Acromegaly is a chronic disorder characterized by autonomous overproduction of growth hormone (GH) predominantly due to a benign pituitary adenoma. Excess GH and insulin-like growth factor 1 (IGF-1) are responsible for multiple significant comorbidities. Acromegaly is a rare disorder, with prevalence of 0.5-1.8 cases per million adults. Incidence of 3.3 cases per million per year. Delayed diagnosis worsens the comorbidities. The course of the disease is insidious and slowly progressive. A delay of 7-10 years in diagnosis from the presentation of symptoms is often seen. Current disease control is suboptimal. While successful disease control has been shown to potentially normalize mortality in the acromegaly patient, disease control is quite elusive as over 50% of patients with acromegaly are not effectively treated. Given the complexity of comorbidities interacted with different therapeutic options, the disease burden and treatment cost of acromegaly emerge as a considerable topic for acromegaly management.

**REFERENCES:**

**RESULTS**

A total of 106 patients completed the survey.

- **Age:** 46.12 years, female: 76%.
- **Diagnostic delay was median 5 years (min-max: 0.1-40);**
- **Treatment:**
  - 91% had undergone surgery
  - 64% currently on pharmaceutical therapy
  - Almost half of the patients (47/106) presented with 5 or more symptoms.
- **Acromegaly-related symptoms (e.g., headache, fatigue, excess sweating, swelling in soft tissue, and joint pain) reported in 91% (96/106) of patients.
- **Annual Healthcare utilization (means)**
  - Total: 31.70 (96/106) of patients
  - Physicians: 11.8 (96/106) of patients
  - Nurses: 3.4 (96/106) of patients
  - Other health professionals: 6.6 (96/106) of patients
  - Cost (per person per year): $11,610 (Figure 1)
  - Total direct medical costs: $11,610 (Figure 1)
  - Total indirect cost: $25,145 (Figure 2)
  - Family members unable to work due to patient’s acromegaly: $472.
- **Health-related Quality of Life**
  - EQ-5D scores: QOL index: 0.62±0.23
  - Global AcroQoL scores: 0.39±0.22
- **Compare by number of symptoms**
  - Compared with low-symptom group, symptom 0-3 (n=41), the high-symptom group with 4+ symptoms (n=65) had
    - Significantly higher costs by category indirect costs (all p<0.001, Figure 3)
    - Significant higher financial loss of family members ($692 vs. $1,122, P<0.001)
    - Significantly lower HRQoL scores (all p<0.001, Figure 4)

**DISCUSSION**

**High economic burden**

- Average annual total cost: $36,755/patient, approximately 3.4 times higher than what expenditures would be for a patient with diabetes.
- The direct cost is higher than an average cancer ($11,610 vs. $9,045).
- Advanced stages with multiple numbers of comorbidities incurred higher cost than early stages.
- For instance:
  - Patients with cardiovascular abnormalities had additional annual cost of $18,840.
  - Patients with colon neoplasm had additional annual cost of $14,225.
- **Significant indirect costs:** $25,145.
- **The largest portion of this burden came from unemployment disability ($10,653),** more than three times higher than that of cancer survivors (around $3,000) reported in 2014.
- **Lost household productivity to acromegaly was $1,685 vs. $291/person/year** to cancer survivors indicating acromegaly severely affects activities of daily living outside of work.
- **Multiple numbers of link to higher indirect cost (Figure 3):** indicating the symptoms interfered with patients’ daily activities
  - patients with high-symptom might suffer from disability or other severe conditions.

**Significance**

- Very few studies have assessed the impact on the disease burden of acromegaly, especially on indirect costs such as work productivity/employment in the U.S.
- This study assessed the impact of both disease and treatment on patients’ quality of life.
- Patients with acromegaly experienced high economic burden and poor quality of life, particularly among those with advanced stage of acromegaly who need combination therapy over life.
- Acromegaly related symptoms resulted in not only a huge indirect cost but also severely impaired health related quality of life.
- Although some symptoms might be persistent because of prolonged duration of chronic comorbidities, improved medical therapies to control or minimize symptoms are needed during disease management.

**CONCLUSIONS**

- **Significance:**
  - Excess GH and insulin-like growth factor 1 (IGF-1) are responsible for multiple significant comorbidities.
  - Acromegaly is a rare disorder, with prevalence of 0.5-1.8 cases per million adults.
  - Incidence of 3.3 cases per million per year.
  - Delayed diagnosis worsens the comorbidities.
  - The course of the disease is insidious and slowly progressive.
  - A delay of 7-10 years in diagnosis from the presentation of symptoms is often seen.
  - Current disease control is suboptimal.
- While successful disease control has been shown to potentially normalize mortality in the acromegaly patient, disease control is quite elusive as over 50% of patients with acromegaly are not effectively treated.
- Given the complexity of comorbidities interacted with different therapeutic options, the disease burden and treatment cost of acromegaly emerge as a considerable topic for acromegaly management.