Fewer injections of botulinum toxin type A for treatment of spasticity are perceived as beneficial by both patients and caregivers

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BACKGROUND

• Botulinum toxin (BoNT-A) is a recommended pharmacological option for patients with spasticity, and its anti-spastic effects have been demonstrated in clinical trials of diverse study populations.1,2

• Caregivers of patients with spasticity also experience physical and emotional strain, and there is a need for assessment of caregiver burden.3

OBJECTIVE

To understand the impact of fewer BoNT-A injections from the patient and caregiver perspective.

METHODS

Study design

• An online, cross-sectional survey conducted between 31 November 2017 and 28 February 2018 on the Carenity platform.

• Eligible participants were aged ≥18 years old and were either patients self-described as patients with spasticity or caregivers of patients with spasticity who were receiving BoNT-A treatment.

Inclusion criteria

• Eligible participants were aged 18–30 years old and were either patients self-described as having spasticity or caregivers of patients with spasticity who were receiving BoNT-A treatment for 4 years or longer.

• Spasticity had to be MS, stroke, traumatic brain injury, spinal cord injury, cerebral palsy, brain tumour or spinal or peripheral neuropathy.

Assessments/analysis

• The questions were presented in the local language comprised multiple-choice questions, and Likert scales and free-text responses.

• The following domains were assessed: perceived benefits of fewer BoNT-A injections; number of BoNT-A injections to produce perceived benefits; improvements in quality of life (QoL) resulting from fewer BoNT-A injections; and feelings about longer intervals between medical visits.

• For caregivers, some questions related to their patient, whereas others related to their experience as a caregiver.

Statistical analyses

• Descriptive analyses are presented.

Patients

• In total, 427 patients were included in the analysis: 367 patients and 60 caregivers. The baseline characteristics for patients, caregivers, and patients' patients are presented in Table 1.

• Most patients were men (n=240, 56%), and the mean age was 47.0 years (Median=46.0 years; 95% CI=44.0–49.0 years). A total of 134 (31%) patients had been receiving BoNT-A treatments for at least 3 months apart. One hundred and thirty patients (29%) received BoNT-A treatments for at least 3 months apart.

• The mean time since diagnosis was 8.1 years, compared with a mean time of 3.5 years since diagnosis for caregivers.

Table 1. Baseline characteristics of all participants (N=427)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Patients (n=427)</th>
<th>Caregivers (n=60)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex, n (%)</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>18–30 years</td>
<td>20 (4)</td>
<td>18 (4)</td>
</tr>
<tr>
<td>31–40 years</td>
<td>11 (2)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>41–50 years</td>
<td>66 (15)</td>
<td>29 (6)</td>
</tr>
<tr>
<td>51–60 years</td>
<td>17 (4)</td>
<td>13 (3)</td>
</tr>
<tr>
<td>&gt;60 years</td>
<td>45 (11)</td>
<td>26 (6)</td>
</tr>
<tr>
<td>Mean (95% CI), years</td>
<td>8.1 (7.9–8.3)</td>
<td>3.5 (3.3–3.7)</td>
</tr>
<tr>
<td>Mean (95% CI), years</td>
<td>3.5 (3.3–3.7)</td>
<td></td>
</tr>
<tr>
<td>Cause of patient spasticity, n (%)</td>
<td>Global</td>
<td>Spinal cord injury</td>
</tr>
<tr>
<td>18–30 years</td>
<td>12 (28)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>31–40 years</td>
<td>2 (4)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>41–50 years</td>
<td>19 (45)</td>
<td>18 (43)</td>
</tr>
<tr>
<td>51–60 years</td>
<td>1 (2)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>&gt;60 years</td>
<td>3 (7)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Duration of caregiving, n (%)</td>
<td>1–2 years</td>
<td>5 (2)</td>
</tr>
<tr>
<td>3–5 years</td>
<td>9 (2)</td>
<td>6 (10)</td>
</tr>
<tr>
<td>&gt;5 years</td>
<td>65 (63)</td>
<td>24 (8)</td>
</tr>
<tr>
<td>Mean (95% CI), years</td>
<td>5.5 (5.3–5.7)</td>
<td>2.8 (2.1–3.7)</td>
</tr>
</tbody>
</table>

Percieved benefits of fewer BoNT-A injections

• Assuming longer lasting effects of BoNT-A treatment than at present, 88% of patients and 41% of caregivers reported more benefits associated with fewer injections.

• For patients, the most common perceived benefits were mobility (44%) and quality of life (41%). For caregivers, the most common perceived benefits were mobility (44%) and quality of life (41%).

• Assuming the effect of botulinum toxin A injections could last longer and you had less frequent injections, please assess how it would improve the burden of botulinum toxin A injections.

• The effect of fewer injections was perceived as beneficial by both patients and caregivers.

Conclusions

• Reducing the number of yearly BoNT-A injections, as a result of longer lasting effects, would have many beneficial effects on the lives of patients and caregivers, with improvements in patient mobility ranking particularly high.

• For most patients and caregivers, reducing the number of BoNT-A injections by only 1 or 2 per year was expected to be enough to produce these benefits.

Expected reduction in number of BoNT-A injections to produce perceived benefits

• Most patients and caregivers felt that 1 or 2 fewer injections per year would be enough to produce their perceived benefits (235/297 [82%] and 95/129 [74%], respectively).

• Of patients and 25% of caregivers reported they would benefit from a lower frequency of injections.

• Patients receiving the highest number of current injections reported a larger reduction in number of injections to perceive benefits.

• The preferred number of BoNT-A injections was 2 or 3 per year for 62% (226/357) of patients and 56% (72/128) of caregivers.

Improvements in QoL with fewer BoNT-A injections

• At 12 months (235/297) and 2 years (55/129) of follow-up, 73% reported that fewer BoNT-A injections would improve QoL, and 51% reported that fewer BoNT-A injections would improve QoL.

• Fewer injections were perceived as beneficial by both patients and caregivers.

• Assuming longer lasting effects of BoNT-A treatment than at present, 86% of patients and 79% of caregivers reported they would benefit from a lower frequency of injections.

Feelings about longer intervals between medical visits

• Two-thirds of patients (283/427) did not see any benefits of having less frequent medical visits.

• 64% of patients and 37% of caregivers reported they would not be able to manage with less frequent medical visits.

• 14% of patients (59/427) would arrange alternative appointments to see their doctor more frequently.

Table 2. Most important perceived benefits of receiving fewer BoNT-A injections per year as reported by patients (n=427) and caregivers (n=188)

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Patients (n=427)</th>
<th>Caregivers (n=188)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fewer days off/appointments</td>
<td>217 (51)</td>
<td>139 (75)</td>
</tr>
<tr>
<td>Improved quality of life</td>
<td>215 (51)</td>
<td>137 (73)</td>
</tr>
<tr>
<td>Improved physical mobility</td>
<td>195 (46)</td>
<td>121 (64)</td>
</tr>
</tbody>
</table>

Figure 1. Benefits of receiving fewer BoNT-A injections per year as reported. (A) Percentage of patients (n=427) and (B) caregivers (n=188) reporting no improvement. BoNT-A, botulinum toxin type A.

Figure 2. Perceived benefits of receiving fewer BoNT-A injections per year as reported by patients (n=427) and caregivers (n=188). BoNT-A, botulinum toxin type A.

Figure 3. Most important perceived benefits of receiving fewer BoNT-A injections per year as reported by patients (n=427) and caregivers (n=188).

CONCLUSIONS

• Reducing the number of yearly BoNT-A injections, as a result of longer lasting effects, would have many beneficial effects on the lives of patients and caregivers, with improvements in patient mobility ranking particularly high.

• For most patients and caregivers, reducing the number of BoNT-A injections by only 1 or 2 per year was expected to be enough to produce these benefits.

References

2 Dressler D. The efficacy, safety, and potential benefits of botulinum toxin type A injections for treatment of spasticity. Presented at TOXINS 2019 | Copenhagen, Denmark | 16–19 January 2019
3 Murie-Fernandez M. Improvements in QoL with less frequent BoNT-A injections: A) patients (n=235/297) and B) caregivers (n=55/129) reported that fewer BoNT-A injections would improve QoL, and 51% reported that fewer BoNT-A injections would improve QoL.

Figure 4. Expected improvements in QoL with fewer BoNT-A injections as perceived by caregivers reporting no improvement. BoNT-A, botulinum toxin type A.

Figure 5. Expected improvements in QoL with fewer BoNT-A injections as perceived by caregivers reporting no improvement. BoNT-A, botulinum toxin type A.

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