Longitudinal Followup of Adductor Spasmodic Dysphonia Patients Following Botulinum Toxin Injection: Quality of Life Results

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Introduction

- Botox injections are the most commonly used treatment for adductor SD (ADSD)
  - Blitzer et al. Laryngoscope 1998
- Several published studies demonstrate improvement in subjective, objective, and/or QOL measures
  - Cannito et al. Arch Otolaryngol HNS 2004
  - Wingate et al. J Voice 2005

Introduction

- Previous ADSD Botox efficacy studies typically collect data pre-injection and at a single point post-injection, e.g. 8 weeks
- Patients report variations in benefit throughout an injection “cycle” - multiple data points needed
- Cycle lengths vary, so that a given time point represents a variable cycle interval
  - 8 weeks is halfway through a 16 week cycle, but only one-quarter through a 32 week cycle

Introduction

- Longitudinal studies limited by patients’ willingness to return to medical center for data collection
- Voice samples, survey results may be collected by phone
  - Wash.U. study
  - Cannizaro et al. Clin Linguist Phon 2005
Data Collection

- Patients were given booklet with all surveys and tasks to follow
- Phone survey data compared with “live” in first 10 patients – no difference
- Other vocal parameters – voice breaks can be accurately assessed; waveform parameters require noise reduction and some HF info is lost by phone filter

Methods / Materials

- IRB-approved prospective, non-randomized study
- Patients with ADSD, with established history of successful Botox injections, were invited
  - Last 3 consecutive cycles at same dose, with good benefit
- Data collection at 2 days, 1 week, 2 weeks, then q4 weeks throughout injection cycle
- Willing patients completed 3 full cycles

VRQOL

- 10 item validated instrument
  - Physical functioning domain (6)
  - Social-emotional domain (4)
- 100 point scale
- Patient’s self assessment
  - “Poor”: 53.1
  - “Good”: 83.1
  - “Excellent / very good”: 95.0
- High validity, reliability, responsiveness
- MCID: 25 points

Hogikyan & Sethuraman, J. Voice '99

Methods / Materials

- Data Collected:
  - Voice-Related Quality of Life (VRQOL)
    - Supplemental questions on singing and swallowing
  - Perceived Stress Scale (PSS-4)
  - Voice self-perception index
  - Rainbow passage
  - Sustained vowel / maximum phonation time

VRQOL

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Hogikyan & Sethuraman, J. Voice '99
Results

- 22 patients completed 1 full cycle
  - 19 female, 3 male
  - Mean age 59.8
  - Mean cycle length 25.9 weeks (13-57)
- 11 patients completed 3 full cycles
- Data sets per cycle
  - Mean 8.32 (6-11)
  - Total: 313

Results: normalized, interpolated

Typical VRQOL for one cycle
Results: Composite Curve

![Composite Curve Graph]

Results: Composite Curve

![Composite Curve Graph for VRQOL Results for 22 Patients]

Results: Composite Curve

<table>
<thead>
<tr>
<th>Score</th>
<th>Above 75</th>
<th>Above 70</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>0%</td>
<td>44.1%</td>
</tr>
<tr>
<td>Social-Emotional</td>
<td>52.6%</td>
<td>69.9%</td>
</tr>
<tr>
<td>Total VRQOL</td>
<td>14.0%</td>
<td>54.6%</td>
</tr>
</tbody>
</table>

Results: Top 10 / Bottom 12

![Top 10 vs Bottom 12 Graph]
Results: 3 cycles

- 11 patients completed 3 full cycles
- Most were patients with better responses to Botox
  - 7/11 were in the “Top 10” group

Results: 3 cycles – one patient

3 Cycles for Patient 25

Results: 3 cycles

3 Cycle Composite Scores for 11 Patients

Results: 3 cycles

3 Cycle Composite Scores for 11 Patients
Perceived Stress Scale
22 patient composite

Discussion
- This study offers a unique look into how Botox affects these patients’ lives
- Patients experience cyclical changes in quality of life measures
  - First 30% on upslope
  - Next 30% at plateau
  - Last 40% on downslope

Discussion
- Botox really helps these patients!
  - Average plateau is about 22 points higher than starting/ending scores
  - For the “top 10” group, plateau scores were in the “good” range

Discussion
- Botox is NOT a great treatment!
  - Average plateau only exceeds 75 for 14% of cycle, never reaches “good” range
  - Best benefit plateau is only 30% of cycle
Conclusions

- Botox helps these patients, but it is not the ideal treatment.
- More research is needed to find a longer-lasting, ideally permanent, treatment option for these patients.
- Telephone data collection can be used effectively to obtain longitudinal followup results for selected voice disorders.