Utilization of Disease Modifying Agents in Multiple Sclerosis: Analysis From an Italian Administrative Database

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Objectives
To assess patients' adherence and patterns of drug utilization through administrative database analysis.
Methods
Using DENALI datawarehouse we detected all MS patients who, during the period January 2000 – December 2009, had at least one DMA prescription (IFN beta-1a intramuscular (IM); IFN beta-1a sub-cutaneous (SC) at two different dosages: 22mcg and 44mcg; IFN beta-1b, glatiramer acetate, natalizumab). Three drug utilization indicators, probability of switching therapy, density of medication possession ratio (DMPR) and drug persistence (measured with Kaplan-Meier method) were calculated to measure DMAs' usage. Patients were grouped according to first DMA prescription, with the date of first prescription being the index date.
Results
A total of N=5,099 subjects received at least one DMA prescription. Switching therapy occurred in 393 of 1,391 patients initiating with IFN beta-1a IM (28.3%), 482 of 964 IFN beta-1a SC 22mcg patients (50.0%), 192 of 605 IFN beta-1a SC 44mcg patients (31.7%), 150 of 886 IFN beta-1b patients (16.9%), 205 of 1,200 glatiramer acetate patients (17.1%), and 2 of 53 natalizumab patients (3.8%) with glatiramer acetate, 4% with natalizumab. Median times to switch ranged from 1.8 to 2.5 years. Adherence rates were high: percentage of patients achieving DMPR>80% ranged from 78.1% to 88.9%. Probability of drug persistence was, on average, about 80% at the end of first year of observation, being similar across different treatments.
Conclusions
Patients tend to adhere quite well to prescribed DMA medication. However, a relevant number of patients receive therapy adjustment or modification in the short term period (after about two years of treatment), maybe because of lack of efficacy or adverse events occurrence, both factors discouraging or impeding continuation. DENALI shows to be an efficient instrument to assess prescription patterns of DMAs, although linkage with clinical registries would remain necessary to assess reasons of switch/drop out, and to evaluate DMAs' efficacy.