**S54** SECOND-LINE THERAPY SWITCHING AMONG MULTIPLE SCLEROSIS PATIENTS

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**Background:** Switching between disease-modifying therapies (DMTs) for multiple sclerosis (MS) often indicates problems with tolerance or effectiveness. **Objectives:** Compare switching between MS patients on second-line DMTs intramuscular (IM) interferon beta-1a (IFNβ-1a), subcutaneous (SC) IFNβ-1a, interferon beta-1b (IFNβ-1b), glatiramer acetate (GA), and natalizumab. **Methods:** Study data were medical and pharmacy claims data for adult commercial health plan enrollees with MS initiating second-line DMTs from 1/1/2000 to 9/30/2008; second-line DMTs were the second therapies patients used as indicated by medical and pharmacy claims. DMTs were IM IFNβ-1a, SC IFNβ-1a, GA, IFNβ-1b, or natalizumab. The start date of the second-line DMT was the index date. Patients were observed for 3 months pre-index and 3 to 36 months post-index. Switching occurred at initiation of the third-line DMT with no subsequent use of the second-line DMT for ≥90 days. Switching was modeled with Cox proportional hazards regression to account for variable post-index length. Covariates were second-line DMT (reference group: natalizumab), age, gender, and pre-index Charlson comorbidity score, MS-related hospitalization, and MS-related emergency visit. **Results:** A total of 3071 second-line patients included 429 (14.0%) on IM IFNβ-1a, 415 (13.5%) on IFNβ-1b, 1067 (34.7%) on GA, 872 (28.4%) on SC IFNβ-1a, and 288 (9.4%) on natalizumab. The mean (±SD) age was 40.9 (±9.7) years; 79.7% were female. Descriptive analysis showed that 19.4% of patients switched to a third-line DMT: 10.4% of natalizumab patients, compared with 16.9% to 23.5% in other cohorts (all P < .01). Patients on IM IFNβ-1a, SC IFNβ-1a, and IFNβ-1b were significantly more likely to switch to a third-line DMT than were natalizumab patients. Hazard ratios (95% confidence intervals) were 1.74 (1.15-2.61) for IM IFNβ-1a, 1.77 (1.17-2.67) for IFNβ-1b, and 1.62 (1.10-2.38) for SC IFNβ-1a. **Conclusions:** Patients on second-line natalizumab were significantly less likely than those on IM IFNβ-1a, IFNβ-1b, and SC IFNβ-1a to switch to third-line therapy.

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