# Non-Motor Symptoms in Cervical Dystonia: A Concept in Evolution

Non-motor symptoms (NMS) are now recognized as a key determinant of quality of life and disability in movement disorders, independent in their own right and not merely a secondary accompaniment to motor symptoms. NMS are well-characterized in the natural history of Parkinson's disease,[1] but are also being increasingly reported in other movement disorders, including all forms of dystonia. Although NMS can occur with dystonia, unlike motor features, they are less clearly defined, despite their impact on patients' quality of life.[2] In this issue, Ray *et al*. reviewed the non-motor phenomenology in cervical dystonia (CD).[3] As dystonia is considered to be a spectrum of conditions rather than a single entity, segregation of non-motor phenomenology of this specific dystonia subtype is a challenging exercise. The authors found that the most common NMS associated with CD are anxiety, depression, sleep problems, pain, and sexual dysfunction. While some non-motor features could be linked to motor disturbances and subsequent disability, many of them, such as depression and anxiety, are independent from motor dysfunction and disease duration, suggesting that they may be primary phenotypic components of this condition. Likewise, the lack of a link between cognitive deficits and severity of motor symptoms indicates that mild cognitive decline may also be an independent component of the dystonia spectrum.[4] In the review, Ray *et al*. point out a range of NMS that may occur in CD, such as cognitive deficits, neuropsychiatric issues as well as sleep dysfunction, including Restless Legs Syndrom.[3] There are also aspects that need to be additionally considered. It is worth noting that some studies have reported that some non-motor characteristics, such as psychiatric disorders or sensory abnormalities, could precede motor symptoms onset, suggesting the presence of a prodromal state also in CD. Other associated non-motor features, such as hyposmia, autonomic dysfunction, and fatigue, are also important and the recently published, comprehensive, and reproducible tool for the early identification of NMS in CD, the Dystonia Non-Motor Symptoms Questionnaire (DNMSQuest), would detect such NMS usually missed in routine consultations.[5] Identification of NMS by using the DNMSQuest could subsequently signpost new mechanistic studies aiming to define whether the neural circuits involved are similar to the perturbated circuits related to motor manifestations (cortico–striatal–thalamo–cortical and cortico–cerebellar circuitry).[4] Of note, as the majority of the NMS highlighted in this review have been linked to a hypo-serotonergic state in Parkinson's disease (depression, anxiety, fatigue, sleep, and sexual dysfunction),[6] it would be intriguing to explore the possible contribution of serotonergic dysfunction also in CD. This could be possible using previous Parkinson's studies as an example.

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## Conflicts of interest

There are no conflicts of interest.

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