Episodic short-term memory deficits in MS subtypes

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Background

The majority of patients with multiple sclerosis is affected by some form of cognitive impairment (Amato et al. 2006). One of the most frequently and severely impaired cognitive domains in MS with a considerable impact on activities of daily living is memory – about 40-60% of all patients are affected by memory deficits (Rogers & Panegyres, 2007). Particularly episodic short-term memory (ESTM) is often impaired, whereas semantic and implicit memory are usually intact (Amato et al., 2008).

In general it is assumed that cognitive deficits are less severe in patients with a relapsing-remitting (RR) than in those with a secondary-progressive (SP), primary-progressive (PP) or progressive-relapsing (PR) course of the disease (Potagas et al., 2008).

This difference is attributed to neurodegenerative changes prevailing in the latter ones. But relapsing and progressive courses of disease differ additionally in other criteria – could these also influence the degree of memory impairment?

Patients and Methods

A multicentric cross-sectional study in a large, unselected group of MS outpatients at a time interval of at least three months to the last relapse was performed at nine centers in Germany.

ESTM was assessed by means of the computer-based Memory and Attention Test (MAT), which allows a standardized adaptive testing and the comparison of each score to the data of an age-, sex- and education-matched control group.

Severity of neurological symptoms was determined by the Expanded Disability Status Scale (EDSS).

Group differences between RR, SP, PP and PR patients were calculated for ESTM by means of unpaired Student’s t-tests. In order to find out if group differences remain after controlling for covariates, these differences were recalculated in groups matched by means of the propensity score matching (PSM) technique for EDSS, age, sex and education.

We studied 531 patients (349 women, 182 men) at ages between 17 and 60 years (mean/SD: 39.7/9.8 years).

A clinical isolated syndrome (CIS) was found in 24 patients (4.5 %, not further considered here).

Course of disease

We studied 531 patients (340 women, 182 men) at ages between 17 and 60 years (mean/SD: 39.7/9.8 years).

In 20.2% of the patients, the score in the ESTM was two or more SD below the mean score of the reference groups.

ESTM was worse in the patients with a SP, PP and PR course compared to those with RR course (p<0.001).

However, the patients with a SP, PP and PR course were older than the patients with a RR course (p<0.05) and their EDSS was higher (p<0.01). When recalculating the significance of group differences in the PSM matched groups, significant differences could not be assessed anymore.

Conclusion

The noticeable severity of memory impairment in MS patients with a progressive course compared to RR patients may not be specific for these forms of the disease, because after controlling for severity of neurological symptoms, age, sex and education, a difference can no longer be ascertained.

Thus, course-associated specific neurodegenerative alterations may not lead to particularly strong cognitive deficits.

Disclosure

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