

Stroke in Children



What is stroke in children?

A stroke is a brain injury. It occurs when blood flow is interrupted to part of the brain. Stroke can be caused by a blocked blood vessel (ischemic stroke). Or it can be caused by bleeding in the brain (hemorrhagic stroke). The brain needs a constant supply of oxygen, which is carried by the blood. When blood flow stops, brain cells start to die.

Stroke is much more common in adults than children. A stroke isn't expected in a child, so the diagnosis may be delayed. A child often recovers more abilities after a stroke than an adult. That's because a child's brain is still developing. The risk of stroke is highest before a child is 1 year old. It is one of the top 10 causes of death in children between ages 1 and 19.

What causes stroke in a child?

Stroke can be caused by heart problems that a child is born with (congenital). These include arteries that are weakened or that did not form as they should (arteriovenous malformation). Stroke can also be caused by hemophilia or sickle cell disease. It can also be caused by head injury.

Which children are at risk for stroke?

Some conditions put children at an increased risk for stroke:

- Heart problem (most common)
- Sickle cell disease (a blood disorder)
- Infection (such as meningitis, encephalitis)
- Head injury
- Injury
- Dehydration
- Migraine headache
- Some metabolic disorders
- Blood clotting problems
- Blood vessel abnormalities (dissection, vasculitis)
- Birth defects
- Genetic conditions
- High blood pressure

In many children, no cause can be found.

What are the symptoms of stroke in a child?

Symptoms of stroke in children depend on the child's age and the cause of the stroke. In newborns you might see:

- Seizures

- Extreme sleepiness or altered mental status
- Tendency to use only one side of the body

In young children, the diagnosis is often delayed. In older children, stroke symptoms are more like the symptoms seen in adults and may include:

- Severe headache, possibly with vomiting
- Trouble with vision or moving the eyes
- Weakness or numbness on one side of the body or face
- Dizziness or sudden confusion
- Trouble walking or loss of balance or coordination
- Trouble seeing
- Trouble speaking or understanding words or sentences
- Sleepiness or passing out (loss of consciousness)
- Seizure or paralysis of one part of the body

Call 911

If your child has stroke symptoms, call 911 or your local emergency number.

B.E. F.A.S.T. is an easy way to remember the signs of a stroke. When you see the signs, you will know that you need to call 911 fast.

B.E. F.A.S.T. stands for:

- B is for balance. Sudden loss of balance or coordination.
- E is for eyes. Vision changes in one or both eyes.
- F is for face drooping. One side of the face is drooping or numb. When the person smiles, the smile is uneven.
- A is for arm weakness. One arm is weak or numb. When the person lifts both arms at the same time, one arm may drift downward.
- S is for speech difficulty. You may notice slurred speech or trouble speaking. The person can't repeat a simple sentence correctly when asked.
- T is for time to call 911. If someone shows any of these symptoms, even if they go away, call 911 right away. Make note of the time the symptoms first appeared.

How is stroke diagnosed in a child?

Diagnosis begins with a review of your child's current symptoms and health history. The healthcare provider will ask about injuries, infection, problems with growth and development, and about family history of bleeding problems. The provider will examine your child. They will look for any signs of weakness, numbness, or other signs of stroke. Several tests will be done to help make the diagnosis:

- Brain imaging studies. Magnetic resonance imaging (MRI) is the test of choice for stroke diagnosis in children. Head CT scans are a good choice if MRI is not available. Magnetic resonance angiography may also be done as part of the MRI. For this, a dye is injected for better visualization. Transcranial doppler or ultrasound of the brain may be done to look for abnormalities of brain blood vessels.

- Blood tests. Blood is tested for signs of infection, sickle cell disease, blood vessel inflammation, and blood clotting abnormalities.
- Heart and blood vessel studies. Heart rhythm is checked with an electrocardiogram. A special ultrasound of the heart may be done to look for possible causes of air embolism or a blood clot. A special monitor may also be worn to look for heart rhythm abnormalities over a longer time.
- Lumbar puncture (spinal tap). Fluid around the brain and spinal cord (cerebrospinal fluid) may be examined for blood or signs of infection.
- Electroencephalogram. This test finds the electrical activity of the brain and is done to look for seizure activity.
- Pulse oximetry. This helps make sure there is enough oxygen in the blood.

How is stroke treated in a child?

It's important to call 911 at the first sign of stroke. Treatment works best if it's started as soon as possible after a stroke occurs. Treatment depends on the cause of the stroke. Treatment may include:

IV (intravenous) fluids to give medicines and to prevent or reverse fluid loss (dehydration). Other treatment includes:

- Oxygen
- Blood transfusions
- Medicines to treat blood clots and to thin blood
- Surgery for some specific causes

What can I do to prevent stroke in my child?

In children, the first symptom of a stroke is often the first warning, so there may be no way to prevent the first stroke. Some children may have a second stroke. Your child's healthcare provider will treat the condition that may have led to the stroke. Medicines, procedures, and surgery may be part of the treatment.

How can I help my child recover from a stroke?

Each child recovers differently after a stroke. Prompt initial treatment along with physical, occupational, speech, and rehabilitation therapy can increase recovery.

The most common problem is loss of movement on one side of the body. Your child may also need help with learning, speech, vision, and behavior problems.

Key points about stroke in children

- A stroke is a brain injury. It occurs when blood flow is interrupted to part of the brain.
- Stroke is much more common in adults than children. Some health conditions put a child at a greater risk for stroke.
- Symptoms depend on the child's age and the cause of the stroke. Newborns may be sleepy or have seizures. An older child may have headaches or trouble seeing, speaking, or walking.
- Call 911 at the first sign of stroke. Treatment works best if it is started as soon as possible after a stroke occurs.
- Each child recovers differently after a stroke. Prompt initial treatment along with physical, speech, occupational, and rehabilitation therapy can increase recovery.

Next steps

Tips to help you get the most from a visit to your child's healthcare provider:

- Know the reason for the visit and what you want to happen.
- Before your visit, write down questions you want answered.
- At the visit, write down the name of a new diagnosis, and any new medicines, treatments, or tests. Also write down any new instructions your provider gives you for your child.
- Know why a new medicine or treatment is prescribed and how it will help your child. Also know what the side effects are.
- Ask if your child's condition can be treated in other ways.
- Know why a test or procedure is recommended and what the results could mean.
- Know what to expect if your child does not take the medicine or have the test or procedure.
- If your child has a follow-up appointment, write down the date, time, and purpose for that visit.
- Know how you can contact your child's healthcare provider after office hours. This is important if your child becomes ill and you have questions or need advice.

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