FOREWORD

Since finishing my fellowship in neurology at University Hospitals Case Western Reserve University, I have been involved in both the clinical evaluation and treatment of patients with multiple sclerosis for more than 35 years, as well as clinical and translational research on multiple sclerosis. I have seen various therapies used, beginning with steroids and ACTH. In some situations, agents were later developed and were found to be effective in reducing acute inflammatory activity or were agents directed toward symptom management. These agents for disease control often times fell short of anticipated needs. They also were associated with high-cost and significant side effect profiles, and, as a result, patients often times, were non-compliant in taking the medicines.

Because multiple sclerosis is a chronic progressive disease and rarely acutely life-threatening, yet it shortens life span, the treatment has often primarily focused on the patient's symptom management and reduction of acute flares. Funding has been limited in clinical trials because of the potential high cost of implementing prospective studies. Nonetheless the basic science of multiple sclerosis, as well as clinical research, has continued with incremental advances in understanding multiple sclerosis and in seeking improved ways of analysis and treatment.

Basic science research in the field of immunology and neuro-inflammation provides clues of the mechanisms and the complex pathways of multiple sclerosis. Since the mid-1980s publication of exciting studies into the biological role of endogenous opioids and their identified classical and non-classical receptors within the brain and other organs suggest the potential dysregulation of these pathways during the development of immune and various other diseases. These findings open new research opportunities. With a wide acceptance of low dose naltrexone (LDN) as an adjuvant therapy, and, at times, even a stand-alone therapy, attention needs to be directed on this pathway as a potential etiological role in this complex multifactorial disorder. Stem-cell research has also been shown to be a possible novel therapy and is provocative. However, continued research into the types of stem cell treatments and programs are necessary.

In this book on the pathophysiology of multiple sclerosis, several chapters concentrate on the potential etiology and treatment of multiple sclerosis, and other chapters focus on basic science studies discussing potential mechanisms and pathways involved in the development and progression of the disease. In the first section, there is a comprehensive review of the genetics of multiple sclerosis. Genomics is proving to be extremely important as far as determining what medications may be best for the individual patient. However, this is going to require acceptance by the pharmaceutical companies as to limiting what is now considered an open market for their medicines. As the prevalence of the disease rises, there is an increasing need to have understanding into the etiology of multiple sclerosis. A detailed summary of the prevalence of multiple sclerosis in individual European countries provides interesting information. The need to identify and understand biomarkers that are clinically relevant and may be easily obtainable continues to be researched, as are safer treatments. This book offers insight and opportunities in all these areas.

I applaud the authors and contributors of this book for addressing each valuable topic. I hope that clinicians, scientists, patients, and the general public read and learn at least one piece of information that may stimulate further research and understanding about this disabling disorder.

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