What Is Dravet.org?

Dravet.org is the foremost global patient advocate organization for Dravet Spectrum Disorders, providing:

- promotion and funding of medical research to find effective treatment and cure;
- medical updates and education enabling patients to get effective testing and treatments;
- patient advocacy and compliance assistance and counseling;
- financial assistance for medication reimbursement;
- family networking, emotional support and hope; and
- resources to empower parents to provide a lifetime of care for their child.

Dravet.org recognizes the mutual benefits of partnering with researchers, doctors, physician assistants, nurses, pharmaceutical companies, and the entire medical industry. It is our goal to further all understanding and treatment of Dravet Spectrum Disorders.

You can help! Because the Dravet.org is a non-profit, charitable organization, support from the community and those with an interest in Dravet Spectrum Disorders is crucial for us to achieve our goals. Please visit us at www.dravet.org and consider joining Dravet.org, volunteering time or resources, or providing financial support. Donations are tax-deductible within the USA.

helping the **PATIENT**
while finding the **CURE**

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formerly known as the IDEA League

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Dravet Spectrum Disorders

an overview for physicians

What are Dravet Spectrum Disorders?

Dravet Spectrum Disorders describe a group of related epilepsies having a similar genetic cause, most commonly mutations in the SCN1A gene which encodes a sodium ion channel, NaV1.1, found in the brain. The Dravet Spectrum Disorders include the following syndromes, listed from least severe to most severe:

- Familial Febrile Seizures (FS)
- Generalized Epilepsy with Febrile Seizures Plus (GEFS+)
- Intractable Childhood Epilepsy with Generalized Tonic Clonic Seizures (ICE-GTC)
- Severe Infantile Multifocal Epilepsy (SIMFE)
- Severe Myoclonic Epilepsy Borderline (SMEB)
- Severe Myoclonic Epilepsy of Infancy (SMEI); also called Dravet syndrome

In these disorders, the first seizures usually occur before one year of age, with no known cause other than fever or illness. Seizures that occur with fever are called febrile seizures. In FS, the least severe form of this spectrum of disorders, the seizures remain associated with fever and subside with age. In GEFS+, febrile seizures are followed by afebrile seizures, which occur without fever. Seizures are typically generalized tonic clonic (GTCS) in nature; these involve stiffening followed by jerking/twitching of all extremities.

The more severe seizure syndromes—ICE-GTC, SMEB, and SMEI—also begin with febrile seizures. These may be GTCS, but may be clonic or hemiclonic (jerking/twitching of all extremities or just one side). Later, myoclonus (brief muscle jerks) as well as other seizure types emerge in a majority of affected patients.

Seizure severity and control varies along the Dravet Spectrum, from mild in FS to severe in SMEI. Developmental delay and cognitive impairment also worsen with severity of the seizure disorder along this spectrum, from no or mild impairment in FS to severe impairment in SMEI.

Mutations in genes SCN1A and SCN1B that encode the neuronal sodium ion channel Nav1.1 were first discovered in GEFS+ patients in 1999 and 2000. In 2001, scientists discovered that mutations in the SCN1A gene also cause SMEI, the most severe form of epilepsy in the Dravet Spectrum. In FS and GEFS +, there is usually a family history of febrile seizures or epilepsy, and these forms of epilepsy are inherited in an autosomal dominant pattern. In contrast, patients with SMEI usually have an SCN1A mutation that is *de novo*, and therefore not inherited. Early diagnosis of these disorders in infancy or early childhood is critical for optimizing treatment to improve outcome. Early genetic testing will help establish the diagnosis, allowing parents to better plan for their child's future.

Other names for Dravet Spectrum Disorders include some variation of the following:

- Dravet spectrum
- SCN1A-related epilepsies
- SCN1A spectrum seizure disorders
- Ion channel epilepsy

How Common Are These Disorders?

These diseases occur equally in both genders, and have no geographic or ethnic boundaries. Febrile seizures are very common, occurring in up to 4 out of 100 children at some point in childhood. Most children who have febrile seizures do not have a Dravet Spectrum Disorder or any other inherited form of epilepsy. As researchers and doctors learn more about these disorders, and awareness about the clinical spectrum broadens, the number of people diagnosed with Dravet Spectrum Disorders is increasing.

What Causes These Disorders?

Understanding the etiologies of Dravet Spectrum Disorders is an ongoing challenge to researchers. Most, but not all, patients with these disorders will test positive for a mutation in the SCN1A gene. However, several other genes have been implicated as well. Approximately 3 out of 10 patients with the Dravet syndrome phenotype will have "no detectable" genetic mutation using currently available technology. As the sensitivity of available genetic testing increases, researchers are confident that similar genetic mutations will be found in most patients with a Dravet Spectrum Disorder.