Improving surgical treatment for movement disorders

Contarino, M.F.
Chapter 7

Effect of Pallidal Deep Brain Stimulation on psychiatric symptoms in Myoclonus-Dystonia due to ε-Sarcoglycan mutations

Maria Fiorella Contarino, Elisabeth M. Foncke, Danielle C. Cath, P. Richard Schuurman, Johannes D. Speelman, Marina A.J. Tijssen

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We describe five patients with SGCE-Myoclonus-Dystonia (four males, mean age 37 years, range 18-50) who underwent bilateral GPI-DBS for their invalidating motor symptoms. Before and 12 months after surgery motor symptoms were assessed using the Burke-Fahn-Marsden Dystonia Rating Scale, motor part (BFMDRS), and the Unified Myoclonus Rating Scale (UMRS). Trained neuropsychologists assessed psychiatric diagnoses according to the Diagnostic and Statistical Manual for Mental disorders (DSM-IV) by using the Structured Clinical Interview (SCID-I), and offered extensive postoperative psychiatric monitoring. The study received Ethical Committee approval. Preoperatively, current psychiatric symptoms, although untreated, were judged not severe enough to contraindicate surgery (Table). Patients with generalized social anxiety disorder attributed it to the presence of their movement disorder.

Surgery was performed with microrecordings and macrostimulation. The lead position in posteroverentral GPI was confirmed on postoperative imaging. Mean stimulation parameters were: 2.9 V (range 1.5-3.6), 72 msec (60-90), 130 Hz. All patients experienced marked motor benefit, showing a mean improvement of 72% on UMRS (range 23%-89%) and 56% on BFMDRS (17%-76%). However, psychiatric symptoms worsened after surgery in most patients. Two-week stimulation interruption (patients 2 and 4) produced no psychiatric change.

In conclusion: 1) psychiatric comorbidity occurs frequently in M-D patients and might be intrinsic to the disease or secondary to the motor impairment; 2) although patients may perceive their psychiatric symptoms as secondary to the movement disorder and push clinicians toward surgery, postoperative motor improvement is not paralleled by psychiatric improvement; 3) we cannot determine whether psychiatric worsening was due to stimulation, to surgery per se, or to the natural history.

Systematic preoperative evaluation of psychiatric comorbidity, and close post-operative follow-up are recommended in all DBS patients, and particularly in M-D patients undergoing GPI-DBS. Whether appropriate preoperative psychiatric treatment could positively influence post-operative course needs further investigation.

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<table>
<thead>
<tr>
<th>Patient</th>
<th>Preoperatively</th>
<th>Postoperatively</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Past depressive episodes. Current generalized SAD, panic attacks.</td>
<td>Depressive episode, suicidal thoughts, SAD.</td>
<td>Unchanged/Worsened</td>
</tr>
<tr>
<td>2</td>
<td>Depressive episodes, SAD, OCD, alcohol/cannabis abuse, borderline personality.</td>
<td>Psychosis with paranoid delusion.</td>
<td>Worsened</td>
</tr>
<tr>
<td>3</td>
<td>Past depressive episodes.</td>
<td>Depressive episode.</td>
<td>Unchanged</td>
</tr>
<tr>
<td>4</td>
<td>Depressive episodes, SAD, OCD.</td>
<td>Bipolar disorder II with rapid cycling, OCD.</td>
<td>Worsened</td>
</tr>
<tr>
<td>5</td>
<td>Current depressive episode, generalized SAD.</td>
<td>Depressive episode, suicidal thoughts, SAD.</td>
<td>Unchanged/worsened</td>
</tr>
</tbody>
</table>

OCD = Obsessive compulsive disorder; SAD = social anxiety disorder.