



## TREATING INFANTILE SPASMS

This information sheet is provided to help you understand which therapies can help treat infantile spasms in children.

Neurologists from the American Academy of Neurology (AAN) and Child Neurology Society are doctors who identify and treat diseases of the brain and nervous system. The following evidence-based information\* is provided by experts who carefully reviewed all available scientific studies on medical treatments for infantile spasms.

### DRUG WARNING

The following treatment has an associated US Food and Drug Administration black-box warning:  
Vigabatrin (Sabril): [www.accessdata.fda.gov/drugsatfda\\_docs/label/2011/020427s002lbl.pdf](http://www.accessdata.fda.gov/drugsatfda_docs/label/2011/020427s002lbl.pdf)

### WHAT ARE INFANTILE SPASMS?

Infantile spasms are a rare form of epilepsy where seizures occur in children. The seizures are brief body spasms. Spasms usually begin in the first year of life. However, they can begin as late as age 3. When a spasm occurs, the child's body bends forward or backward suddenly. The arms and legs stiffen. The spasms happen in clusters. Often the child will have multiple clusters of spasms at a time. The child may have as many as hundreds of spasms throughout the day.

In addition to spasms, the child's development may slow and start to reverse. Brain waves also may show abnormal patterns. This will show up on an EEG, a test for brain electrical activity.

Infantile spasms occur in two to three babies for every 10,000 born. The disorder tends to be slightly more common in males. In three to six percent of cases, there is a family history.

### WHAT CAUSES INFANTILE SPASMS?

Infantile spasms in children can have many causes. These include birth injury, genetic disorders, or abnormal metabolism. In some cases, no cause can be found.

### WHAT TREATMENTS ARE AVAILABLE?

Several treatments have been studied for use in infantile spasms. At this time, only some treatments have evidence supporting their use.

#### ACTH (Adrenocorticotropic Hormone)

ACTH is a hormone that the body produces. ACTH stimulates part of the brain to release other hormones. In infantile spasms, the ACTH is injected into a muscle with an IV needle. Moderate evidence shows short-term use of ACTH may help treat infantile spasms.

Treatment with ACTH poses some challenges. The treatment typically begins in an outpatient hospital setting. It is then continued at home. A home care nurse, parent, or other caregiver will give the treatment. ACTH treatment carries some risk. Possible side effects include the following:

- High blood pressure
- Imbalance of certain chemicals in the body
- Infection, often at the injection site
- Mood irritability
- Passing of glucose (blood sugar) through urine
- Swelling, often of the face
- Ulcer of the stomach or intestine
- Weakened immune system

Moderate evidence shows that a low dose of ACTH can be as effective as higher doses. It is thought that shorter treatment time and lower doses might help reduce risk of side effects. At this time, the most effective dose and length of treatment are not yet known.

#### Vigabatrin

Vigabatrin (VGB) is an antiseizure drug that is used to treat infantile spasms. Weak evidence shows short-term use of VGB may help treat infantile spasms. There is weak evidence that short-term treatment with VGB may help treat infantile spasms in children with tuberous sclerosis complex (TSC). TSC is a genetic disorder that causes seizures.

As with ACTH, VGB treatment carries some risk. A possible side effect is narrowing of the field of vision.

Studies have compared ACTH with VGB to determine if one is a more effective treatment for infantile spasms. Weak evidence suggests that ACTH may be more effective than VGB.

### Other Steroid Therapies as Compared with ACTH

Other steroid therapies have been compared with ACTH in studies. There is not enough evidence to know if the steroid therapies prednisolone, dexamethasone, and methylprednisolone are as effective as ACTH.

### Other Treatments

Several other treatments have been studied for use in infantile spasms. There is not enough evidence to know if the following treatments help treat infantile spasms:

- Certain antiseizure drugs
  - Levetiracetam
  - Nitrazepam
  - Sulthiame
  - Topiramate
  - Valproic acid
  - Zonisamide
- Combination therapies
  - ACTH and hydrocortisone
  - ACTH and magnesium sulfate
  - ACTH and valproic acid
  - ACTH and VGB
- The ketogenic diet
- Novel therapies
  - IV immunoglobulin
  - Thyrotropin-releasing hormone
- Vitamin B6

## THE DOCTOR THINKS MY CHILD MAY HAVE INFANTILE SPASMS. WILL MY CHILD GET BETTER?

If your child may have infantile spasms, it is important to have him or her evaluated as soon as possible. The doctor will order an EEG to confirm the diagnosis. If the child is diagnosed with infantile spasms, the doctor will review the treatment options.

Weak evidence shows early diagnosis and treatment with ACTH, VGB, or prednisolone may lead to better long-term outcomes. These outcomes are related to physical or mental development. For example, the child's ability to learn may be affected. However, the number or rate of spasms the child may continue to have cannot be known.

It is important to know that doctors cannot predict the outcome for any given child. In addition, early treatment may only slightly improve long-term outcomes. Outcomes may be more easily predicted when the cause of the disorder is not known.

If your child is diagnosed with infantile spasms, discuss treatment options with the doctor. It is important to weigh the possible benefits and risks of any given treatment. As previously mentioned, all treatment options involve some risk. However, choosing not to treat the disorder also is risky. When untreated, infantile spasms may lead to development of other forms of epilepsy. Brain development also may be affected.

Infantile spasms are rare but serious. Yet it is important to remember that treatments are available. Information on the drugs discussed here may be found by searching Medscape online (<http://reference.medscape.com/drugs>). If treatment is started early enough, it may be helpful for your child's future development.

This statement is provided as an educational service of the American Academy of Neurology. It is based on an assessment of current scientific and clinical information. It is not intended to include all possible proper methods of care for a particular neurologic problem or all legitimate criteria for choosing to use a specific procedure. Neither is it intended to exclude any reasonable alternative methodologies. The AAN recognizes that specific patient care decisions are the prerogative of the patient and the physician caring for the patient, based on all of the circumstances involved.

\*After the experts review all of the published research studies, they describe the strength of the evidence supporting each recommendation:

*Strong evidence* = more than one high-quality scientific study

*Moderate evidence* = at least one high-quality scientific study or two or more studies of a lesser quality

*Weak evidence* = the studies, while supportive, are weak in design or strength of the findings

*Not enough evidence* = either different studies have come to conflicting results or there are no studies of reasonable quality



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