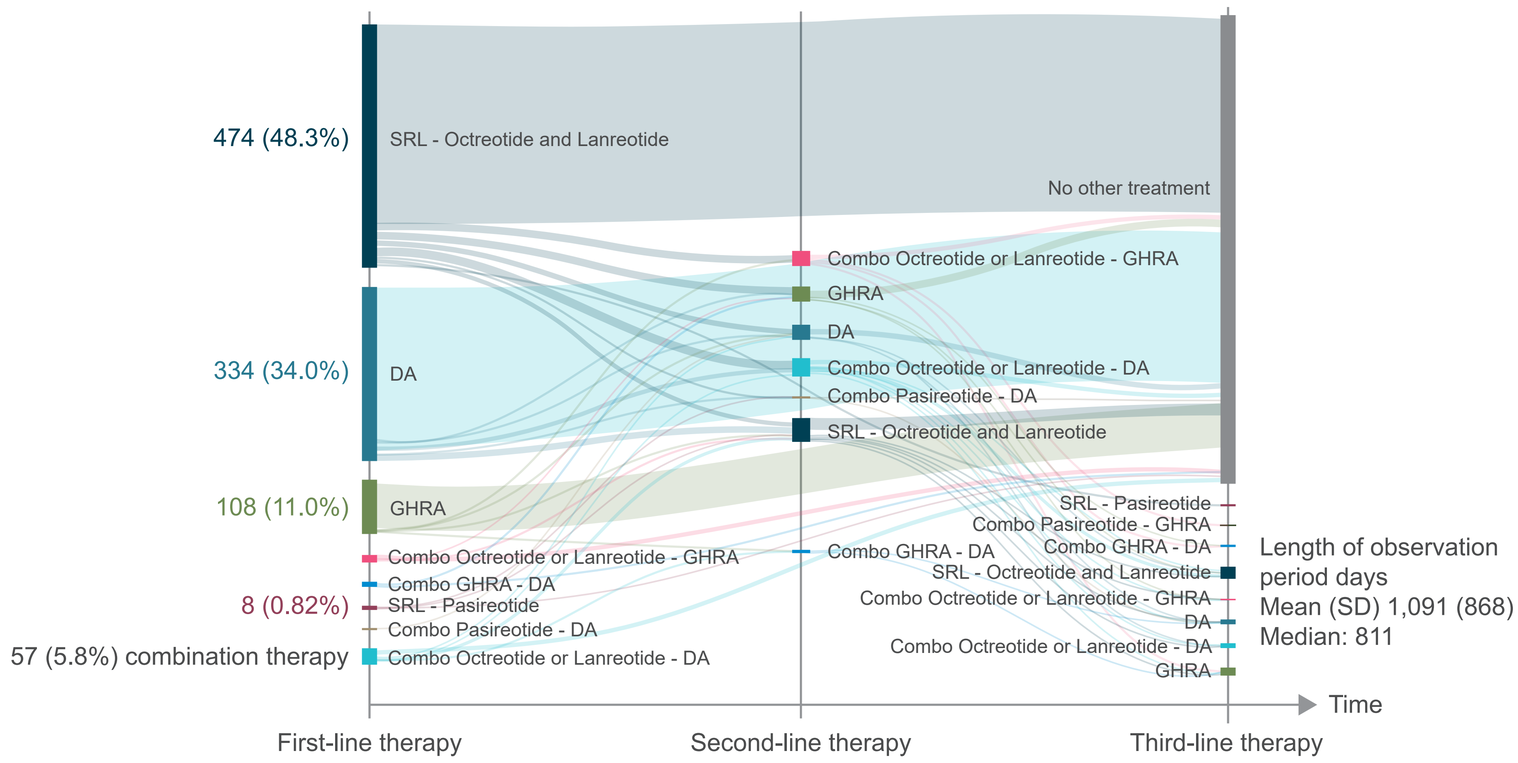

Figure 2. Treatment adherence among patients with acromegaly receiving monotherapy in the MarketScan® database (N=742)

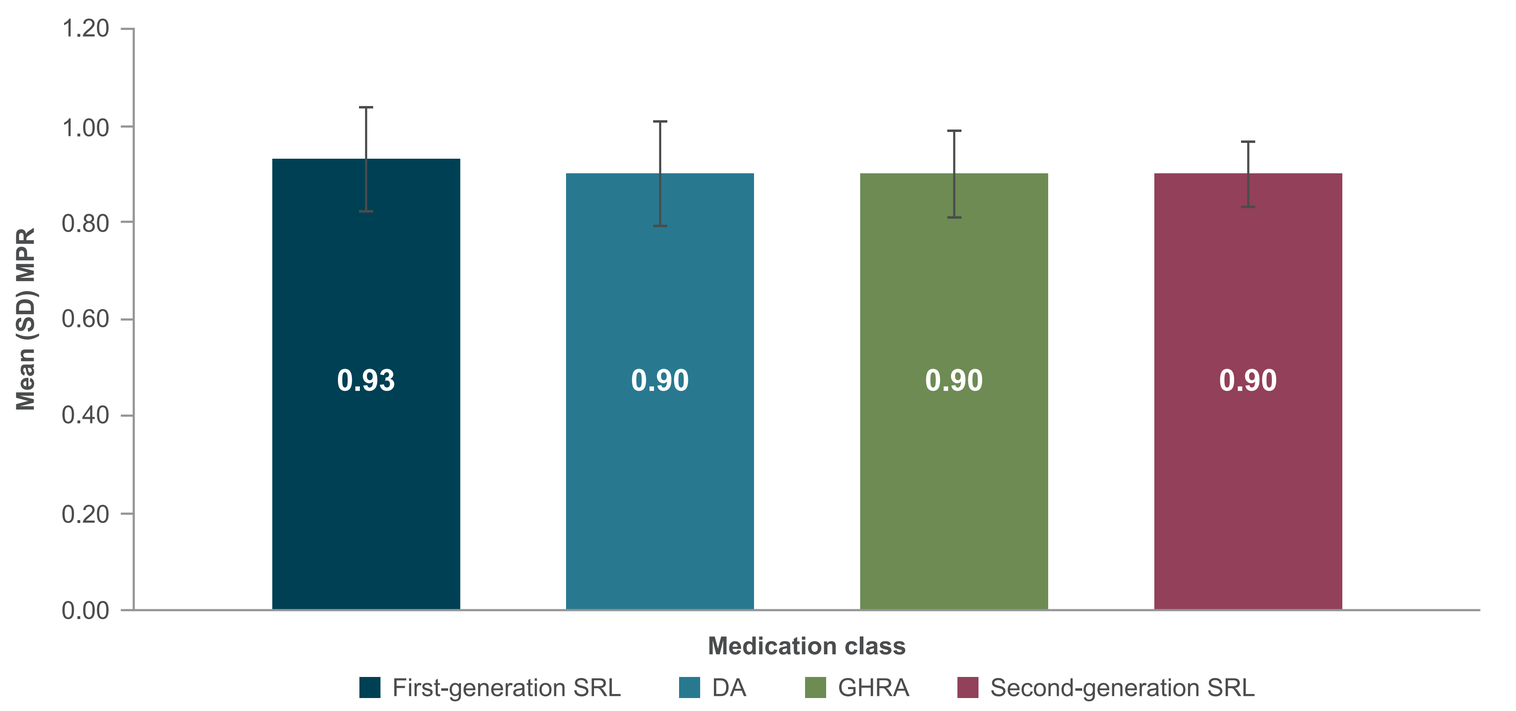

Figure 3. Kaplan–Meier curves for treatment persistence among patients with acromegaly in the MarketScan® database, by medication class (N=742)

Median (95% CI) persistence for each medication class was as follows: first-generation SRL: 44.2 months (31.6, 61.1); DA: 19.1 months (16.6, 27.6); GHRA: 75.1 months (27.4, NA); second-generation SRL: 12.3 months (6.1, 58.7). First-generation SRL had significantly higher persistence than DA ($p<0.005$*); GHRA had significantly higher persistence than DA ($p<0.005$*). *The log-rank test was used to compare pairwise survival curves.

Abbreviations

CI: confidence interval; DA: dopamine agonist; GHRA: growth hormone receptor antagonist; LOT: line of therapy; MPR: medication possession ratio; NA: not available; SD: standard deviation; SRL: somatostatin receptor ligand; US: United States.

References

1. Giustina A. et al. Rev Endocr Metab Disord 2020;21(4):667–678; **2.** Kardas P. et al. Front Pharmacol 2013;4:91.

Author contributions Substantial contributions to study conception/design or acquisition/analysis/interpretation of data: MF, SM, AROJr, MdPS, YD, TB, AB; drafting of the publication or revising it critically for important intellectual content: MF, SM, AROJr, MdPS, YD, TB, AB; final approval of the publication: MF, SM, AROJr, MdPS, YD, TB, AB.

Disclosures MF received a research grant to Oregon Health & Science University as principal investigator for Amryt, Crinetics, Ionis, and Recordati and served as an occasional scientific consultant or advisory board member for Amryt, Crinetics, Ionis, Ipsen, Pfizer, and Recordati; SM received consulting fees from Novo Nordisk, Recordati, and Ionis; received an educational grant from Ipsen; serves as the secretary for the Pituitary Society; and received a grant to the University of California, Los Angeles from Pfizer; AROJr is an employee of Ipsen and holds stock in Ipsen; MdPS and YD are employees of Ipsen; TB received funding and medical writing support from Ipsen; received consulting fees from Ipsen, Recordati, Novartis, and Pfizer; received payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing, or educational events from Recordati, Novartis, and Ipsen; received support for attending meetings and/or travel from Ipsen and Pfizer; participated in a Data Safety Monitoring Board or Advisory Board, for Advanz Pharma and Recordati; and received a grant to Aix-Marseille University from Pfizer; and AB has no conflicts of interest to disclose.

Medical writing support The authors thank Isabel Haber, BS, Anastasia Yandulskaya-Blue, PhD, and Fay Angel, BA, of Costello Medical, for providing medical writing, editorial, and design support, sponsored by Ipsen in accordance with Good Publication Practice (GPP3) guidelines.