Background

There are conflicting findings with respect to the time course of cognitive performance in patients with Multiple Sclerosis (MS). This also applies for patients with a relapsing-remitting course of the disease. The Memory and Attention Test (MAT) is a computer-based system for the assessment of cognitive performance, which is particularly suited to detect even minor changes of selective attention as well as working and short-term memory over time.

Methods

The assessments were carried out in out-patients with MS at a number of neurological practices. MS diagnoses were made according to revised McDonald criteria (Polman et al. 2011). Cognitive performance was assessed by means of the computer-based Memory and Attention Test (MAT). The patients were studied twice at an interval of 5 to 7 months. They should have experienced no relapse of the disease, should not be under treatment with drugs which might impair cognitive performance and disease-modifying treatment should not have been altered.

Patients

The study was conducted in 56 patients (39 women, 17 men) at ages between 23 and 57 years (mean ± SD: 38.4 ± 9.3 years). The EDSS score was between 0 and 5.0 (mean ± SD: 2.37 ± 1.42). The patients were under immunomodulatory treatment with either fingolimod (n=30; 53.5 %), glatiramer acetate (n=9; 16.1 %), natalizumab (n=5; 8.9 %), interferon beta-1a (n=3; 5.4 %) or interferon beta-1b (n=2; 3.6 %); 7 (12.5 %) of the patients were not under immunomodulatory treatment.

Time course of MAT scores over six months

There were no significant changes of the MAT parameters between the first and the second assessment and a highly significant correlation between both values.

<table>
<thead>
<tr>
<th>MAT scores for</th>
<th>t1</th>
<th>t2</th>
<th>Pearson's r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>global memory</td>
<td>60.4 ± 14.4</td>
<td>60.6 ± 14.2</td>
<td>0.977</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>episodic working memory</td>
<td>11.1 ± 4.9</td>
<td>11.1 ± 4.5</td>
<td>0.950</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>episodic short-term memory</td>
<td>11.9 ± 3.9</td>
<td>11.8 ± 4.0</td>
<td>0.941</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>selective attention (level 3)</td>
<td>10.8 ± 4.4</td>
<td>10.9 ± 4.3</td>
<td>0.912</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

The MAT scores are given as means ± SD for both time points.

Individual time courses of episodic short-term memory

The individual courses of the MAT score for episodic short-term memory for each patient are plotted in the following diagram:

In none of the patients there was a difference greater than two points between the assessments and 34 of 56 patients (61 %) reached exactly the same score at both assessments.

Conclusion

In this group of 56 patients with relapsing-remitting MS, of which the majority was under immunomodulatory treatment (n=49; 87.5 %), mainly with fingolimod (n=30; 53.5 %), and who did not experience a relapse, cognitive performance as assessed by the MAT, particularly episodic short-term memory, was found remarkably stable.

Disclosure

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The MAT is property of Dynamikos GmbH Mannheim.

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