Clinical commentary

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Electroclinical phenotypes and outcomes in *TBC1D24*-related epilepsy

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Epileptic Disorders

TBC1D24-Related Epilepsy

- *TBC1D24* is an autosomal recessive gene associated with variable clinical phenotypes including non-syndromic hearing loss and drug-resistant epilepsy.
- The *TBCD124* gene encodes a member of the Tre2-Bub2-Cdc16 (TBC) domain-containing RAB-specific GTPase activating protein expressed in the CNS. It functions to coordinate Rab proteins and other GTPases for normal transport of intracellular vesicles.
- Epilepsy phenotypes described with *TBC1D24* mutations include familial infantile myoclonic epilepsy, epilepsy of infancy with migrating focal seizures (EIMFS), and DOORS (deafness, onychodystrophy, osteodystrophy, intellectual disabilities, and seizures) syndrome.

Epileptic Disorders

TBC1D24-Related Epilepsy

- Our series demonstrates four children with previously unreported variants in the *TBC1D24* gene. Clinical phenotypes observed include drug-resistant focal epilepsy, myoclonic seizures and myoclonic status epilepticus, developmental regression, and head growth deceleration.
- Ictal patterns appeared diverse, and interictal-ictal transitions were often indiscrete and prone to electroclinical dissociation. These characteristics represent unique challenges in the recognition of seizure onset in these patients and the appropriate treatment escalation.
- Further clinical and electrographic descriptions of patients with *TBC1D24*-related epilepsies, as well as in-depth biochemical studies of the TBC1D24 protein, may shed further insight into the pathophysiology of this epilepsy gene and provide guidance in terms of appropriate prognostication and therapies.

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