PDB17

USING A NOVEL, GRAPHICAL METHOD TO ANALYZE COMPLEX TREATMENT PATTERNS FOR PATIENTS WITH ACROMEGALY

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BACKGROUND

- Acromegaly is a rare, slowly progressing disorder resulting from excessive growth hormone (GH) and insulin-like growth factor (IGF)-1.[1-3]
- Initial treatment is often surgery to remove the adenoma, but about half of patients require additional medical treatment.[4,5]
- Treatment of acromegaly may complex, involving medications, surgery, and radiotherapy, yet there are limited published data on treatment patterns.[5]

OBJECTIVE

- To analyze treatment patterns in acromegaly using a novel, graphical method.

METHODS

Study Design and Data Source

- Retrospective cohort study using 2 HIPAA-compliant United States claims databases.

Study Population and Study Timeframe

- Acromegaly (ICD-9-CM code 253.0) and pituitary tumor (237.0) claims in identification (ID) period,
- Newly treated in ID period,
- 6-month treatment-free period prior to first treatment consensus, and
- Continuous enrollment in preindex period

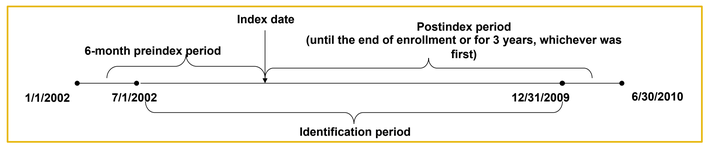
Exclusion Criteria:

- Combination therapy in postindex period.

Follow-up (Postindex) Period:

- Patients were followed until the end of enrollment or for 3 years, whichever was first.

Acromegaly Patients Newly-Treated in the Identification Period



Treatments

- Surgery, radiation, octreotide short-acting (SA), dopamine agonists (cabergoline and bromocriptine), octreotide long-acting (LAR) (doses in milligrams [mg] per month), pegvisomant, or lanreotide.

Analyses

- We analyzed treatment patterns using GRAPHx™, an innovative method which produces high-resolution images combining comprehensive individual patient histories.
- The GRAPHx method uses multi-colored line segments to represent different treatment claims, plotting them over time. Every horizontal line is an individual patient treatment history in the follow-up period.
- The height of each colored section is proportional to the number of users, gray areas represent periods with no claims for the treatments of interest, and black points indicate the end of enrollment for each patient.
- Images were reviewed for segment length and changes in colors to evaluate treatment patterns over time for every patient.
- Graphics were plotted using R version 2.12 and statistical analyses were performed using SAS® version 9.2 (SAS Institute, Cary, NC).

RESULTS

Study Cohort Selection and Characteristics

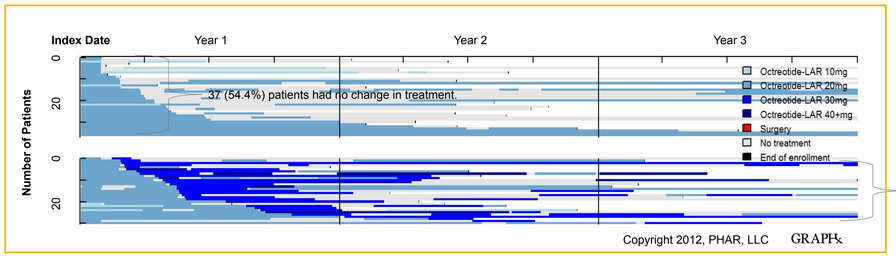
- 680 newly-treated acromegaly patients were identified in 7/1/2002-12/31/2009, of which 41 patients were excluded.
- Among 639 patients included in the study, 316 (49.5%) patients were women, and the mean age was 45.3 (SD: 13.3) years.

First Treatment Observed During the 3-Year Follow-up Period

First Treatment	N	%
Surgery	418	65.4
Dopamine agonists	91	14.2
Octreotide LAR	78	12.2
10mg/month	7	1.1
20mg/month	61	9.6
30mg/month	9	1.4
>30mg/month	1	0.2
Octreotide SA	22	3.4
Radiation	21	3.3
Lanreotide	5	0.8
Pegvisomant	4	0.6

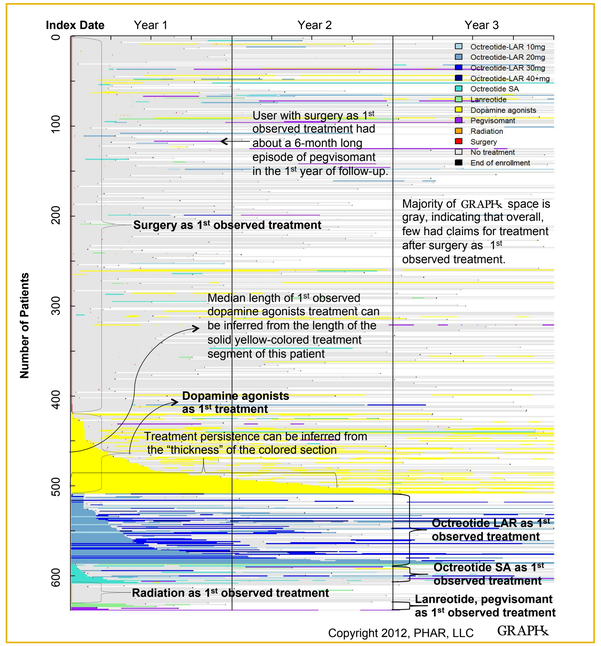
- First treatment observed during the follow-up period was
  - Pharmacologic in 200 (31.3%) patients,
  - Surgery in 418 (65.4%) patients, and
  - Radiation in 21 (3.3%) patients.
- Octreotide LAR for injection was the first observed treatment in 78 (12.2%) patients. Most of these octreotide LAR users initiated therapy at 10-20 mg/month (N=68, 87.2%).
- The least common type of treatment was pegvisomant in 4 patients (0.6%).

Treatment Patterns in Patients Newly Treated with Octreotide LAR 10 or 20 mg/month (N=68) During the 3-Year Follow-up Period



- Among 31 (45.6%) octreotide LAR patients with any change in treatment, the 2nd observed treatment was
  - Octreotide LAR 30 mg/month in 27 (87.1%),
  - Octreotide LAR 40 mg/month in 3 (9.7%), and
  - Surgery in 1 (3.2%).

Treatment Patterns in Newly Treated Patients (N=639) by First Treatment Observed During the 3-Year Follow-up Period



CONCLUSIONS

- **GRAPHx analysis revealed patterns of treatment as well as insights about adherence and persistence:**
  - **Invasive treatments were observed more commonly than pharmacological therapies as initial acromegaly treatments.**
  - **Majority of octeotide SA users (68%) and up to 24% of dopamine agonist users switched treatment to another drug during the observation period.**
  - **Adherence with pharmacological therapies varied significantly across treatments.**
- **Graphical analysis also allowed detailed evaluation of specific agents:**
  - **Patients whose index agent was a dopamine agonist or octreotide LAR appeared to have the longest persistence on therapy.**
  - **Over half of octreotide LAR for injection users remained on their initial therapy without dose or treatment changes during the observation period.**

LIMITATIONS

- Limited duration of continuous patient enrollment, characteristic of claims databases, does not allow for review of earlier therapies (e.g., an earlier surgery for acromegaly) that may have been provided under different health plans.
- This study is based on health care claims, without verification in medical charts
- This study included patients with commercial insurance, so the results may not be representative of the general acromegaly population.
- Healthcare claims represent medications purchased, not necessarily those taken.

References

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