

Massachusetts Neurologic Association

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CALL FOR ABSTRACTS

Deadline for submission: March 10, 2017

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The Poster Presentation Session at the MNA Spring Meeting aspires to allow residents and fellows in training to present their research or interesting cases in a poster session. Please follow the following abstract guidelines:

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Title:

Longitudinal and Cross Sectional Study of Adipocytokine and Vitamin D in Multiple Sclerosis Patients Treated with Dimethyl Fumarate (DMF)

Authors:

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Abstract:

(There is a limit of **350** words for your abstract submission).

Background: Dimethyl fumarate is a FDA approved medication for multiple sclerosis (MS). Its exact mechanism of action is still unclear but emerging data suggest it protects neurons and astrocytes from oxidative stress via upregulation of Nrf2 pathway. Oxidative stress is an important mediator of adipocyte differentiation via Nrf2 activation. Adipocytokines exert multiple biological activities and contribute to regulation of innate immune response.

Objectives: 1) To study adipocytokine (leptin, adiponectin, gherlin, FABP4) and vitamin D level at baseline and on treatment with DMF, 2) To study adipocytokine and vitamin D levels in patients who achieved no evidence of disease activity (NEDA) status (responders) compared to DMF non-responders.

Methods: Using CLIMB database, 23 patients had serum samples available at baseline and on DMF and we had stored serum for 92 patients who have been on DMF for 6 to 12 month. NEDA was defined as no clinical relapse, MRI activity (new T2 or Gad lesion) or EDSS progression. Paired T test and Wilcoxon signed-rank test were utilized to compare baseline and follow-up serum levels. For the cross-sectional analysis, two sample T test and Mann-Whitney U test were used (p-value significance level was set at 0.05).

Results: After adjusting for BMI, adiponectin level was significantly increased in patients treated with DMF compared to the baseline (7.10 ± 3.2 vs 9.63 ± 5.3 , $P=0.001$) while FABP4 level was significantly decreased (38.03 ± 17.68 vs 24.80 ± 12.51 , $P=0.0008$). There was a trend in decreased level of ghrelin in DMF treated patients compared to their baseline ($P=0.054$). In addition, FBAP4 level was significantly decreased in treatment non -responders with significant MRI activity and/or relapse compared to treatment responders. Leptin, adiponectin, ghrelin and Vitamin D levels were not significantly different between responders and non responders.

Conclusion: Exposure to DMF leads to increased serum level of adiponectin (an anti-inflammatory adipocytokine), and decreased level of FABP4 (a pro inflammatory adipocytokine) suggesting alterations in adipocytokine level may drive parts of anti-inflammatory effect of DMF. FABP4 levels are associated with response to DMF in unadjusted analysis. Further studies underway to investigate the role of FABP4 in MS treatment response