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Disease modifying treatment, long-term outcomes and transition to progressive multiple sclerosis: data based on the New York State MS Consortium

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Introduction:

The impact of modern disease-modifying treatments (DMTs) on multiple sclerosis (MS) long-term outcomes are continuously evolving. Previous studies report that DMTs use resulted with more than 2.5-fold improvement in the disease natural history.

Objectives/Aims:

To determine the impact of use and discontinuation of DMT on the mid- to long-term disability trajectories in pwMS.

Methods:

Retrospective observational study utilized people with MS (pwMS) registered within the New York State MS Consortium (NYSMSC) since 1996. The disability outcomes of reaching sustained Expanded Disability Status Scale (EDSS) scores of 4.0, 6.0 and transition to secondary-progressive MS (SPMS) were further confirmed at follow-up. Four disease-modifying treatment (DMT) categories were determined 1) continuous DMT use, 2) discontinued DMT, 3) (re)started DMT and 4) never treated with DMT. Patient-reported outcomes (PRO) were acquired using LIFEware system.

Results:

A total of 1,893 pwMS were included. In addition to being male, older, more disabled and reporting worse PROs at baseline, pwMS who discontinued DMT during the study period had more than 5.5 times greater risk of reaching sustained EDSS of 4.0 (OR=5.56, 95% CI 2.78-11.0, p<0.001). Similarly, pwMS who discontinued DMT during the NYSMSC follow-up had 3.8- and 4.7-times greater risk to reach sustained EDSS 6.0 (OR=3.86, 95% CI 2.12-7.02, p<0.001), and to transition to SPMS (OR=4.77, 95% CI 2.9-7.87, p<0.001). Propensity matching analysis confirmed the predictors of worse clinical outcomes.

Conclusion:

Predictors of worse long-term clinical outcomes include male sex, older baseline age, and worse initial disability levels. PwMS who discontinue DMT have the worst long-term disability trajectory when compared to both early and late DMT starters. PRO-based indicators may suggest worse clinical outcomes.

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