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Using Personalized Prognosis in the Treatment of Relapsing Multiple Sclerosis: A Practical Guide

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INTRODUCTION:

The clinical course of multiple sclerosis (MS) is highly variable among patients, thus creating important challenges for the neurologist to appropriately treat and monitor patient progress. Here, we present a prognosis tool in the form of a checklist of clinical, imaging and biomarker parameters which, based on consensus in the literature and on our own clinical experiences, we have established to be associated with poorer or improved clinical outcomes. The neurologist is encouraged to use this tool to identify the presence or absence of specific variables in individual patients at disease onset and thereby implement sufficiently effective treatment strategies that appropriately address the likely prognosis for each patient.

METHODOLOGY:

This practical guideline was developed by first considering objectives from the points of view of the neurologist and the patient, and then defining the most relevant and easily measurable parameters that impact on and signify prognosis.

OBJECTIVES:

Our objective is to provide neurologists with a practical 'checklist' guide to establishing the likely prognosis of patients based primarily on baseline clinical parameters that can also be reassessed at periodic follow-up visits. The guide will allow neurologists to identify 'red flag' parameters in the MS patient profile that are related to poorer long-term prognosis.

EXAMPLE OF PROGNOSIS TOOL FACTOR AND ASSOCIATED EXPLANATION

(A) Demographic factors impacting on prognosis

Item	← Better Prognosis		→ Poorer Prognosis	
Age (years) Older age has been associated with poorer prognosis in MS	<30 ☐	<40 ☐	≥40 ☐	≥50 ☐

Age

Older age has been associated with poorer prognosis in MS. For example, older individuals at onset had more rapid disability worsening (5-8), were at greater risk of converting to secondary progressive MS (SPMS) (8) and had a higher likelihood of incomplete or poorer recovery following relapse activity (9,10). This is probably because older patients are likely to have had subclinical disease activity for a longer time, resulting in reduced 'brain reserve' or in other words, a reduced capacity to compensate for neurodegenerative damage. In a population-based cohort study (6), the time for progression from MS diagnosis to SPMS was significantly reduced in participants with late onset MS disease (defined as ≥50 years). For these reasons, we consider older age to be associated with a poorer prognosis.

Scoring: Age brackets above and below 40 years indicating progressively poorer and better prognosis, respectively

CONCLUSION:

This MS prognosis tool brings together a considerable amount of data specific to each MS patient, thereby providing the MS neurologist with a comprehensive overview of each patient's current and potential disease status in the future. The tool should also facilitate the development of personalised treatment approaches based on individualised prognostic evidence, enabling outcomes for MS patients to be optimised.

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