

Assessment of risk factors potentially modifiable for cognitive decline in patients with Multiple Sclerosis

P6755

Carolina Murad Regadas¹, Amandha Alencar Maia Carneiro¹, Milena Gomes Setúbal Freitas¹, Caio Viana Botelho¹, Cíntia Gonçalves Urbano Cavalcante¹, Bruno Diogenes Iepsen¹, Norberto Anizio Ferreira Frota¹, Milena Sales Pitombeira¹
¹Neurology, Hospital Geral de Fortaleza, Fortaleza, Brazil;

INTRODUCTION

The prevalence of cognitive impairment in MS is 30-45% in the relapsing-remitting (RRMS) form⁴ and the cognitive domains most affected are processing speed, episodic memory and executive function.² The Symbol Digit Modalities Test (SDMT) is the gold standard test for assessing cognition in patients with MS⁴. The risk factors described in the literature for cognitive decline in MS are early age of disease onset, male sex, smoking, secondary progressive course and number of brain lesions.

METHODS

This study consisted of a prospective cohort in which patients who met the inclusion criteria were consecutively recruited from September to December 2025 in the neurology department. These patients had a confirmed diagnosis of RRMS, aged between 18 and 50 years and a disease duration of less than or equal to 6 years. Patients with a prior diagnosis of dementia, stroke and decompensated psychiatric disorders were excluded, as well as those who experienced a disease relapse within the last three months. Patient data were collected based on the items of the Brain Care Score³, through an individual interview, and cognitive assessment was performed by administering the SDMT on the same day as the interview.

RESULTS

A total of 39 patients were included in the study, of whom 26 were female. The mean age was 31.3 years, and the mean years of education was 14.1. Cognitive decline was observed in 35.8% of patients, which is consistent with the prevalence reported in the literature. Seven of the fourteen potentially modifiable risk factors for dementia¹ were analyzed.

CONCLUSIONS

The most frequent risk factors for cognitive decline in our study were overweight/obesity and stress. Further studies with larger populations are needed to clarify which potentially modifiable factors are more associated with a higher risk of cognitive impairment in patients with RRMS.

REFERENCES

1) LIVINGSTON, Gill et al. Dementia prevention, intervention, and care: 2024 report of the Lancet standing Commission. Lancet Neurology, vol. 404, p. 572-628, 2024. 2) BENEDICT, Ralph H. B. et al. Risk factors for and management of cognitive dysfunction in multiple sclerosis. Nature Reviews Neurology, vol. 7, p. 332–342, 2011. 3) RIVIER, Cyprien A. et al. Brain Care Score and Neuroimaging Markers of Brain Health in Asymptomatic Middle-Age Persons. Neurology, vol. 103, n.4, 2024. 4) BENEDICT, Ralph H. B. et al. Cognitive impairment in multiple sclerosis: clinical management, MRI, and therapeutic avenues. Lancet Neurology, vol. 19, n. 10, p. 860-871, 2020. 5) OREJA-GUEVARA, Celia et al. Cognitive Dysfunctions and Assessments in Multiple Sclerosis. Frontiers in neurology, vol. 10, 581, 2019. 6) AMATO, Maria P. et al. Cognitive impairment in multiple sclerosis: An exploratory analysis of environmental and lifestyle risk factors. PLOS ONE, vol. 14, n. 10, 2019. 7) GRZEGORSKI, Tomasz et al. Cognitive impairment in multiple sclerosis - a review of current knowledge and recent research. Review.s in the neurosciences, vol. 28, n. 8, p. 845-860, 2017. 8) SELWA, Linda M. et al. The Neurologist’s Role in Promoting Brain Health. Neurology, vol. 104, n. 1, 2025. 9) SINGH, Sanjula D. et al. Brain health begins with brain care. 10) SINGH, Sanjula D. et al. The predictive validity of a Brain Care Score for dementia and stroke: data from the UK Biobank cohort. Frontiers in neurology, vol. 14, 2023.



TAKE-HOME MESSAGE

The modifiable risk factors for dementia are already well documented, as are those for brain health in Alzheimer's disease, but we still don't know the impact of these factors on cognition in other diseases, such as Multiple Sclerosis (MS).

Characteristic	Total group (N=39)	With cognitive decline** (N=14)	Without cognitive decline (N=25)
Age (years)	31.3 ±7.8	33.5 ±8.3	30 ±7.4
Female sex — no. (%)	26 (66.6)	9 (64.2)	17 (68)
Years of education	14.1 ±2.7	14.3 ±3.6	14 ±2.1
SDMT crude value	41.4 ±12.7	30.4 ±8.5	47.6 ±10.3
Tobacco use — no. (%)	3 (7.6)	1 (7.4)	2 (8)
Alcohol use — no. (%)	10 (25.6)	4 (28.5)	6 (24)
Physical inactivity — no. (%)	16 (41.1)	4 (28.5)	12 (48)
Sleep > 7 hours per day — no. (%)	28 (71.7)	11 (78.5)	17 (68)
Stress — no. (%)	25 (64.1)	9 (64.2)	16 (64)
Social isolation — no. (%)	5 (12.9)	2 (14.2)	3 (12)
Body-mass index***	27.6 ±4.8	27.5 ±4	27.6 ±5.3

CONTACT

 **Amandha Alencar Maia Carneiro**
Neurologist
General Hospital of Fortaleza
 aalencar803@gmail.com