DESCRIBING NEUROLOGIC AND NEURODEVELOPMENTAL PROFILES OF PEDIATRIC PATIENTS WITH PHELAN MCDERMID SYNDROME

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Background: The objective of this research is to describe the developmental trajectory of individuals with Phelan McDermid Syndrome with and without epilepsy and correlate developmental progression with genetic variation and neurophysiologic data. Phelan McDermid Syndrome is associated with loss of function mutations in the SHANK3 gene located on chromosome 22q13 resulting in neonatal hypotonia, developmental delays, behavioral impairments and mild dysmorphic features

Materials/Methods: A complete retrospective chart review and clinical data analysis of individuals with Phelan McDermid confirmed by genetic testing seen at Texas Children's Hospital was conducted. The data researched included genetic variant, clinical and developmental history, physical examination, neurophysiologic data, neuroimaging and neurodevelopmental assessments.

Results: Thirty-three individuals with Phelan McDermid were identified. The mean age of diagnosis was 64 months (range 1-120 months). Eleven individuals (33%) had epilepsy with the average age of onset being 9.86 months and the most common semiology being typical absence (33%). Fourteen (42%) had diagnosis of autism spectrum disorder (ASD). Eighteen individuals (7 with epilepsy) underwent standardized developmental assessments and all had neurodevelopmental impairments with language being most severely affected (developmental quotient range 4-33%, average 17.2%). Thirteen individuals (39%) had developmental regression with the most common domain affected being language. Four of 13 had epilepsy (31%) and only 5 of the 13 (38%) had a diagnosis of ASD. There was no correlation between EEG findings, specifically the posterior dominant rhythm, and developmental phenotype. Based on developmental history, the average age of sitting unsupported was 9.9 months, average age of walking was 22.7 months, and average age at first word was 39.1 months.

Conclusions: We present the developmental phenotype and trajectory of a cohort of pediatric patients with Phelan McDermid syndrome. Developmental delays are well described in the literature, however developmental regression was a common finding in this cohort and does not correlate with a diagnosis of epilepsy or autism spectrum disorder.