Efficacy and Safety of Dimethyl Fumarate Treatment in Relapsing-Remitting Multiple Sclerosis

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Abstract

Multiple sclerosis (MS) is a chronic autoimmune disorder of the central nervous system. This demyelinating disease affects more than 2.3 million people worldwide. Most patients are young adults. The most common type of MS is relapsing remitting multiple sclerosis (RRMS). However, there is no cure, available modifying therapies have revolutionized the care of patients with RRMS. Interferon (IFN) beta has been considered as the first line treatment of RRMS. Some reasons including lack of efficacy and safety concern cause to switch to an alternative disease-modifying therapy (DMT). Delayed-release dimethyl fumarate (DMF) has been recently approved as DMT and demonstrated significant efficacy in patients with RRMS. It activates the nuclear factor-related 2 (Nrf2) pathway which causes augmenting the oxidative capacities and reduction of inflammation. This review focuses on elucidating the efficacy and safety of Dimethyl Fumarate for Relapsing-Remitting Multiple Sclerosis. In most studies, the relapsing ratio has been decreased for at least 6 months using DMF. Expanded Disability Status (EDSS) and radiological activity had improved in case group versus placebo in most studies. DMF has significant efficacy in patients with previous IFN treatment. The severe side effect of DMF occurs in approximately 5% of patients, but in most clinical trials, Absolute Lymphocyte count (ALS) were generally stable throughout the observational period. So DMF appeared to be safe and efficient in most clinical trials.

Keywords: Dimethyl Fumarate, Relapsing Remitting Multiple Sclerosis, Safety, Efficacy

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