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Recently identified or confirmed forms of paroxysmal movement disorders

Designation	Less common movement phenotype	Clinical clues	OMIM	MOI
Predominant dyskinesia				
PxMD-*KCNMA1*[1, 2]		Paroxysmal non-kinesigenic dyskinesia including dystonic and choreiform movements of mouth, tongue and extremities. Triggered by alcohol, fatigue, or stress, although no clear trigger in some individuals. Developmental delay, generalized epilepsy	609446	AD
Predominant dystonia				
PxMD-*ECHS1*[3-7]	Ataxia, spasticity	Leigh syndrome; onset before age 10, paroxysmal dystonia triggered by high metabolic demand (exercise, fever, low calorie intake), developmental delay, acute episodes of encephalopathy, increased plasma lactate, and urinary excretion of organic acids	616277	AR
Disorders that usually present with other phenotypes but can have predominant paroxysmal dyskinesias				
MYC/PxMD-*SCN8A*[A,8]	Ataxia	Paroxysmal kinesigenic dyskinesia, seizure disorder (wide spectrum with benign infantile seizures in some and epileptic encephalopathy in others), intellectual disability	617080	AD

AD = autosomal dominant, AR = autosomal recessive, MOI = mode of inheritance, OMIM = Online Mendelian Inheritance in Man (https://www.omim.org/about)

[A] Mutations in this gene can also cause Familial Myoclonus Type 2 (OMIM 618364; Table 5), autosomal-dominant cognitive impairment with or without cerebellar ataxia (OMIM 614306), and/or autosomal-dominant developmental and epileptic encephalopathy 13 (DEE13, OMIM 614558).

References

1. Du W, Bautista JF, Yang H, et al. Calcium-sensitive potassium channelopathy in human epilepsy and paroxysmal movement disorder. Nat Genet 2005;37(7):733-738.

2. Zhang ZB, Tian MQ, Gao K, Jiang YW, Wu Y. De novo KCNMA1 mutations in children with early-onset paroxysmal dyskinesia and developmental delay. Mov Disord 2015;30(9):1290-1292.

3. Olgiati S, Skorvanek M, Quadri M, et al. Paroxysmal exercise-induced dystonia within the phenotypic spectrum of ECHS1 deficiency. Mov Disord 2016;31(7):1041-1048.

4. Mahajan A, Constantinou J, Sidiropoulos C. ECHS1 deficiency-associated paroxysmal exercise-induced dyskinesias: case presentation and initial benefit of intervention. J Neurol 2017;264(1):185-187.

5. Marti-Sanchez L, Baide-Mairena H, Marce-Grau A, et al. Delineating the neurological phenotype in children with defects in the ECHS1 or HIBCH gene. J Inherit Metab Dis 2021;44(2):401-414.

6. Masnada S, Parazzini C, Bini P, et al. Phenotypic spectrum of short-chain enoyl-Coa hydratase-1 (ECHS1) deficiency. Eur J Paediatr Neurol 2020;28:151-158.

7. Illsinger S, Korenke GC, Boesch S, et al. Paroxysmal and non-paroxysmal dystonia in 3 patients with biallelic ECHS1 variants: Expanding the neurological spectrum and therapeutic approaches. Eur J Med Genet 2020;63(11):104046.

8. Tian WT, Huang XJ, Mao X, et al. Proline-rich transmembrane protein 2-negative paroxysmal kinesigenic dyskinesia: Clinical and genetic analyses of 163 patients. Mov Disord 2018;33(3):459-467.