

Recognizing AADC deficiency in your patients



Learn how to detect and confirm this rare genetic disorder

Aromatic L-amino Acid Decarboxylase (AADC) deficiency is an autosomal recessive disorder associated with defects in neurotransmitter synthesis, resulting in profound motor and autonomic dysfunction and developmental delay.¹⁻³



Many symptoms of AADC deficiency are similar to the symptoms of other more common conditions, making diagnosis a challenge.¹⁻⁴

Key differentiating signs and symptoms

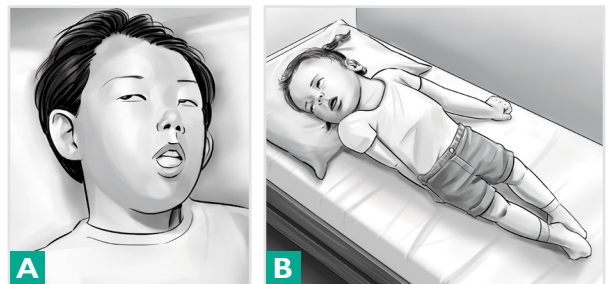
One or a combination of red-flag diagnostic clues should prompt investigation for AADC deficiency.

A 2010 study (n=78) recorded the prevalence of these common symptoms, which can help to identify AADC deficiency.¹



Oculogyric crisis¹

- › Occurred in 86% of patients (n=67/78)¹
- › Episodes of sustained upward or lateral deviation of the eyes, rhythmic orofacial movements, backward and lateral flexions of the neck, tongue protrusion, and jaw spasms that can sometimes be confused with seizures^{5,6}
- › Can occur several times a day or several times a week, and last from a few seconds to hours⁶
- › Often confused with a seizure, epilepsy, or cerebral palsy^{6,7}



Illustrations depicting (A) an oculogyric crisis and (B) involuntary movements that may accompany an episode



Normal EEG and neuroimaging^{1,2,4,8,9,a}

- › History of normal EEG, MRI, or CT
- › Inconsistent with presentation



Diurnal variation^{2,10,11}

- › Motor symptoms become exacerbated or more prominent late in the day^{10,11}
- › Symptoms improve with sleep^{10,11}



Autonomic symptoms¹

- › Hyperhidrosis (65%; n=51/78)
- › Hypersalivation (41%; n=32/78)
- › Ptosis (39%; n=30/78)
- › Nasal congestion (31%; n=24/78)

^aSome patients presented with abnormalities in imaging (24/78) and EEG (10/78).¹

CT=computed tomography; EEG=electroencephalogram; MRI=magnetic resonance imaging.

Common signs and symptoms

Hypotonia¹

- Present in 95% of patients (n=74/78)¹
- Most commonly reported symptom¹

Developmental delays¹

- Present in 63% of patients (n=49/78)¹
- May include impairments in head control, crawling, or standing, and speech delays^{2,12}

Movement disorders¹

- Dystonia (53%; n=41/78)
- Hypertonia (44%; n=35/78)
- Hypokinesia (32%; n=25/78)

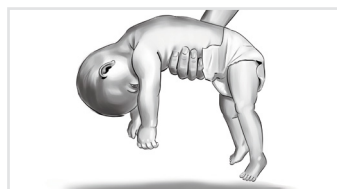


Illustration of hypotonia

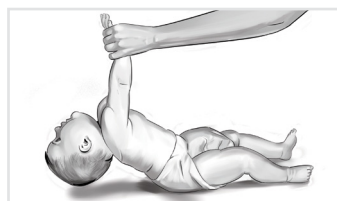


Illustration depicting developmental delay and/or dystonia; lack of head control or dystonic posturing of body

Diagnosing AADC deficiency

Currently, these core tests can help diagnose AADC deficiency²:

- CSF neurotransmitter metabolite panel
- Plasma enzyme activity assay
- Genetic testing



Current consensus guidelines recommend CSF neurotransmitter metabolite panel and/or plasma AADC enzyme activity assay in combination with genetic testing to confirm AADC deficiency.²

For further information on signs and symptoms, testing, and diagnosing AADC deficiency in your patients, visit [AADCInsights.eu](https://www.aadcinsights.eu).

CSF=cerebrospinal fluid.

References: **1.** Brun L, Ngu LH, Keng WT, et al. Clinical and biochemical features of aromatic L-amino acid decarboxylase deficiency. *Neurology*. 2010;75(1):64-71. **2.** Wassenberg T, Molero-Luis M, Jeltsch K, et al. Consensus guideline for the diagnosis and treatment of aromatic L-amino acid decarboxylase (AADC) deficiency. *Orphanet J Rare Dis*. 2017;12(1):12. doi:10.1186/s13023-016-0522-z. **3.** Manegold C, Hoffmann GF, Degen I, et al. Aromatic L-amino acid decarboxylase deficiency: clinical features, drug therapy and follow-up. *J Inherit Metab Dis*. 2009;32(3):371-380. **4.** Zouvelou V, Yuberou D, Apostolakopoulou L, et al. The genetic etiology in cerebral palsy mimics: the results from a Greek tertiary care center. *Eur J Paediatr Neurol*. 2019;23(3):427-437. doi:10.1016/j.ejpn.2019.02.001. **5.** Hwu W-L, Lee N-C, Chien Y-H, et al. AADC deficiency: occurring in humans, modeled in rodents. *Adv Pharmacol*. 2013;68:273-284. **6.** Pons R, Ford B, Chiriboga CA, et al. Aromatic L-amino acid decarboxylase deficiency: clinical features, treatment, and prognosis. *Neurology*. 2004;62(7):1058-1065. **7.** Lee W-T. Disorders of monoamine metabolism: inherited disorders frequently misdiagnosed as epilepsy. *Epilepsy Seizure*. 2010;3(1):147-153. doi:10.3805/eands.3.147. **8.** Kurian MA, Dale RC. Movement disorders presenting in childhood. *Continuum (Minneapolis)*. 2016;22(4):1159-1185. **9.** Himmelreich N, Montioli R, Bertoldi M, et al. Aromatic amino acid decarboxylase deficiency: molecular and metabolic basis and therapeutic outlook. *Mol Genet Metab*. 2019;127(1):12-22. doi:10.1016/j.ymgme.2019.03.009. **10.** Ng J, Papandreou A, Heales SJ, et al. Monoamine neurotransmitter disorders—clinical advances and future perspectives. *Nat Rev Neurol*. 2015;11(10):567-584. **11.** Pearson TS, Pons R, Ghaoui R, Sue CM. Genetic mimics of cerebral palsy. *Mov Disord*. 2019;34(5):625-636. **12.** Hwu W-L, Chien Y-H, Lee N-C, et al. Natural history of aromatic L-amino acid decarboxylase deficiency in Taiwan. *JIMD Rep*. 2018;40:1-6. doi:10.1007/8904_2017_54.

The PTC logo is a trademark of PTC Therapeutics.

© 2021 PTC Therapeutics. All rights reserved. AE-AADC-0256 | Jan 2021

Intended for healthcare professionals only.

PTC
THERAPEUTICS™