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AUTONOMIC AND INFLAMMATORY CHANGES IN FM AND ME/CFS AND THE CONTRIBUTION TO SIGNS AND SYMPTOMS

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Background: Dysautonomia describes a group of conditions associated with a malfunction of the autonomic nervous system. Symptoms of dysautonomia and inflammation have been described in Fibromyalgia (FM) and Myalgic encephalomyelitis (ME)/Chronic Fatigue Syndrome (CFS) [1–4]. Symptoms include increased disabling fatigue, pain, dizziness and digestive problems.

Objectives: This ongoing study investigates, for the first time, how a sympathetically mediated challenge and induced systemic inflammatory state impact on mood, pain, fatigue, and autonomic function.

Methods: In a randomized, double-blind, placebo-controlled study, 25 participants with FM and/or ME/CFS underwent an autonomic- and inflammatory challenge during three visits. Outcome measures included a range of questionnaires including the Profile of Mood States (POMS), Pain visual analogue scales (VAS), measures of heart rate (HR), Pressure Pain Threshold (PPT), alongside subjective pain and fatigue measures. Autonomic function was assessed using a passive non-invasive tilt-test (upright tilt of 60°) and active-stand (AS) with beat-to-beat HR and blood pressure monitoring. Remaining visits involved an inflammatory challenge using intramuscular typhoid- and saline (placebo) injection.

Results: Tilt-table test was positive in 20% participants and AS in 92% participants indicated by HR rise >30 bpm or a sustained HR of 120 bpm. Overall fatigue correlated with peak HR during tilt ($r=.465$, $p=.025$, $n=23$). There was a positive correlation between the average HR during AS under typhoid after controlling for placebo and average HR during tilt ($r=.517$, $p=.049$, $n=15$). Scores on the Wide Spread Pain Index (WPI) at screening correlated with the change in POMS pre- and post-typhoid after controlling for placebo ($r=.479$, $p=.045$, $n=18$). Scores on the Fibromyalgia Severity Scale correlated with the change in physical fatigue pre- and post-typhoid after controlling for placebo ($r=.633$, $p=.015$, $n=14$). Pain at screening correlated with change in physical fatigue pre- and post-tilt ($r=.405$, $p=.044$, $n=25$). Scores on the pain severity scale at baseline correlated with change in pain measured on a visual analogue scale pre and post tilt ($r=.517$, $p=.049$, $n=15$). Mean change in heart rate pre-post active stand correlated with a change in pain VAS pre- and post-typhoid after controlling for placebo ($r=.582$, $p=.047$, $n=12$).

Conclusion: Preliminary findings suggest that dysautonomia and induced inflammation significantly impacts on pain, fatigue, and autonomic function in FM and ME/CFS. On-going data collection of 100 participants (25 controls) will allow extended analyses to test how autonomic function and inflammation affect symptom domains that impact on quality of life.

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Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2019-eular.1917

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ARE CHRONIC PAIN SYNDROMES BEHIND STATIN-ASSOCIATED MUSCLE PAIN?

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Background: Statin myalgia, defined as muscle pain or weakness without elevation of CPK levels, is a common complaint among statin users. Chronic pain syndromes affect a high percentage of the population¹, therefore it is likely that such syndromes may confound reports of statin myalgia.

Objectives: The objective of this study was to compare the occurrence of chronic pain between patients taking statins who later developed myalgia with those who did not.

Methods: This study included 112 statin-treated patients at the Lipid Center in Tel Hashomer - 56 of whom were diagnosed with Statin Associated Muscle Symptoms [SAMS] and 56 patients who were not. Questionnaires were used to assess diagnoses of fibromyalgia, pain intensity, functional impairment, anxiety and depression in the study population.

Results: Patients with statin myalgia were more likely to fulfill the diagnostic criteria for fibromyalgia than patients without statin myalgia (11 vs. 0, respectively). Patients in the SAMS group also exhibited higher levels of anxiety and depression in comparison with the control group. Female sex, scoring in Brief Pain Inventory pain intensity, and a Hamilton level indicative of an anxiety disorder were found to be significant predictors for fibromyalgia in patients suffering from statin myalgia.

Conclusion: A significant percentage of patients who were thought to suffer from statin myalgia fulfill the criteria for fibromyalgia, depression or anxiety. Detection of these patients and treatment of their primary pain or psychiatric illness may prevent cessation of effective statin therapy.

Table 1 - Univariate analysis of myalgia cases versus controls.

Variable	Controls	Myalgia cases	Statistical significance
Age	49.71±12.91	54.07±10.25	0.075
Gender			0.033
Male	40 (71.4%)	28 (50.0%)	
Female	16 (28.6%)	28 (50.0%)	
BMI	25.66±3.29	27.06±4.71	0.070
Current smoking status	9 (16.1%)	8 (14.3%)	1.000
Psychiatric disorders	6 (10.7%)	4 (7.1%)	0.742
CPK (IU/L)	213.16±554.44	310.63±715.67	0.066
Prevention purpose			0.538
Primary prevention	41 (73.2%)	37 (66.1%)	
Secondary prevention	15 (26.8%)	19 (33.9%)	
Disease length	11.05±8.41	13.34±8.39	0.070
WPI	0.43±1.02	3.29±3.31	<0.0001
Hamilton Depression scale	3.89±4.20	6.46±4.82	<0.0001
Hamilton Anxiety scale	5.48±4.94	9.71±6.23	<0.0001
Fulfilling FM criteria	0 (0.0%)	11 (19.6%)	0.001