Combined Therapy with Propranolol and Bromocriptine for Treatment of Aphasia

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Introduction

In previous studies we found that the dopamine agonist bromocriptine and the beta blocking agent propranolol each improved naming in aphasia when administered separately. In this new, exploratory, study we asked if combined therapy with both pharmacologic agents simultaneously would produce even greater improvement.

Method

Subjects: Seven research participants with mild to moderate aphasia; 4 with Broca’s aphasia, 2 with Wernicke’s aphasia, and 1 with amnestic aphasia.

Methods: The test battery consisted of the Boston Naming Test (BNT), two tests of auditory comprehension (yes/no and response to oral commands), and a word fluency test. We used an ABCA design. Following baseline language testing, all research participants received 10 mg of propranolol daily for one month. After one month, the propranolol was continued and 2.5 mg of bromocriptine daily was added for one additional month. At the end of two months on medications (one month on propranolol only, one month on both drugs), all medications were discontinued. The language battery was administered a second time at the end of the first month (propranolol only), a third time at the end of the second month (both drugs), and a fourth time one month after discontinuation of both drugs.

Results

On the second testing, scores on the BNT, yes/no response, and word fluency (animal names) tended in the direction of improvement for the group as a whole, but did not reach the level of statistical significance. In contrast, scores of response to oral commands and word fluency (FAS) were significantly improved. On the third testing, at the end of one month of combined treatment, scores on all tests were significantly improved. On the final testing one month following...
discontinuation of medication, scores dropped toward baseline.

**Conclusion**

This exploratory, uncontrolled, open label study showed that combined therapy with a beta blocking agent and a dopaminergic agent significantly improved language performance in aphasia.

Table

<table>
<thead>
<tr>
<th></th>
<th>1st time</th>
<th>2nd time</th>
<th>3rd time</th>
<th>4th time</th>
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<tbody>
<tr>
<td><strong>BNT</strong></td>
<td>17.7±11.6</td>
<td>22.3±12.6</td>
<td>23.9±11.2*</td>
<td>22.1±11.5</td>
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<tr>
<td>response to oral commands</td>
<td>24.0±21.1</td>
<td>35.7±22.9*</td>
<td>36.9±24.8*</td>
<td>28.9±24.6</td>
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<tr>
<td>yes/no response</td>
<td>44.9±15.9</td>
<td>52.9±5.9</td>
<td>54.5±7.6*</td>
<td>49.7±7.9</td>
</tr>
<tr>
<td>Word fluency(FAS)</td>
<td>3.6±21</td>
<td>5.6±3.0*</td>
<td>6.1±3.6*</td>
<td>4.3±3.8</td>
</tr>
<tr>
<td>Word fluency(animal)</td>
<td>5.2±3.4</td>
<td>6.0±3.5</td>
<td>6.4±2.7</td>
<td>5.0±2.3</td>
</tr>
</tbody>
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* p<0.05 (vs 1st time); Wilcoxon signed-rank test
1st time: pre-medications
2nd time: propranolol
3rd time: bromocriptine
4th time: no medication