Perioperative Symptom Burden and Quality of Life in Cushing’s Disease Patients Treated with Endoscopic Transsphenoidal Surgery

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E-Poster: #2630
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Introduction

Overview:

- **Cushing's disease (CD)** is a rare neuroendocrine disorder arising from hypercortisolism caused by an ACTH-secreting pituitary adenoma
  - Presents with a diverse spectrum of generic clinical signs and symptoms
    - Makes timely diagnosis challenging
  - Burden of illness impacts patient’s quality of life (QOL)
  - Primary treatment is endoscopic transsphenoidal surgery (ETSS)

Objectives:

- Evaluate progression in symptoms and QOL within CD before and after ETSS treatment
- Identify key symptoms and impaired QOL domains following ETSS treatment

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Methods

- Patients with confirmed CD presenting to the St. Michael’s Hospital Neurosurgery Clinic between 2007-2019 were recruited
  - Non-functioning pituitary adenoma (NFPA) patients served as controls
- All patients treated with ETSS were biochemically-cured as assessed using the Endocrine Society criteria
- Data was collected using four patient-report questionnaires:
  - Symptoms
    - 1) Pituitary Symptom Checklist
    - 2) SF-36 (generic)
  - QOL
    - 3) QOL-CD (CD-specific)
    - 4) CES-D (depression-specific)
- CD patients and NFPA controls were divided into two perioperative timepoints:
  - BEFORE-ETSS
  - ETSS
  - AFTER-ETSS

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>BEFORE-ETSS</th>
<th>AFTER-ETSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>n =</td>
<td>37</td>
<td>37</td>
</tr>
<tr>
<td>Mean Duration ± SD (months)</td>
<td>3.4 ± 2.7</td>
<td>2.9 ± 2.1</td>
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<table>
<thead>
<tr>
<th>QOL</th>
<th>BEFORE-ETSS</th>
<th>AFTER-ETSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>n =</td>
<td>54</td>
<td>52</td>
</tr>
<tr>
<td>Mean Duration ± SD (months)</td>
<td>4.5 ± 5.4</td>
<td>6.9 ± 13.1</td>
</tr>
</tbody>
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- Categorical variables = McNemar’s Test or Fisher’s Exact Test
- Continuous Variables = Student’s t-Test with Bonferroni Correction

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Results

Symptoms:

Figure 1. Prevalence of symptoms in CD patients assessed using the pituitary symptom checklist. Most prevalently-reported symptoms and domains are highlighted.

Figure 2. Prevalence of symptoms in NFPA controls assessed using the pituitary symptom checklist. Most prevalently-reported symptoms and domains are highlighted.

BEFORE-ETSS | AFTER-ETSS
---|---
[Yellow bar] | [Blue bar]

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Results

QOL:

Figure 3. A higher SF-36 score indicates better QOL (100 = best possible QOL).

Figure 4. A higher SF-36 score indicates better QOL (100 = best possible QOL).

<table>
<thead>
<tr>
<th>BEFORE-ETSS</th>
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Results

QOL:

Figure 3. A higher SF-36 score indicates better QOL (100 = best possible QOL).

Figure 4. A higher SF-36 score indicates better QOL (100 = best possible QOL).

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Figure 7. A higher CES-D score indicates greater severity of depressive symptomatology (0-16 = ‘none/mild’ depression; 16-23 = ‘moderate’ depression; >23 = ‘severe’ depression)
Discussion

Symptoms:
- CD patients experience a greater number and variety of symptoms vs. NFPA before and after successful ETSS defined by biochemical remission.
- Symptoms reported by CD patients persist after ETSS.
- CD patients report prevalent non-specific, neurologic, cognitive, psychiatric, appearance-related, dermatologic, metabolic, cardiovascular, and orthopaedic symptoms.

QOL:
- CD patients QOL improve after successful ETSS, but remain severely impaired.
- Depression severity status is ‘severe’ before ETSS and remains impaired at ‘moderate’ severity after ETSS.
- All CD QOL domains are significantly impaired vs. NFPA before and after ETSS.

Implications:
- Symptom persistence and QOL impairments in CD patients emphasizes need for additional resources to aid patients perioperatively.
  - Identified key symptoms aid in timely management of CD and development of educational tools.
  - QOL impairments in emotional health and mental status to direct incorporation of counselling or support groups as a part of CD treatment process.

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Symptom burden and QOL remain severely impaired compared to controls despite biochemical remission, with improvement occurring slowly over time. This study highlights the need for additional physical and psychological resources for CD patients undergoing ETSS.