

Abusive Head Trauma (Shaken Baby Syndrome)

Abusive head trauma (AHT) can be caused by direct blows to the head, dropping or throwing a child, or shaking a child. Head trauma is the leading cause of death in child abuse cases in the United States. Because the anatomy of infants puts them at particular risk for injury from this kind of action, the majority of victims are infants younger than 1 year old.

AHT can happen in children up to 5 years old, and the average age of victims is between 3 and 8 months. However, the highest rate of cases occur among infants just 6 to 8 weeks old, which is when babies tend to cry the most.

How These Injuries Happen

Abusive head trauma results from injuries caused by someone (most often a parent or other caregiver) vigorously shaking a child or striking the child's head against a surface. In many cases, the caregiver cannot get the baby to stop crying and, out of frustration or anger, will shake the baby. Unfortunately, the shaking may have the desired effect: Although at first the baby cries more, he or she may stop crying as the brain is damaged.

Children with special needs, multiple siblings, or conditions like colic or GERD have an increased risk of AHT. Boys are more likely to be victims of AHT than girls, and children of families who live at or below the poverty level are at an increased risk for these injuries and other types of child abuse.

The perpetrators in about 70% of cases are males — usually either the baby's father or the mother's boyfriend, often someone in his early twenties. But anyone has the potential to shake a baby if he or she isn't able to handle stressful situations well, has poor impulse control, or has a tendency toward aggressive behavior. Substance abuse often plays a role in AHT.

When someone forcefully shakes a baby, the child's head rotates uncontrollably. This is because infants' neck muscles aren't well developed and provide little support for their heads. This violent movement pitches the infant's brain back and forth within the skull, sometimes rupturing blood vessels and nerves throughout the brain and tearing the brain tissue. The brain may strike the inside of the skull, causing bruising and bleeding to the brain.

The damage can be even greater when a shaking episode ends with an impact (hitting a wall or a crib mattress, for example), because the forces of acceleration and deceleration associated with an impact are so strong. After the shaking, swelling in the brain can cause enormous pressure within the skull, compressing blood vessels and increasing overall injury to the brain's delicate structure.

Normal interaction with a child, like bouncing the baby on a knee or tossing the baby up in the air, will not cause these injuries. But it's important to never shake a baby under any circumstances.

What Are the Effects?

AHT often causes irreversible damage, and about 1 out of every 4 cases results in the child's death.

Children who survive may have:

- partial or total blindness
- hearing loss
- seizures
- developmental delays
- impaired intellect
- speech and learning difficulties
- problems with memory and attention
- severe mental retardation
- cerebral palsy

Even in milder cases, in which babies look normal immediately after the shaking, they may eventually develop one or more of these problems. Sometimes the first sign of a problem isn't noticed until the child enters the school system and exhibits behavioral problems or learning difficulties. But by that time, it's more difficult to link these problems to a shaking incident from several years before.

Signs and Symptoms

In any abusive head trauma case, the duration and force of the shaking, the number of episodes, and whether impact is involved all affect the severity of the child's injuries. In the most violent cases, children may arrive at the emergency room unconscious, suffering seizures, or in shock. But in many cases, infants may never be brought to medical attention if they don't exhibit such severe symptoms.

In less severe cases, a child who has been shaken may experience:

- lethargy
- irritability
- vomiting
- poor sucking or swallowing
- decreased appetite
- lack of smiling or vocalizing
- rigidity
- seizures
- difficulty breathing
- blue color due to lack of oxygen
- altered consciousness
- unequal pupil size
- an inability to lift the head
- an inability to focus the eyes or track movement

Diagnosis

Many cases of AHT are brought in for medical care as "silent injuries." In other words, parents or caregivers don't often provide a history that the child has had abusive head trauma or a shaking injury, so doctors don't know to look for subtle or physical signs. This can sometimes result in children having injuries that aren't identified in the medical system.

In many cases, babies who don't have severe symptoms may never be brought to a doctor. Many of the less severe symptoms such as vomiting or irritability may resolve and can have many non-abuse-related causes.

Unfortunately, unless a doctor has reason to suspect child abuse, mild cases (in which the infant seems lethargic, fussy, or perhaps isn't feeding well) are often misdiagnosed as a viral illness or colic. Without a suspicion of child abuse and any resulting intervention with the parents or caregivers, these children may be shaken again, worsening any brain injury or damage.

If shaken baby syndrome is suspected, doctors may look for:

- hemorrhages in the retinas of the eyes
- skull fractures
- swelling of the brain
- subdural hematomas (blood collections pressing on the surface of the brain)
- rib and long bone (bones in the arms and legs) fractures
- bruises around the head, neck, or chest

The Child's Development and Education

What makes AHT so devastating is that it often involves a total brain injury. For example, a child whose vision is severely impaired won't be able to learn through observation, which decreases the child's overall ability to learn.

The development of language, vision, balance, and motor coordination, all of which occur to varying degrees after birth, are particularly likely to be affected in any child who has AHT. Such impairment can require intensive physical and occupational therapy to help the child acquire skills that would have developed normally had the brain injury not occurred.

Before age 3, a child can receive free speech or physical therapy through state-run early intervention programs. Federal law requires that each state provide these services for children who have developmental disabilities as a result of being abused. After a child turns 3, it's the school district's responsibility to provide any needed additional special educational services.

As kids get older, they may require special education and continued therapy to help with language development and daily living skills, like dressing.

Preventing AHT

Abusive head trauma is 100% preventable. A key aspect of prevention is increasing awareness of the potential dangers of shaking.

Finding ways to alleviate the parent or caregiver's stress at the critical moments when a baby is crying can significantly reduce the risk to a child. Some hospital-based programs have helped new parents identify and prevent shaking injuries and understand how to respond when infants cry.

All Babies Cry is a national program that promotes healthy parenting behavior through practical demonstrations of infant soothing and ways to manage the stress of parenting. The program is divided into four parts: 1. What's normal about crying? 2. Comforting your baby. 3. Self-care tips for parents. 4. Colic and how to cope.

The National Center on Shaken Baby Syndrome offers a prevention program, the Period of Purple Crying, which can help parents and other caregivers understand crying in healthy infants and how to handle it.

Another method that can help is the "five S's" approach, which stands for:

1. Shushing (by using "white noise" or rhythmic sounds that mimic the constant whirl of noise in the womb. Vacuum cleaners, hair dryers, clothes dryers, a running tub, or a white noise machine can all create this effect.)
2. Side/stomach positioning (placing the baby on the left side — to help with digestion — or on the belly while holding him or her. Babies should always be placed on their backs to sleep.)
3. Sucking (letting the baby breastfeed or bottle-feed, or giving the baby a pacifier or finger to suck on).
4. Swaddling (wrapping the baby in a blanket like a "burrito" to help him or her feel more secure. Hips and knees should be slightly bent and turned out).
5. Swinging gently (rocking in a chair, using an infant swing, or taking a car ride to help duplicate the constant motion the baby felt in the womb).

If a baby in your care won't stop crying, you can also try the following:

- Make sure the baby's basic needs are met (for example, he or she isn't hungry and doesn't need to be changed).
- Check for signs of illness, like fever or swollen gums.
- Rock or walk with the baby.
- Sing or talk to the baby.
- Offer the baby a pacifier or a noisy toy.
- Take the baby for a ride in a stroller or strapped into a child safety seat in the car.
- Hold the baby close against your body and breathe calmly and slowly.
- Give the baby a warm bath.
- Pat or rub the baby's back.

- Call a friend or relative for support or to take care of the baby while you take a break.
- If nothing else works, put the baby on his or her back in the crib, close the door, and check on the baby in 10 minutes.
- Call your doctor if nothing seems to be helping your infant, in case there is a medical reason for the fussiness.

To prevent potential AHT, parents and caregivers of infants need to learn how to respond to their own stress. It's important to tell anyone caring for a baby to never shake him or her. Talk about the dangers of shaking and how it can be prevented.