Pituitary Tumors: Patient Perceptions of Cognitive Deficits

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PITUITARY GLAND

• Master gland

• 15-27% of the population have pituitary tumors - 1: 8,000 people worldwide

• Pituitary tumors represent 15% of all brain tumors
PITUITARY GLAND:
PITUITARY FUNCTIONS

- CORTISOL
- TESTOSTERONE
- ESTROGEN
- OXYTOCIN
- ADH
- PROLACTIN
- TSH
- GROWTH HORMONE
AIM

• To determine if cognitive deficits are perceived by patients with non-functioning pituitary microadenomas (NFmA) when compared to patients with non-functioning macroadenomas (NFMA)
NORMAL PITUITARY:
MICROADENOMA: < 1CM
MACROADENOMA: >1CM
LITERATURE REVIEW:

• No studies comparing micro and macroadenomas for any functional parameter

• Medline/Pubmed keywords:
  – QoL, pituitary adenomas, cognition, cognitive function
99 patients in surgical remission
37/99 after radiotherapy
  - Hospital Anxiety and Depression Scale,
  - Multidimensional Fatigue Index,
  - Nottingham Health Profile, and Short Form-36

CONCLUSION: QoL is considerably reduced in patients after successful treatment of NFMA

No evaluation of perception of cognition
STUDY DESIGN

• Prospective Survey

• Pre treatment assessment

• Using modified FACTcog
INCLUSION CRITERIA:

• Evidence of Pituitary adenoma on MRI

• De novo

• No biochemical evidence of hyper-secretion.
EXCLUSION CRITERIA

• Prior treatment for pituitary dysfunction

• Concomitant, uncontrolled diseases

• History of major life stressor within 6 months of treatment or at the time of re-evaluation
FACT-Cog Version 3

Modified scale:

• Perceived cognitive impairments: 16 items
  – Ability to learn
  – Concentration and distractibility
  – Memory & recall
  – Mental agility
  – Verbal recall
FACT-Cog Version 3: Psychometric Properties

- Test Retest reliability cognitive impairments: Cronbach alpha 0.82

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>ability to learn</td>
<td>I have difficulty learning new information or new things.</td>
</tr>
<tr>
<td></td>
<td>I have trouble learning a new skill despite repeating it several times</td>
</tr>
<tr>
<td></td>
<td>I have trouble remembering information that I have just read</td>
</tr>
<tr>
<td>concentration &amp; distractibility</td>
<td>I have difficulty concentrating to finish what I am doing</td>
</tr>
<tr>
<td></td>
<td>My brain has trouble keeping track of things</td>
</tr>
<tr>
<td></td>
<td>I am easily distracted from what I am doing</td>
</tr>
<tr>
<td>mental agility</td>
<td>I feel I make mistakes easily</td>
</tr>
<tr>
<td></td>
<td>my head feels foggy</td>
</tr>
<tr>
<td></td>
<td>I am slow to think about things</td>
</tr>
<tr>
<td></td>
<td>I need help in daily/monthly financial matters</td>
</tr>
<tr>
<td>memory and recall</td>
<td>I have trouble remembering information from medical appointments</td>
</tr>
<tr>
<td></td>
<td>I forget to take my medicine(s)</td>
</tr>
<tr>
<td></td>
<td>People remind me of things I have forgotten or recent events</td>
</tr>
<tr>
<td>Verbal recall</td>
<td>I have had trouble recalling names of things.</td>
</tr>
<tr>
<td></td>
<td>I have trouble finding the right word when talking</td>
</tr>
<tr>
<td></td>
<td>I have had trouble keeping track of what is being said in a conversation</td>
</tr>
</tbody>
</table>
# DEMOGRAPHICS:

<table>
<thead>
<tr>
<th>n=28</th>
<th>MICRO-Mean Age</th>
<th>n</th>
<th># Axis Def</th>
<th>MACRO-Mean Age</th>
<th>n</th>
<th># Axis Def</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>36.25</td>
<td>8</td>
<td>2</td>
<td>48</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Male</td>
<td>38.66667</td>
<td>6</td>
<td>7</td>
<td>54.8</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>p=0.099</td>
<td>37.45833</td>
<td></td>
<td></td>
<td>51.4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SCORING

• Likert scale

• Perception of dysfunction 1-5
  1= No dysfunction
  5= Severe dysfunction

• Total score for dysfunction
  0-16= none
  16-32 = mild
  33-64 = mod
  65-80 = severe
• ANOVA- Total scores
No sig. difference between groups \( p = 0.314 \)
### MEAN SEVERITY SCORES:

<table>
<thead>
<tr>
<th>P=0.027</th>
<th>Mean Severity Score</th>
<th>SD +/-</th>
</tr>
</thead>
<tbody>
<tr>
<td>NF microadenoma</td>
<td>3.3</td>
<td>1.13</td>
</tr>
<tr>
<td>NF macroadenoma</td>
<td>2.6</td>
<td>6.1</td>
</tr>
</tbody>
</table>
CONCLUSION

• Patients with pituitary adenomas, regardless of size, perceive cognitive dysfunction.

• Comparison is needed with age, gender and culture matched peers.

• Correlation with formal cognitive testing for each functional impairment is required.