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Comparison of fingolimod, dimethyl fumarate and teriflunomide for multiple sclerosis

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Abstract

Objective: Oral immunotherapies have become a standard treatment in relapsing-remitting multiple sclerosis. Direct comparison of their effect on relapse and disability is needed.

Methods: We identified all patients with relapsing-remitting multiple sclerosis treated with teriflunomide, dimethyl fumarate or fingolimod, with minimum 3-month treatment persistence and disability follow-up in the global MSBase cohort study. Patients were matched using propensity scores. Three pairwise analyses compared annualised relapse rates and hazards of disability accumulation, disability improvement and treatment discontinuation (analysed with negative binomial models and weighted conditional survival models, with pairwise censoring).

Results: The eligible cohorts consisted of 614 (teriflunomide), 782 (dimethyl fumarate) or 2332 (fingolimod) patients, followed over the median of 2.5 years. Annualised relapse rates were lower on fingolimod compared with teriflunomide (0.18 vs 0.24; p=0.05) and dimethyl fumarate (0.20 vs 0.26; p=0.01) and similar on dimethyl fumarate and teriflunomide (0.19 vs 0.22; p=0.55). No differences in disability accumulation (p≥0.59) or improvement (p≥0.14) were found between the therapies. In patients with ≥3-month treatment persistence, subsequent discontinuations were less likely on fingolimod than teriflunomide and dimethyl fumarate (p<0.001). Discontinuation rates on teriflunomide and dimethyl fumarate were similar (p=0.68).

Conclusion: The effect of fingolimod on relapse frequency was superior to teriflunomide and dimethyl fumarate. The effect of the three oral therapies on disability outcomes was similar during the initial 2.5 years on treatment. Persistence on fingolimod was superior to the two comparator drugs.