

DIMETHYL FUMARATE REDUCES FATIGUE IN PATIENTS WITH RELAPSING REMITTING MULTIPLE SCLEROSIS – IN A PROSPECTIVE 2 YEAR PHASE IV TRIAL.

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Objective: To investigate fatigue in patients with relapsing remitting multiple sclerosis (RRMS) before and after treatment with dimethyl fumarate (DMF).

Methods: Prospective phase IV trial with 52 newly diagnosed treatment naïve patients with RRMS. Fatigue was evaluated with Fatigue Scale of Motor and Cognitive Function (FSMC) and the Modified Fatigue Impact Scale (MFIS) at baseline (BL) after 3, 6, 12 and 24 months (given as lowered numbers after fatigue scales). We use Kruskal Wallis multiple comparison, Spearman linear regression, standard deviation given in brackets.

Results: Patients were on average fatigued with following baseline values: MFIS_{BL} of 31.2(±20.4) and FSMC_{BL} of 46.7 (±20.8). MFIS scores demonstrated a significant reduction after treatment with DMF at MFIS₃: 7.85 (±12.20; p=0.003**), MFIS₆: 7.75 (±15.59; p=0.0032**), MFIS₁₂: 8.40 (±15.55; p=0.0015**) and MFIS₂₄: 10.25 (±10.92; p=0.000**). FSMC scores were decreased at follow-up: FSMC₃ of 3.25 (±12.07; p=0.096), FSMC₆: 3.42 (±13.17; p=0.096), FSMC₁₂: 3.67 (±15.73; p=0.133) and FSMC₂₄: 3.87 (±13.51; p=0.121), however not significant.

Self-reported health perception correlated with levels of fatigue and subscales for motor and cognition: MFIS ($r=0.52$, $p<0.01^*$) and FSMC ($r=0.53$, $p<0.01^*$). Self-reported health perception correlated with Beck's Depression Inventory Fast Screen (BDI-FS) ($r = 0.0474$, $p<0.01^*$).

Conclusion: MS fatigue improved significant after 3 months of treatment with DMF and reduction was sustained during treatment at up to 24months follow-up when measured by MFIS. FSMC showed a similar trend but results were, however, not significant. Self-reported outcomes are affected by mood and general health perception.

Changes in Motor, Cognitive and Psychosocial subscales of Fatigue – MFIS & FSMC

	Baseline	3months	6months	12months	24months
MFIS_{COGNITIVE}	15.28(±10.83)	12.33(±9.06)**	12.40(±9.26)*	12.30(±10.10)*	12.31(±9.79)**
MFIS_{PHYSICAL}	14.95(±9.51)	10.74(±7.97)**	10.80(±7.96)**	10.15(±7.92)**	9.94(±6.33)**
MFIS_{PSYCHOSOCIAL}	2.23(±2.19)	1.54(±1.73)**	1.42(±1.74)*	1.27(±1.81)**	1.66(±2.06)*
FSMC_{COGNITIVE}	22.96(±10.46)	21.55(±10.54)	21.22(±10.19)	21.76(±10.72)	21.48(±11.65)
FSMC_{MOTOR}	23.78(±10.85)	21.61(±9.97)*	21.27(±9.71)*	20.98(±9.47)*	21.88(±11.28)

Mean values with Standard Deviation. Significant mean decrease, p<0.05 * p<0.01 **