

Neuropsychological correlates of theory of mind in patients with dystonia: a preliminary study

*Alfonsina D'Iorio*¹, G. Scotto di Tella¹, C. Giacobbe¹, F. Ferraiuolo¹, A. Trinchillo³, G. Santangelo¹, M. Esposito²

¹Department of Psychology, University of Campania "Luigi Vanvitelli", Caserta, Italy

²Clinical Neurophysiology Unit, Cardarelli Hospital, Naples, Italy

³Department of Neurosciences, Reproductive Sciences and Odontostomatology, University of Naples Federico II, Naples, Italy

Introduction: Dystonia is a neurological disorder characterized by motor symptoms that can lead to severe disability and affect quality of life. Recently, great attention has been placed on neuropsychological and social cognitive impairment in idiopathic and isolated dystonia. In detail, theory of mind (ToM) refers to an individual's ability to attribute mental states, to predict and explain another person's behavior, and this ability has been poorly explored in dystonia. Indeed, only one study found that ToM abilities were impaired [1] and no study explored the neuropsychological correlates of ToM in dystonia.

Objectives: The aim of this study was to investigate the neuropsychological correlates of ToM in idiopathic dystonia.

Methods: 10 patients with adult onset of focal idiopathic dystonia (FID) and 10 healthy subjects (HCs) underwent a neuropsychological battery assessing memory, visuospatial abilities, attention, language and executive functions. ToM was assessed with the Italian versions of the Eyes Test (ET), the ToM stories and the Emotion Attribution Task Stories (EAT).

Results: Mann-Whitney U test revealed significantly lower scores in FID compared to HCs on the EAT and ToM stories. Moreover, significant correlations in patients group were found between ToM stories and TMT-A, visual search and Benton test; between EAT and the delayed recall of a short story of Anna Pesenti (SSAP) and the TMT B-A; between ET and SSAP, Token test and the Dimensional Apathy Scale (DAS).

Conclusion: These preliminary results showed worse performances in tasks assessing ToM in patients affected by FID as compared to HCs. Moreover, ToM abilities in dystonia were related to several cognitive functions and psychiatric symptoms. Specifically, when ToM material was presented within a specific visual context (stories test), patients recruited visuospatial processing and attentional resources; on the other hand, when context needed to be inferred (EAT and ET), patients relied on memory, comprehension and divided attention. Finally, a worse performance in ET task was related to more severe apathetic symptoms.

References:

[1] Lagravinese G, Santangelo G, Bonassi G, Cuoco S, Marchese R, Di Biasio F, Erro R, Pelosin E, Avanzino L. Affective and cognitive theory of mind in patients with cervical dystonia with and without tremor. *J Neural Transm* (Vienna). 2021 Feb;128(2):199-206.