ORIGINAL COMMUNICATION

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Discriminant analysis of the cognitive performance profile of MS patients differentiates their clinical course

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■ **Abstract** *Objective* To compare the neuropsychological deficits of primary progressive multiple sclerosis with those of relapsing-remitting and secondary progressive multiple sclerosis. *Methods* Sixty-five patients with different clinical courses of MS were neuropsychologically tested for language, attention, memory and executive functions. Discriminant analysis was used to predict the type of clinical course either by clinical variables (age, EDSS and duration of illness) or neuropsychological test results. *Results* For single neuropsychological tests, group differences were rare between the progressive courses and the relapsing-remitting course of MS or absent between the progressive courses of MS. However, discriminant analysis correctly identified 87.7 percent of the patients' courses in general, and about 90 percent of the patients with chronic progressive MS. *Conclusion* Using discriminant analysis, this study found neuropsychological impairment characteristic for relapsing remitting, secondary progressive and primary progressive patients.

■ **Key words** multiple sclerosis · cognitive impairment · discriminant analysis

Introduction

Multiple sclerosis (MS) is a chronic inflammatory demyelinating disease of the central nervous system (CNS) with different clinical courses described as relapsing-remitting (RR), secondary progressive (SP) and primary progressive (PP) [20] according to the fluctuation, remission and progression of symptoms. About 10 % of all MS patients fit the strict criteria of PPMS, a progressive disease from onset and a clinical course without discernible attacks [20]. At present, the histopathological findings in PPMS are quite heterogeneous and reviewed elsewhere [7]. At least in a small subgroup of PPMS patients, primary degeneration of oligodendrocytes has been found [21].

Cognitive impairment has been described in up to 60 % of the MS patients studied [5, 25]. However, the number of studies on cognitive deficits in PPMS patients is small, with conflicting results [9, 12, 13, 15]. The two common denominators are the better performance of RRMS patients in cognitive tests compared to SP and PPMS patients and the lack of specificity of any single neuropsychological test for one of the different clinical courses of MS. Therefore, our study focused on the question whether the cognitive performance profile of MS patients permits differentiation of the clinical course into RR, SP and PPMS.