Treatment discontinuation in the Big Multiple Sclerosis Data Network: a descriptive analysis

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Introduction

Multiple sclerosis (MS) is a life-long disease where disability typically develops over decades. For almost 20 years, disease modifying drugs (DMTs) have been available to reduce attack frequencies, focal inflammatory brain lesions and development of disability. Changes in product availability, reimbursement and treatment recommendations have led to a growing interest for identifying reliable predictors of DMD discontinuation and to study how discontinuation on a prescribed drug may differ between specific drugs, between countries, over time and calendar year (of licensing new drug) by using observational data from major clinical MS registries.

Aim

To describe the frequency of DMD discontinuation recorded across the pooled Big MS Data Network (BMSD) and to compare patterns of discontinuation between countries and time periods.

Methods

Treatment episodes and associated patient data complying to minimum dataset requirements were individually extracted from the five contributing datasets and then pooled into a single combined dataset. Categorical variables were summarized using frequency and percentage. Continuous variables were summarized using mean and standard deviation (SD) or median and inter-quartile range (IQR) as appropriate. Alluvial flow plots were used to illustrate treatment sequences. All analyses were conducted in R (R Foundation for Statistical Computing).

Results

Where reason for treatment discontinuation was documented, lack of efficacy was the most frequently reported across the pooled data (23.2%), followed by adverse or side effects (16.1%) and intolerance (13.8%) (Table 2). Whilst inefficacy accounted for the largest proportion of treatment discontinuations in both OFSEP and MBASE, side effects and adverse events were the primary reported drivers of discontinuation in the Swedish, Danish and Italian registries. Figure 1 illustrates the flow of treatment switches across all included patients switching at least once from 1996 onwards. Figure 2a-e illustrates the same flows disaggregated by country/dataset and limited to 2007 onwards (switching population, first 5 treatments per patient displayed only).

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