STXBP1 related disorders / encephalopathy / developmental and epileptic encephalopathy

Patient journey

EpiCARE

First symptom

Timeline: From the 1st day of life up to 1 year

Clinical signs / Symptoms

Seizures

- >80% present with seizures in the 1st year of life with neonatal onset seizures in about half.
- Seizure onset at later age has been reported.
- Seizure types at onset are mainly focal motor/ tonic, epileptic spasms, clonic, focal-to-bilateral tonic-clonic.
- Seizures may occur in clusters

Developmental delay

- Present in all individuals and usually observed within the 1st year of life.
- May be the presenting symptom in patient with no/later onset seizures.

Identifying patient needs

- Parents need to have basic information on epilepsy and epileptic seizures.
- Parents need to be informed about how seizures need to be managed and have an individualized emergency protocol.
- Parents need to be informed their child could have cognitive disability and developmental delay (if not already identified).
- Parents need to know how to access early habilitative interventions (e.g. psychomotricity).

Ideal results / support

- Parents concerns are taken seriously, they are given explanations, and reassurance.
- Caregivers are given instructions on how to manage epileptic seizures and an individualized emergency protocol is provided (rescue medication and when to go to the hospital).
- Rehabilitation plan is provided.

Diagnosis

Timeline: Usually < age 2 years, depending on the availability of genetic testing

Clinical signs / Symptoms

Seizures

- Different types of epileptic seizures can be present: focal or generalized motor seizures are most frequent, but absences and focal impaired awareness seizures can occur later. Status Epilepticus can occur.
- About 1/3 of patients become seizure free in the first years of life; 2/3 develop drug-resistant epilepsy. Prolonged periods of seizure remission with later relapse can occur.

Developmental delay

- Present in all patients and usually observed within the 1st year of life.
- Developmental trajectories differ on individual basis, but delayed speech and motor development is usually clear from early age.
- Periods of developmental stagnation or regression can occur at different ages and do not always correlate with epileptic activity.
- Developmental outcomes differ significantly between individuals: some need wheelchair, others can walk independently; language is severely impaired in up to 80 % of individuals.
- Intellectual disability is present in all the individuals, ranging from mild-moderate to profound.
- Behavioral problems including autistic features are seen in more than half of the patients.
- Movement disorders are frequent including tremor and ataxia.
- Other recurrent comorbidities are gastro-intestinal problems and orthopedic issues.
- People with STXBP1-RD will be life-long partially or totally dependent.

Identifying patient needs

- Parents need to be offered genetic testing and counselling.
- Parents need an explanation of the diagnosis and possible prognosis, with psychological support.
- Parents should understand that developmental and epilepsy outcomes are different from child to child.
- Parents need to have a plan to manage epileptic seizures.
- Parents need to be trained on how to keep the child safe (falls, prolonged seizures, fever…).
- Parents need to have access to early rehabilitation within a multidisciplinary team to maximize the development potential and reduce comorbidities.
- Parents should be informed about STXBP1 family groups and associations in their country and worldwide, for support, networking, and information.
- Parents need to be informed about ongoing clinical studies on STXBP1
- Parents need to know what social assistance is available from the government.

Ideal results / support

- Genetic diagnosis and consultancy, with explanation of causes and recurrence risk.
- Professional support is offered to help parents cope with the diagnosis and the family is directed to the parent support group and/or the association.
- Parents receive clear instructions, emergency protocols, explanation of risks and how to minimize them.
- Parents receive clear information about possible clinical studies in which their child can participate with in-depth information on risk and benefits.
- It is important for the family to know how important education and rehabilitation are for the development of the child and this should be closely monitored.
- The family is given a document summarizing the social benefits available and offered for the type of disease according to their country/region.

Treatment

Timeline : life long

Clinical signs / symptoms

Seizures

- Epileptic seizures are often difficult to treat. No specific anti-seizure treatment has been proven to be superior and treatment needs to be individualized to the specific seizure types of the individual.
- Ketogenic diet has been reported to maintain seizure freedom in some.
- Epilepsy surgery should not be excluded given the genetic diagnosis, especially in presence of clear focality and intractable seizures.
- Treatments should aim at controlling seizure and reducing side effects, especially in infancy and childhood, when seizures can contribute to the developmental impairment.
- Seizures resolve in childhood in about one third of individuals. Seizure recurrence at later age is possible and needs to be monitored.

Developmental delay

- An early multi-disciplinary rehabilitation plan, including physiotherapy, speech therapy, occupational therapy, and behavioral is important to maximize the developmental potential and needs to be tailored to the needs of each individual patient.

Identifying patient needs

Parents need counselling and professionals' help.

- Parents need information on prescribed medications, side effects, on side-effect monitoring in the long term.
- Parents need medical help /advice on non-epileptic symptoms, especially related with severe motor and cognitive impairment.
- Advice on pre-school/school/aid.
- Access to clinical trials for new treatment opportunities.
- Other family members, like siblings of the affected individual, need counselling.

Ideal results / support

- Regular consultations are offered with a health-care professional.
- Up-to-date information is available for parents any time, including research initiatives.
- Parents are informed on medication side effects and monitoring.
- Parents are provided with a treatment strategy for non-epileptic symptoms.
- Parents are offered support to find a school / daily assistance and care.
- A multi-disciplinary team works with the patient on the physical, communication and occupational domains, adjusting the strategy based on patient's needs.

Follow-up

Timeline: 2-16 years

Clinical signs / symptoms:

- Epileptic seizures may be intractable, may be in remission, or may have relapsed.
- Behavioral problems may manifest.
- Movement disorders may manifest, such as tremor and ataxia.
- Sleep disturbances can be present.
- Orthopedic issues may occur.

Identifying patient needs

- Parents need evidence-based information on additional symptoms and comorbidities that may arise.
- Parents needs and expectations change over time and need to be re-evaluated and discussed.
- Evidence-based therapies (psychomotricity, speech therapy, postural re-education, behavioral therapy) need to be tailored to the patient's needs and age.
- Siblings' wellbeing and needs have to be evaluated and discussed, and support provided.

Ideal results / support

- Monitoring above mentioned issues and if possible, offering any treatment.
- Needs and expectations are discussed and strategies are planned.
- Availability of home and/or institutional care at the highest level.
- Defining a rehabilitation program (psychomotricity, speech therapy, postural re-education, behavioral therapy) tailored to the patient's needs and age.
- Siblings' needs are adequately addressed.

adult / transition

Timeline: 16 years and up

Clinical signs / symptoms:

- Epileptic seizures may be intractable, may have remitted, or may have relapsed.
- Behavioral problems may change.
- Movement disorders are present.
- Sleep disturbances can be present.
- Orthopedic issues are common.
- Adolescents and adults with STXBP1-RD are partially or totally dependent for activities of daily living and need continuous support.
- Possibilities of daycare or residential care need to be discussed with the parents.
- When reaching adulthood, legal issues such as a legal guardian for when the patients become of age should be discussed.
- The transition from pediatric to adult care may cause lack of appropriate support for the patient and the caregivers.

Identifying patient needs

- Parents need counselling and support in the transition to adulthood.
- Monitoring and treating comorbidities and new symptoms that may arise.
- Parents need additional support when caring for an adult person.

Ideal results / support

- Plan the transition process from child to adult specialist.
- Setting up of a rehabilitation plan for maintenance and prevention of comorbidities.
- Occupational therapy / day-care centers / residential centers.
- Re-evaluate the family's needs and concerns.
- Provide the family with support and advice on later stages of adulthood and in case of the primary caregivers became unable to provide care.