

Cambridge University Press

978-0-521-88832-5 - Multiple Sclerosis: Recovery of Function and Neurorehabilitation

Edited by Jurg Kesselring, Giancarlo Comi and Alan J. Thompson

Frontmatter

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Preface

For a long time neurology was considered to be a specialty with refined diagnostic possibilities but little to offer in terms of therapeutics. Therapeutic nihilism prevailed for decades. Neurological syndromes were mainly described as defects with an *alpha privativum*: A-phasia, A-lexia, A-calculia, A-taxia, even A-bulia, etc. The earlier nomenclature of the World Health Organization when classifying health conditions and diseases used terms with negative connotations: dis-ability, handicap. The new framework for classifying health conditions (such as multiple sclerosis), the International Classification of Functioning (ICF), brought a change in names and thereby in attitudes [1, 2]. This truly marks a paradigm shift and the current book attempts to describe these changes. The consequences of a disease process are further described at the level of body structures and functions as “impairment” but the focus is now on “activities” (which of course may be limited due to the disease) instead of dis-ability and on the social level the focus is more on “participation” (and its limitations) rather than on handicap. When dealing with treatment options and prognosis for an individual patient it is obvious that personal factors from his/her history and environmental factors must be considered and these factors are now fully incorporated into the classification.

Neuroplasticity in the central nervous system is the basis of adaptive changes which occur spontaneously and which may be modulated by appropriate therapies. They form the structural and functional correlates of learning. These mechanisms, as they relate to multiple sclerosis, are covered in some detail in the present book. They may be described on different levels: at the cellular level unmasking of pre-existing connections (axonal sprouting, i.e., increased arborization of neurons, changes of synaptic stability, and reorganization of synapses); at the tissue level (resorption of edema, rearrangement of sodium channels on axons,

and remyelination); at a system level as ipsilateral and contralateral excitability changes in the primary and secondary motor areas; and on a behavioral level by inducing and training novel motor and cognitive strategies. Understanding the very complex reorganization of central nervous pathways following acute lesions and chronic secondary axonal degeneration in MS is fundamental to the effective planning of rehabilitation strategies in individual patients.

These topics are covered in chapters written by leading experts in their respective fields. The editors are very grateful for their generous contributions. We are particularly grateful to Nicholas Dunton and his collaborators at Cambridge University Press who have led us through a sometimes difficult preparatory process with patience and efficiency leading to the production and distribution of our book which we consider a timely contribution to a broad and exciting new field in neurology. We hope that this book will be of interest to basic scientists studying neuroplasticity of the central nervous system as related to inflammation, demyelination, and axonal damage as well being useful to clinicians and therapists dealing with persons with multiple sclerosis and the manifold consequences of this enigmatic disease.

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Alan J. Thompson*

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2. Holper L, Coenen M, Weise A, Stucki G, Cieza A, Kesselring J. Characterizing functioning in MS using the ICF. *J Neurol* 2010;257:103–13