Bilateral optic neuritis is associated with more severe fatigue in patients with myelin oligodendrocyte glycoprotein antibody associated disease

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Background

- Fatigue has been well-characterized in multiple sclerosis and is known to be common among people with neuromyelitis optica spectrum disorder.[1,2]
- However, it is unclear whether fatigue is a symptom of myelin oligodendrocyte glycoprotein antibody-associated disease (MOGAD).

Objective

To assess the fatigue severity in people with MOGAD compared to household controls (HC) and identify factors associated with it.

Methods

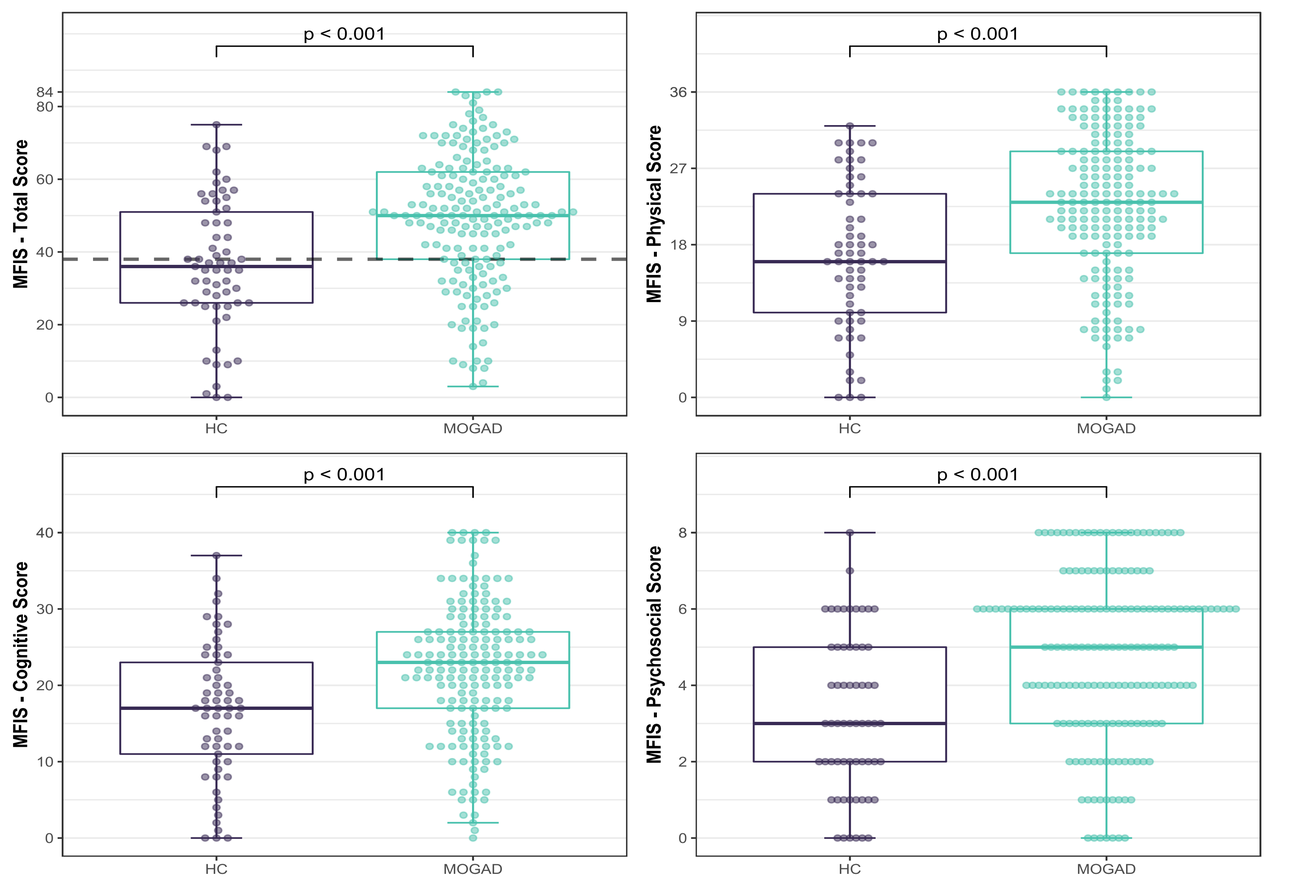
- In a cross-sectional survey, data were collected from self-identified people with MOGAD and HC.
- Survey questionnaires collected information regarding demographics, sleep quality measures, comorbidities, MOGAD characteristics, and fatigue severity measured by the Modified Fatigue Impact Scale (MFIS).[3]
- We compared fatigue severity between MOGAD participants and HC and explored the associations between demographic and disease characteristics and fatigue severity.

Results

Table 1. Demographics and clinical characteristics

Characteristic, n (%)	HC N = 61	MOGAD N = 180	p-value
Sex, Female	37 (61%)	136 (76%)	**0.025**
Age Group			
<25	8 (13%)	30 (17%)	0.31
25-34	9 (15%)	40 (22%)	
35-44	11 (18%)	39 (22%)	
45-54	16 (26%)	40 (22%)	
>54	17 (28%)	31 (17%)	
Race, White/Caucasian	50 (83%)	150 (84%)	0.93
Presence of Fatigue-inducing Comorbidities	16 (26%)	67 (37%)	0.12
Presence of Autoimmune Disease	7 (11%)	39 (22%)	0.08
Sleep Quality			
Presence of Frequent Sleeping Difficulties	28 (47%)	96 (54%)	0.31
<6 hours of sleep	42 (69%)	130 (72%)	0.61
≥4 awakenings	6 (9.8%)	34 (19%)	0.10

Results



Fatigue in HC vs. MOGAD participants. Box plots overlapped by swarm plots of total, physical, cognitive and psychosocial scores of MFIS in HC and MOGAD participants. The dashed horizontal line in first plot denotes the cut-off score (38) of total MFIS for defining fatigue. P-values derived from multivariable linear regression models adjusted for sex, age group, presence of fatigue-inducing comorbidities and presence of increased sleeping difficulties.

Table 2. Multivariable regression analyses (dependent variable: MFIS total score) for MOGAD

Characteristic	Coefficient (95% CI)	p-value
Sex, Male	-2.0 (-8.1 to 4.1)	0.52
Age Group	2.3 (0.2 to 4.5)	**0.04**
Years from diagnosis	0.9 (-2.1 to 4.0)	0.55
Fatigue-inducing Comorbidities	6.4 (0.8 to 11.9)	**0.03**
Hx of Bilateral ON	6.5 (1.3 to 11.8)	**0.02**
Hx of ADEM or encephalitis	0.8 (-5.5 to 7.1)	0.81
On acute treatment	6.0 (0.2 to 11.9)	**0.04**
Chronic Treatment		
None	—	
Oral Immunosuppressants	3.1 (-4.9 to 11.2)	0.44
Immunoglobulins	1.2 (-7.0 to 9.4)	0.78
Biological Agents	3.0 (-4.2 to 10.2)	0.42
Chronic Oral Steroids	6.3 (-28.3 to 40.9)	0.72
Combination of Chronic Treatments	10.6 (-0.01 to 21.1)	0.05

Table 3. Multivariable logistic regression

Dependent variable	MOGAD with OU ON vs HC		MOGAD w/o OU ON vs HC	
	Odds ratio (95% CI)	p-value	Odds ratio (95% CI)	p-value
Presence of Frequent Sleeping Difficulties	1.8 (0.9 to 3.6)	0.09	1.2 (0.6 to 2.3)	0.61
<6 hours of sleep	1.6 (0.7 to 3.4)	0.25	1.1 (0.5 to 2.2)	0.78
≥4 awakenings	3.3 (1.3 to 9.7)	**0.02**	1.9 (0.7 to 5.7)	0.22

Conclusions

- Fatigue is more common in people with MOGAD compared to HC.
- Higher age, bilateral ON history, comorbid conditions, and recent or ongoing disease activity appear to contribute to fatigue severity.
- MOGAD with history of bilateral ON tend to have worse sleep quality compared to HC; this was not observed between MOGAD without bilateral ON history and HC.

References

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