Dystonia

Neurological movement disorder, in which sustained muscle contractions cause twisting and repetitive movements or abnormal postures.

The movements may resemble a tremor.

Epidemiology

The prevalence of dystonia has been studied since the 1980s. Due to different methodologies and due to varying degrees of awareness, resulting figures have been extremely different. Dressler et al. wanted to determine the prevalence of dystonia according to its current definition, using quality-approved registries and based on its relevance for patients, their therapy and the health care system. They applied a service-based chart review design with the City of Hannover as reference area and a population of 525,731. Barrier-free comprehensive dystonia treatment in few highly specialised centres for the last 30 years should have generated maximal dystonia awareness, a minimum of unreported cases and a high degree of data homogeneity. Prevalence [n/1mio] and relative frequency is 601.1 (100%) for all forms of dystonia, 251.1 (42%) for cervical dystonia, 87.5 (15%) for blepharospasm, 55.2 (9%) for writer's cramp, 38.0 (6%) for tardive dystonia, 32.3 (5%) for musician's dystonia, 28.5 (5%) for psychogenic dystonia, 26.6 (4%) for generalised dystonia, 24.7 (4%) for spasmodic dysphonia, 20.9 (3%) for segmental dystonia, 15.2 (3%) for arm dystonia and 13.3 (2%) for oromandibular dystonia. Leg dystonia, hemidystonia and complex regional pain syndrome-associated dystonia are very rare. Compared to previous meta-analytical data, primary or isolated dystonia is 3.3 times more frequent in thisstudy. When all forms of dystonia including psychogenic, generalised, tardive and other symptomatic dystonias are considered, the dystonia prevalence is 3.7 times higher than believed before. The real prevalence is likely to be even higher. Having based the study on treatment necessity, the data will allow better allocation of resources for comprehensive dystonia treatment [1)].

Classification

Dystonia Classification.

Etiology

The disorder may be hereditary or caused by other factors such as birth-related or other physical trauma, infection, poisoning (e.g., lead poisoning) or reaction to pharmaceutical drugs, particularly neuroleptics.

Histone lysine methylation, mediated by mixed-lineage leukemia (MLL) proteins, is now known to be critical in the regulation of gene expression, genomic stability, cell cycle and nuclear architecture. Despite MLL proteins being postulated as essential for normal development, little is known about the

specific functions of the different MLL lysine methyltransferases.

Meyer et al., we report heterozygous variants in the gene KMT2B (also known as MLL4) in 27 unrelated individuals with a complex progressive childhood-onset dystonia, often associated with a typical facial appearance and characteristic brain magnetic resonance imaging findings. Over time, the majority of affected individuals developed prominent cervical, cranial and laryngeal dystonia. Marked clinical benefit, including the restoration of independent ambulation in some cases, was observed following deep brain stimulation (DBS). These findings highlight a clinically recognizable and potentially treatable form of genetic dystonia, demonstrating the crucial role of KMT2B in the physiological control of voluntary movement [2)].

Children with cerebral palsy (CP) can present with severe secondary dystonia with or without associated spasticity of their extremities.

Progressive supranuclear palsy.

Postconcussive syndrome.

Side effects of VIM Stimulation

Pathophysiology

Dystonia Pathophysiology

Clinical features

Dystonia is often initiated or worsened by voluntary movements, and symptoms may “overflow” into adjacent muscles.

Dystonia Rating Scale

see Dystonia Rating Scale.

Treatment

see Dystonia treatment.

Outcome

Response is better for primary dystonias than for secondary dystonias. [3].

Good responses have also been reportes with subthalamic nucleus deep brain stimulation.

DBS as treatment for medication-refractory dystonia, on the other hand, may increase the risk of suicide in patients. However, reference data of patients without DBS therapy are lacking.

Case series

Dystonia case series.

1)
Dressler D, Altenmüller E, Giess R, Krauss JK, Adib Saberi F. The epidemiology of dystonia: the Hannover epidemiology study. J Neurol. 2022 Aug 11. doi: 10.1007/s00415-022-11310-9. Epub ahead of print. PMID: 35948800.
2)
Meyer E, Carss KJ, Rankin J, Nichols JM, Grozeva D, Joseph AP, Mencacci NE, Papandreou A, Ng J, Barral S, Ngoh A, Ben-Pazi H, Willemsen MA, Arkadir D, Barnicoat A, Bergman H, Bhate S, Boys A, Darin N, Foulds N, Gutowski N, Hills A, Houlden H, Hurst JA, Israel Z, Kaminska M, Limousin P, Lumsden D, McKee S, Misra S, Mohammed SS, Nakou V, Nicolai J, Nilsson M, Pall H, Peall KJ, Peters GB, Prabhakar P, Reuter MS, Rump P, Segel R, Sinnema M, Smith M, Turnpenny P, White SM, Wieczorek D, Wiethoff S, Wilson BT, Winter G, Wragg C, Pope S, Heales SJ, Morrogh D; UK10K Consortium.; Deciphering Developmental Disorders Study.; NIHR BioResource Rare Diseases Consortium., Pittman A, Carr LJ, Perez-Dueñas B, Lin JP, Reis A, Gahl WA, Toro C, Bhatia KP, Wood NW, Kamsteeg EJ, Chong WK, Gissen P, Topf M, Dale RC, Chubb JR, Raymond FL, Kurian MA. Mutations in the histone methyltransferase gene KMT2B cause complex early-onset dystonia. Nat Genet. 2016 Dec 19. doi: 10.1038/ng.3740. [Epub ahead of print] PubMed PMID: 27992417.
3)
Awan NR, Lozano A, Hamani C. Deep brain stimulation: current and future perspectives. Neurosurg Focus. 2009 Jul;27(1):E2. doi: 10.3171/2009.4.FOCUS0982. Review. PubMed PMID: 19569890.