Editorial

In Search of Effective Treatments for Myalgic Encephalomyelitis/Chronic Fatigue Syndrome

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Myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) is characterized primarily by severe, unexplained fatigue[1] accompanied by dysfunctional homeostasis with possible focal inflammation in the hypothalamus.[2] Scientists have struggled to identify the pathogenesis of ME/CFS. In the April issue of *Clinical Therapeutics*, experts report their findings on the diagnosis and possible causes of ME/CFS.[3–10] However, effective treatments remain elusive,[11,12] and the presence of comorbidities[13] further complicates the search for a cure.

This continuation of the Specialty Update on ME/CFS focuses on interventions, including the molecular basis of the identification of patient subgroups that may be amenable to treatment. In the opening commentary, Dr. Broderick et al[14] review the limited efficacy of available pharmaceutical interventions and suggest combination therapies as well as individualized approaches based on the heterogeneity of ME/CFS. Dr. Craddock et al[15] report the results from a pharmacogenomic study that identified candidate therapeutic targets in a subset of patients in whom differential gene–expression profiles were associated with fatigue. Dr. Ariza and colleagues[16] report on the involvement of Epstein–Barr virus dUTPase, a viral protein implicated in some patients with ME/CFS, using immortalized cell lines and an *in vivo* mouse study. Dr. Giannoccaro et al[17] investigate the presence of autoantibodies against neuronal proteins in a small group of patients with ME/CFS and control subjects. Finally, in their original research articles, Finally, Rekeland et al [18] report their findings on the use of rituximab in ME/CFS. In a future issue of *Clinical Therapeutics*, Tsilioni et al will present data on the use of a dietary supplement in patients with fibromyalgia and fatigue.[19]

Regardless of the importance of the work presented, it is obvious that the presentation of ME/CFS is highly heterogeneous and that no treatment approach is likely to address all symptoms in most patients. A focus on patient subgroups based on biomarkers and/or common symptomatology may be the best approach for now.

The April NIH conference entitled Thinking for the Future: A Workshop for Young/Early Career ME/CFS Investigators, held in Bethesda, Maryland, on April 3, 2019 (https://meetings.ninds.nih.gov/Home/Index/22837), offers potential breakthrough findings.

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