INTRODUCTION

Repeated Botulinum toxin-A (BTX-A) injections have shown to be less effective after 2-3 rounds in children with spasticity due to antibody formation from frequent treatment & receiving higher weight-adapted maximum dose per treatment. Single-Event Multi-Level Chemoneurolysis (SEMLC) uses 5% phenol/45% alcohol in addition to BTX-A for cases, whose maximum dose of BTX-A was not sufficient for their condition, enabling to treat multi-level spasticity without overdosing either agent.

OBJECTIVES

To evaluate the continued efficacy of repeated SEMLC in children with spastic cerebral palsy (CP).

MATERIALS and METHODS

This is a retrospective chart review of 90 children with spastic CP who received > 2 rounds of SEMLC. The mean age was 7.32 years.

RESULTS

249 SEMLC procedures were reviewed, 77% used BTX-A plus phenol/alcohol and 23% used BTX-A only.

The number of SEMLCs per patient: median = 5 (2 - 7). The mean total dose of OnabotulinumtoxinA was 282.35 units, 12.44 units/kg.

Type of CP

- Hemiplegia: 58%
- Diplegia: 25%
- Triplegia: 7%
- Quadriplegia: 8%

Baseline GMFCS

- GMFCS I: 21%
- GMFCS II: 25%
- GMFCS III: 23%
- GMFCS IV: 18%
- GMFCS V: 9%

Pre-procedure assessments

<table>
<thead>
<tr>
<th>Improvement</th>
<th>1st SEMLC</th>
<th>Final SEMLC</th>
<th>P-value</th>
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</thead>
<tbody>
<tr>
<td>Δ MAS</td>
<td>0.56 ± 0.63</td>
<td>0.44 ± 0.49</td>
<td>0.362</td>
</tr>
<tr>
<td>Δ Thomas test</td>
<td>9.26 ± 13.63</td>
<td>8.27 ± 15.78</td>
<td>0.721</td>
</tr>
<tr>
<td>Δ Hip abduction</td>
<td>2.35 ± 8.66</td>
<td>0.08 ± 11.43</td>
<td>0.198</td>
</tr>
<tr>
<td>Δ Popliteal angle</td>
<td>24.09 ± 19.17</td>
<td>18.45 ± 19.04</td>
<td>0.094</td>
</tr>
<tr>
<td>Δ Ankle dorsiflex</td>
<td>8.50 ± 10.18</td>
<td>5.21 ± 11.38</td>
<td>0.063</td>
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No functional deterioration was observed during the mean follow-up-period of 14.35 months; 14% of the patients showed improvement while 86% maintained their GMFCS level.

CONCLUSIONS

The improvement in spasticity and joint range of motion after the 1st procedure was not different from after the last procedure.

The same result was observed in subgroup-analysis: a group with 2-3 procedures and a group with > 3 procedures.

SEMLC using BTX-A with or without phenol/alcohol in improving spasticity and ROM were continuously effective with repeated injections even after > 3 rounds of SEMLC.

REFERENCES