

THE RISKS OF DRUG-RESISTANT SEIZURES IN CHILDHOOD



What are the risks of drug-resistant seizures?

The risks of drug-resistant seizures in childhood are serious and can be catastrophic to development. When weighing the decision of whether or not your child should have epilepsy surgery, it is important to understand how seizures can affect a child's cognitive, behavioral, and developmental outlook if they are not stopped.

Seizures in babies

Seizures, especially in early infancy, can be catastrophic to cognitive and motor development. Because the human brain is not fully developed at birth, throughout infancy and early childhood, the brains of children go through an extended period of growth and maturation. If seizures occur during this critical time, they can cause serious disturbances in cognitive, behavioral, and psychiatric function. Experts agree that "early surgical intervention is critical in infants with catastrophic epilepsy to prevent developmental arrest/regression."

Epileptic spasms, formerly known as infantile spasms, are a particularly catastrophic form of childhood seizures. Infantile spasms are associated with a significant risk of mortality and morbidity. *Approximately 31% of children with infantile spasms will die and another 45% will have IQ below 68.* The goal of surgery is to achieve control as soon as possible.

Developmental arrest

Developmental arrest- where the child's cognitive and motor functions "freeze in time" - can occur if drug-resistant seizures do not stop. Infantile spasms and other seizure types can cause a child's development to stop almost completely.

Cognitive decline

Seizures can cause cognitive decline, especially generalized tonic-clonic seizures. Complex partial seizures are associated with decline in memory and executive functioning skills.

Psychiatric dysfunction

Drug-resistant seizures, as well as the abnormal EEG in between seizures, can cause a child to have epileptic encephalopathy - a serious disturbance in overall mental function and cognitive impairment. This can, for example,

cause symptoms such as autistic characteristics. Language may be slow to develop or regress significantly.

Brain damage and organ failure

Prolonged seizures, including status epilepticus, can cause brain damage, including fast and profound damage to the hippocampus, amygdala, and piriform cortex, and lesser damage to the cerebral cortex, cerebellum, and thalamus. They can also cause organ failure and sometimes death.

Autism

The greatest risk for developing autism for children with epilepsy is among children whose seizures begin at age two or earlier.

Seizures cause seizures

Just like a tiny little spark can kindle a raging forest fire, even the smallest, seemingly benign electrical activity in the brain can escalate into generalized convulsions. This phenomenon causes the seizures to spread to other parts of the brain. These seizures often take over the motor cortex in stages and can eventually impair the child's ability to walk and speak.

Sudden Unexplained Death Due to Epilepsy (SUDEP)

Sudden unexplained death due to epilepsy is a serious risk for any child with drug-resistant seizures. SUDEP is the unexpected death of an otherwise healthy person with epilepsy, where no cause of death has been found. Causes of SUDEP are still unknown, but some research points to cardiac or respiratory dysfunction caused by seizures or abnormal EEG patterns. The death can occur after a seizure or unrelated to a seizure (known as non-seizure SUDEP). The chances of a person with epilepsy dying due to SUDEP is 1 in 1,000; however, this risk increases significantly if the person has drug-resistant epilepsy. For a child with drug-resistant epilepsy, the chances of dying due to SUDEP is 1 in 150.

If your child has drug-resistant epilepsy, don't wait; it's time to ask for a referral for an epilepsy surgery evaluation.