Shaken Baby Syndrome and Controversy of the Diagnosis as Proof of Child Abuse

Definition

Shaken Baby Syndrome is a medical hypothesis that physicians rely upon to identify cases of child abuse. The hypothesis states that violent shaking of an infant can be reliably diagnosed based on the existence of three symptoms if caretakers do not report major trauma, such as a car accident or multi-story fall, and no major alternative medical explanation is available.

This 'triad' of symptoms includes bleeding around the brain below the dura layer (subdural hemorrhaging), bleeding in the retina (retinal hemorrhage), and brain damage (encephalopathy).[1] Injuries to the infant occur when he or she is picked up and shaken violently, and the rapid back and forth (and side-to-side) motion causes injury to the baby's brain. Consequently, tearing of veins, brain damage or even death can occur. Notably, the diagnosis of abuse can be made without injury to the child's spine.

All pediatricians agree that shaking can cause serious injury or even kill an infant and is unacceptable. However, an increasing number of prominent pediatric experts and leading researchers are voicing criticism that Shaken Baby Syndrome is not necessarily an automatic sign and cause of child abuse.[2]

History

British neurosurgeon Dr. Norman Guthkelch first warned parents of shaking infants and suggested that shaking could explain the unexpected collapse or death of infants that showed signs of subdural hemorrhaging but had no external signs of injury. In England in the 1960s, it was acceptable practice for parents to shake infants non-violently for various reasons. Noticing a large number of injuries to infants' necks and heads, Dr. Guthkelch hypothesized Shaken Baby Syndrome for infants whose caregivers had acted in anger, frustration, or malevolent abuse.[3]

Dr. Guthkelch, and later an American, Dr. Paul Caffey[4], published articles on shaken babies that extrapolated from an animal study conducted by neurosurgeon A.K. Ommaya in 1968.[5] Ommaya's experiment looked at substantial injuries to monkeys subjected to whiplash in simulated motor vehicle rear-end collisions. In the Ommaya experiment, upon which the SBS hypotheses is based, 40 mph rear-end accidents were simulated. The whiplash experienced by the monkeys in simulated rear-end collisions was equivalent to about 600 times the acceleration due to gravity (g's).

Without further research or investigation, Guthkelch and Caffey[6] theorized that shaking an infant could cause head injury similar to those suffered by monkeys, although modern tests have shown that humans can generate only about ten to fifteen g's of acceleration of the brain with the most forceful shaking.[7]

Controversy

Decades later, as the Shaken Baby Syndrome hypothesis took root within the pediatric community, any doubts of its truth within the pediatric clinical and research community based on arguments that birth injuries, short falls or natural causes could result in the triad were looked upon with scorn.[8]

In May 2009, the American Academy of Pediatrics issued a policy statement on Shaken Baby Syndrome to offer clarification for pediatricians, judges, lawyers, and others who have a great deal at stake in Shaken Baby Syndrome cases.[9] It recommended that "pediatricians develop skills in the recognition of signs and symptoms of abusive head injury, including those caused by shaking and blunt impact; consult with pediatric subspecialists when necessary; and, embrace a less mechanistic term, abusive head trauma, when describing an inflicted injury to the head and its contents.

The triad of symptoms as an absolute sign for child abuse has come under further deal of criticism in the last decade. In 2001, a study referred to as Geddes 1, began to erode the Shaken Baby Syndrome theory.[10] The study found that the brain pathology of infants who had reportedly died of abuse was predominantly hypoxic or ischemic, rather than traumatic, which should have been the case following the SBS hypothesis. Essentially, babies who allegedly had died of abuse did not show large amounts of brain bleeding; rather, their brains had not received enough oxygenated blood.[11]

Another important factor in the controversy is that the diagnosis and accusation of child abuse can be made without evidence of neck or spinal injury. A January 2012 study in Radiology, however, suggests that abusive head trauma caused by shaking will be accompanied by neck and spine injury. It concludes, "spinal canal subdural hemorrhage was present in more than 60% of children with abusive head trauma who underwent thoracolumbar imaging in this series but was rare in those with accidental trauma."[12]

Often, when a parent or caretaker seeks emergency treatment for head injury, a "short fall" is offered as the cause of injury. In many such cases, the actual cause may be abuse. In a study comparing identified perpetrators of abusive head trauma by gender, the most common history offered in emergency department presentation was a short fall (<3 feet) in 47% of cases.[13] Furthermore, the best current estimate of the mortality rate for short falls affecting infants and young children is < .48 deaths per 1 million young children per year.[14] However, a very short fall can cause the triad of symptoms.

Videos for academic research have shown infants falling from low heights (child's feet dangling 28" above ground) that resulted in the Shaken Baby Syndrome Triad and death. In this instance, the infant experienced a short lucid period immediately after the fall, then death.[15] This documented accident demonstrates that two possibilities exist: one, a child can sustain a short fall that results in the triad of symptoms and death; and two, that the *timing* of injuries purportedly sustained by shaking cannot be accurately determined. This means the last person who was with the baby may or may not have shaken the baby. The existence of these possibilities places the hypothesis in doubt. While an infant's caregiver who reports a "short fall" as cause of injury very well may be lying, the fact is, even if the child presents with the triad, the caregiver may be telling the truth.

Experts who have previously testified against defendants accused of abusing children by shaking and causing their deaths have altered their opinions about the causes of the SBS triad of symptoms. The Chairperson of the American Academy of Pediatrics Committee on Child Abuse and Neglect 2008-2009, Dr. Carole Jenny, publicly stated in 2011 "no trained pediatrician thinks that subdural hemorrhage, retinal hemorrhage, and encephalopathy equals abuse. The 'triad' is a myth."[16] In February of this year, Dr. Guthkelch, the physician who first issued the warning against the dangers of shaking an infant, declared for evidence in a criminal trial that "Shaken Baby Syndrome is an

undesirable phrase and that there was not a vestige of proof when the name was suggested (in 1971) that shaking, and nothing else, caused the triad of symptoms." He also said that other conditions, including metabolic disorders, blood clotting disorders, and birth injury could cause the triad.[17]

Significance

Why is understanding the details of the controversy surrounding shaken baby syndrome so important? Because the costs of a misdiagnosis are so high. If a shaken baby is not diagnosed, abusive parents will go unpunished and other children will live in unsafe homes. If a shaken baby is mis- or "over-"diagnosed, families come undone, innocent parents and caretakers are unjustly imprisoned, and lives are wrecked.[18]

All pediatricians agree that shaking can cause serious injury or even kill an infant and is unacceptable — parents and caregivers should never shake a baby violently. Given the difficulties and nuances of diagnosing abuse by shaking, Shaken Baby Syndrome has to be studied more carefully and thoroughly. Families and lives are at stake, and there is very little room for error.

References

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