improved and she spoke her first words. At the last follow-up, she had been seizure-free for >4 months, without adverse events. This case illustrates a novel approach to seizure treatment using a rapid identification of genetic mutation (in KCNT1) that can lead to targeted treatments (quinidine acts as a pore blocker, normalizing pathological potassium conductance in mutant KCNT1 channels). (Bearden D, Strong A, Ehnot J, DiGiovine M, Dlugos D, Goldberg EM. Targeted treatment of migrating partial seizures of infancy with quinidine. **Ann Neurol** 2014 Sep;76(3):457-61).

COMMENTARY. MPSI is an early onset epileptic encephalopathy characterized by randomly migrating focal seizures and psychomotor deterioration. Death, usually from intractable seizures or respiratory complications, often occurs within the first years of life [1]. MPSI is associated with mutations in a variety of genes, most commonly KCNT1, a known target of some cardiac drugs, including quinidine. The authors caution that quinidine exhibits drug interactions, inhibiting the metabolism of many antiepileptic medications. QT prolongation is a common adverse effect, necessitating close EKG monitoring.

**References.**

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## DEMYELINATING DISORDERS

## COGNITIVE OUTCOME OF CHILDHOOD-ONSET MULTIPLE SCLEROSIS PATIENTS

Investigators on behalf of the MS Study Group of the Italian Neurological Society performed a third cognitive assessment on 48 of 63 patients with childhood or juvenile MS in the original cohort and compared with 46 healthy controls. At year 5, 38% of the subjects with MS had cognitive impairment (defined as the failure of =/>3 tests). Between years 2 and 5, 66.7% of patients showed improvement on the individual cognitive impairment index. However, comparing baseline and 5-year testing, cognitive impairment index deterioration occurred in 56% of the patients, improvement in 25%, and stability in 18.8%. Deteriorating performance was related to male sex, younger age and age at MS onset, and lower education. On multivariate analysis, none of these variables was demonstrated. Systematic neuropsychological screening is recommended in this population of pediatric–onset MS patients showing a heterogeneous cognitive outcome. (Amato MP, Goretti B, Ghezzi A, et al. Neuropsychological features in childhood and juvenile multiple sclerosis. **Neurology** 2014 Oct;83(16):1432-8).

COMMENTARY. Pediatric-onset MS (POMS) represents 3% to 5% of the whole MS population, and one third of the POMS population has cognitive impairment. MS-related cognitive problems are attributed to their occurrence during periods of brain growth, myelination, and neural-network maturation [1]. MRI studies show reduced brain volume, and reduced thalamic volume and reduced corpus callosal area can distinguish children with cognitive impairment from those with intact cognitive performance [2][3].

**References.**
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# CONGENITAL MALFORMATIONS

## MUSIC AFFINITY IN WOLF-HIRSCHHORN SYNDROME

Investigators at Nihon University School of Medicine, Tokyo, Japan, report two patients with Wolf-Hirschhorn syndrome (WHS) who have a strong affinity for music, not previously described as a feature of this syndrome. WHS is a congenital malformation syndrome that results from deletion of the short arm of chromosome 4, and is characterized by a "Greek warrior helmet" appearance, growth retardation, developmental delay, muscular hypotonia, epilepsy, and a language disorder involving verbal communication. *Patient 1*, a 20-year-old woman with developmental delay, presented with status epilepticus with fever at age 9 months and followed by simple and/or complex partial seizures up to 8 times daily, triggered by fever or bathing. Brain MRI at 7 years of age was normal. Seizures were partially controlled with AEDs by 4 years of age and stopped at age 13 years. Her mother first reported an affinity for music at age 2 years 3 months. *Patient 2*, a 9 year-old girl was diagnosed with WHS soon after birth because of her craniofacial features, and was confirmed by chromosomal analysis. She sat at 4 years and stood with support at 9 years of age. She presented with status epilepticus with fever at age 5 months, followed by afebrile seizures and recurrent status with fever, finally controlled at 34 months. Brain MRI at age 33 months showed reduced white matter volume. Major dysfunctions included atrial septal defect, vesicoureteral reflux, clubfoot, and eating difficulty. She cannot understand or speak words and has autistic behaviors. Listening to music had a calming effect since infancy, and music therapy started at age 5 years was followed by improvement in communication skills (eye contact, attention, and vocalizations). (Arakawa C, Fujita Y, Fuchigami T, et al. Affinity for music in Wolf-Hirschhorn syndrome: Two case reports. **Pediatr Neurol** 2014 Oct;51(4):550-2).

COMMENTARY. Music therapy is used in the treatment of autism and in other behavioral and developmental disorders [1]. Williams syndrome (WS), resulting from deletion of the long arm of chromosome 7, has a much higher incidence than WHS, and an increase in musical interest and ability associated with WS is widely known [2]. A functional MRI study of the musical affinity of patients with WS shows an association with increased activation of the right amygdala [2].

**Distinctive spectrum of epilepsy and electroencephalogram patterns in WHS.**

Analysis of 87 patients (54 females, 33 males; median age 3.6 years; range 1-25 years) with confirmed 4p16.3 deletion and WHS syndrome found 93% developed epilepsy in the first 3 years of life. Seizure patterns were generalized tonic-clonic in 74%, tonic spasms in 18%, complex partial in 12%, and clonic in 7%. Seizures were triggered by fever in 73% and occurred in clusters and as febrile status epilepticus in 50% during the first 3 years of life. Atypical absence seizures accompanied by myoclonus of the