

The language profile in multiple system atrophy: an exploratory study

*Sofia Cuoco*¹, M. Picillo¹, I. Carotenuto¹, R. Erro¹, E. Catricalà², S. Cappa^{2,3}, M.T. Pellecchia¹, P. Barone¹

¹Center for Neurodegenerative Diseases (CEMAND), Department of Medicine, Surgery and Dentistry, Neuroscience section, University of Salerno, Salerno, Italy

²University School for Advanced Studies IUSS Pavia, Pavia, Italy

³IRCCS Fondazione Mondino, Pavia, Italy

Background: The evidence about the language performance profile of multiple system atrophy (MSA) is limited [1], but its definition may lead to a more comprehensive characterization of the disorder and contribute to clarify the involvement of the basal ganglia in language abilities [2].

Objective: The objectives of the study were: 1) to evaluate the reliability of the Screening for Aphasia in NeuroDegeneration (SAND) [3] in MSA patients; 2) compare the linguistic profiles among MSA and Parkinson's disease (PD) patients and healthy controls (HC), and 3) assess relationships between language impairment and cognitive status and MSA motor subtypes.

Methods and results: Forty patients with a diagnosis of MSA, 22 HC and 17 patients with PD were enrolled in the present study. By excluding the writing task that showed a poor acceptability, we showed that the MSA-tailored SAND Global Score is an acceptable, consistent and reliable tool to screen language disturbances in MSA. MSA patients performed worse than HC, but not than PD, in MSA-tailored SAND Global Score, repetition, reading and semantic association tasks. We did not find significant differences between MSA phenotypes. MSA patients with mild cognitive impairment multiple domain presented worse language performances as compared to MSA patients with normal cognition and mild cognitive impairment-single domain.

Conclusions: The MSA-tailored SAND Global Score is a consistent and reliable tool to screen language disturbances in MSA. Language disturbances characterize MSA patients irrespective of disease phenotype, and parallel the decline of global cognitive functions.

References

[1] I Stankovic, F Krismer, A Jesic, A Antonini, T Benke, RG Brown, DJ Burn, JL Holton, H Kaufmann, VS Kostic, H Ling, WG Meissner, W Poewe, M Semnic, K Seppi, A Takeda, D Weintraub, GK Wenning, Movement Disorders Society MSA (MODIMSA) Study Group. Cognitive impairment in multiple system atrophy: a position statement by the Neuropsychology Task Force of the MDS Multiple System Atrophy (MODIMSA) study group. *Movement Disorders*, 29(7) (2014) 857-67. doi:10.1002/mds.25880. Epub 2014 Apr 18. Review. PubMed PMID: 24753321.

[2] JF Cardona, O Gershanik, C Gelormini-Lezama, AL Houck, S Cardona, L Kargieman, N Trujillo, A Arévalo, L Amoroso, F Manes, A Ibáñez, Action-verb processing in Parkinson's disease: New pathways for motorelanguage coupling. *Brain Structure and Function*, 218(6) (2013) 1355e1373. Doi: 10.1007/s00429-013-0510-1.

[3] E Catricalà, E Gobbi, P Battista, A Miozzo, C Polito, V Boschi, V Esposito, S Cuoco, P Barone, S Sorbi, SF Cappa, P Garrard, SAND: a Screening for Aphasia In NeuroDegeneration. Development and normative data. *Neurological Science*, 38(8) (2017) 1469-1483. doi: 10.1007/s10072-017-3001-y. Epub 2017 Jun 4. PubMed PMID: 28578483.