

Plasma Neurofilament Light Chain Is Associated With Decreased Motivation In Mild Cognitive Impairment

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In individuals with mild cognitive impairment (MCI), elevated plasma neurofilament light chain (NfL) levels—a biomarker of axonal injury and neurodegeneration—are specifically associated with decreased motivation, suggesting that motivational symptoms may reflect underlying neuronal damage in prodromal neurodegenerative disease.

INTRODUCTION	METHODS	RESULTS	CONCLUSIONS	REFERENCES
Plasma neurofilament light chain (NfL) is a sensitive, albeit non-specific, biomarker of axonal injury and neurodegeneration. Elevated plasma NfL has been associated with mild behavioral impairment (MBI), a neurobehavioral syndrome that confers increased dementia risk, particularly in individuals with mild cognitive impairment (MCI). However, whether plasma NfL relates to specific MBI domains remains unclear.	Forty-four individuals with MCI underwent plasma NfL quantification and behavioral assessment using the Mild Behavioral Impairment Checklist (MBI-C). Associations between plasma NfL levels and total MBI score, as well as individual MBI domains, were examined using partial Spearman correlations adjusted for age, sex, and APOE ε4 carrier status.	Participants had a mean age of 66.4 years, a mean of 14 years of education, and 56.8% were female; 12 individuals carried at least one APOE ε4 allele. The mean total MBI score was 11.89 (SD=10.86). Higher plasma NfL levels were associated with greater total MBI severity (p=0.349, p=0.040). Among individual MBI domains, only decreased motivation (domain A) showed a significant association with plasma NfL levels (p=0.359, p=0.034).	In individuals with MCI, higher plasma NfL levels are associated with greater behavioral symptom burden, particularly decreased motivation. These findings suggest a potential link between axonal injury and motivational symptoms in prodromal neurodegenerative disease, supporting the relevance of domain-specific behavioral phenotyping in biomarker research.	Gill S, et al. Int J Geriatr Psychiatry. 2021;36(9):1398–1406. Mallo SC, et al. J Alzheimers Dis. 2018;66(1):83–95. Elefante C, et al. J Geriatr Psychiatry Neurol. 2026;39(4):413-425. CONTACT  lucaslb@unicamp.br  ALZHEIMER'S ASSOCIATION AAIC>26