Introduction

Evidence suggests that long-term clinical outcomes in multiple sclerosis (MS) may be predicted by the treatment and disease histories of patients. 1-3 Previous studies of MS show that clinical responses to therapy may vary and have treatment-related and other factors that may lead to increased exacerbation of clinical relapses and progression over time. 4-6 Several studies investigated the role of immunological, genetic, and environmental factors in predicting clinical outcomes. 7-8

Objective

Analyzing clinical parameters at baseline and during the 1-year TRANSFORMS study, we predicted relapse activity (defined as ≥1 T1 Gd+ or ≥2 T2 lesions) in patients treated with fingolimod 0.5 mg or 1.25 mg on entering a 1-year extension phase. 3-5

Methods

Study design
TRANSFORMS was a 1-year, double-blind, randomized, phase 3 study of fingolimod in patients with relapsing-remitting MS who had a history of at least 1 relapse during the previous 2 years. 3-5 Enrolled patients with relapsing MS were randomized 1:1:1 to receive fingolimod 0.5 mg or 1.25 mg on entering a 1-year extension phase. 3-5 At 1 year, patients randomized to IFN-β1a IM 30 μg once weekly. 3-5 Baseline demographic characteristics for all patients are presented in Table 1. 3-5

Figure 1. Study design and analysis summary

Figure 2. Odds ratios for prediction of relapse activity during the short term (M12-M24) and long term (M12-M48) of TRANSFORMS and its extension phases

Figure 3. Odds ratios for prediction of EDSS score ≤6 (left panel) and 6-month confirmed disability progression (right panel) in the long term (M12-M48) of TRANSFORMS and its extension phases

Predictors of disability worsening
Baseline parameters that predicted disability reaching an EDSS score ≤6 and 6MNDP in the longer term were (Figure 3): 3-5 Baseline disabilities of age >6 or 6MCDP) during M12-48. 3-5 Other predictors of disability in both timeframes were: (1) T1 hypointense lesion volume and T2 lesion volume at baseline; (2) previous treatment for MS; (3) number of confirmed relapses during M12-24 and M12-48; or predicted disability (EDSS score change (M0-M12) >0.5 or ≥1 confirmed relapse during M12-48 and T2 lesion volume (all at baseline).

Analysis

This was a joint IREAN of TRANSFORMS and the extension over 48 weeks (M12-48). 3-5

Table 1: Baseline demographic characteristics

Table 2: Baseline characteristics of patients with confirmed relapse activity

Conclusions

Clinical trial registration number: NCT01535799.

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Disclosures

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References