Dimethyl fumarate is a new oral disease modifying therapy approved in March 2013 to treat RRMS. It has demonstrated efficacy and safety in a number of large multicenter phase III clinical trials. However, its benefit in real world MS patients is still not well known.

**METHODS**

We retrospectively reviewed the charts of all our RRMS patients treated with dimethyl fumarate since its approval in March 2013. Number of clinical relapses and potential side effects were studied.

**RESULTS**

We had 104 patients, 73 women (70.2%) and 31 men (29.8%), with a mean age of 50.3 years. Patients were followed for a mean of 4.5 months.

**CONCLUSIONS**

In our study, the side effects from dimethyl fumarate were similar to phase III trials, however, the incidence of flushing and severe leucopenia or lymphopenia at 6 months were higher than previously reported. During this short follow-up, clinical exacerbations have occurred in approximately 4% of the patients.

Side of effects from prior disease modifying agents (46%) was the most common cause for starting dimethyl fumarate followed by lack of efficacy (21%) to prior immunomodulators (Fig. 1). The most common side effects were gastrointestinal (GI) symptoms followed by flushing. GI side effects occurred in 56.5% of patients within the first month, but declined to 11% by the end of the third and sixth months. Twelve percent of those patients had history of prior GI symptoms (Fig. 2). The incidence of flushing was 50.6% in the first month, and decreased to 24.2 % and 30% by the end of the third and sixth months respectively (Fig. 3). Leucopenia grade 2 or lymphopenia grade 3 or higher occurred in 3.1% of patients at month 3 and 25% of patients at month 6 (Figs. 4 and 5). Two patients with grade 3 lymphopenia developed an infection, one patient had cellulitis and the other one developed herpes zoster. Mild elevation of LFTs (less than 3 x baseline) were seen in 14% of patients at month 3 and 27.3% of patients at month 6 (Fig. 6). Four patients had clinical exacerbations confirmed by imaging, half of the patients with multiple enhancing lesions. Treatment was discontinued in 13 patients (12.5%), the vast majority due to the GI side effects followed by clinical relapse in 3 patients.

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