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Relationship between cognitive status and depression, anxiety, fatigue, adherence, or disability in patients with RRMS treated with interferon beta-1a under real-life conditions

Short title: Cognition relates to depression and fatigue in RRMS

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Background

Studies have suggested a relationship between mood disorders and cognition in multiple sclerosis (MS) [1]. Furthermore, a slower processing speed in cognition tests was observed in MS patients reporting fatigue than in those not reporting fatigue [2]. The primary aim of this study was to investigate whether there is a relationship between cognitive status (CS) and depression, anxiety, fatigue, adherence, or disability in patients with relapsing-remitting multiple sclerosis (RRMS) and treated with interferon (IFN) beta-1a.

Methods

This non-interventional, prospective, multicentre study included patients (18-65 years) with RRMS (McDonald, 2010; Expanded Disability Status Scale (EDSS) score < 4 at baseline) who were scheduled to receive IFN beta-1a 22µg/44µg sc thrice/week. Data were documented at baseline and months 12, 24, and 36. CS was calculated as the mean of the Z-scores of the 4 domains of the Brief Repeatable Battery of Neuropsychological Tests (BRB-N). Assessments included the Hospital Anxiety and Depression Scale (HADS), the Modified Fatigue Impact Scale (MFIS), and EDSS. Adherence was estimated as: (number of injections administered/number of expected injections) × 100. Spearman's rank-order correlations were calculated in SAS®.

Results

A total of 164 patients (median age: 34 years, 66.5% female) received at least one dose of IFN beta-1a; most patients used the RebiSmart® device for injection (76.2%). Moderate negative linear correlations were found between CS and HADS-D (r_s = -0.31, p = 0.002, n = 97), CS and MFIS (r_s = -0.38, p < 0.001, n = 97), and CS and EDSS (r_s = -0.30, p = 0.004, n = 88) at month 12, but in most cases not at baseline and the other post-baseline visits. There was a moderate negative linear correlation at early discontinuation between CS and HADS-A (r_s = -0.46, p = 0.006, n = 35); no relevant correlation was seen between CS and adherence. Median adherence since the last visit was 100% at all post-baseline visits. Adverse reactions were seen in 53 patients (32.3%).

Conclusions

These results suggest a moderate though significant correlation between improvement in cognition and ameliorated depression, fatigue and the level of neurological impairment after 12 months of IFN beta-1a treatment in a real-life setting. Adherence to IFN beta-1a was very high throughout the study period.

[1] Arnett PA, Higginson CI, Voss WD, et al. Neuropsychology 1999;13:434-46
[2] Langdon DW. Curr Opin Neurol 2011;24:244-49

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