“Shaken Baby Syndrome” is now referenced as Abusive Head Trauma (AHT) or Non-Accidental Trauma (NAT). This form of non-accidental inflicted injury is often due to violent shaking, impact to the head, or a combination of both (Barr, 2012). NAT encompasses serious physical injury such as multiple broken bones in babies and small children. According to the Centers for Disease Control and Prevention, between 1999 and 2014, AHT resulted in nearly 2,250 deaths among U. S. resident children aged 5 years or less.

Injuries in infants and toddlers with AHT can be severe and long-lasting and may include: bleeding over the surface of the brain (or subdural hemorrhages); injuries to the white matter of the brain; brain swelling; retinal hemorrhages. Some victims show evidence of blunt force trauma, others do not. Some victims have evidence of physical abuse such as abdominal injuries, bruises, and broken or healing bones, while others do not. AHT is associated with significantly greater medical service use and higher inpatient, outpatient, drug, and total costs for multiple years after the diagnosis (Peterson et al., 2014).

The National Center on Shaken Baby Syndrome estimates the there are 16 to 33 cases per 100,000 in the first two years of life. They note that the actual incidence is difficult to determine as there are no standard protocols for data collection.

Many children survive NAT. It is thought that the mortality rate for those diagnosed with NAT is 15% to 38% (Adamo, Drazin, Smith & Waldman, 2009). As many as 80% of survivors have significant lifelong brain injuries (studies cited in Barr, 2012). The National Center on Shaken Baby Syndrome estimates that of the survivors, a third of babies with NAT are severely disabled while a third are moderately disabled and a third have mild or no symptoms.
Although anyone can shake a baby, parents who shake babies or break their bones are most likely to be young (under age 30), have poor impulse control, poor coping and problem-solving skills, and feel under considerable stress. Fathers or boyfriends are more likely to be responsible for episodes of NAT resulting in death while mothers and female caretakers are more likely to be implicated in incidents where the child survives (Mulpuri, Slobogean & Tredwell, 2011). AHT is more common for male babies and for babies between one and five months (Parks, Sugerman, Xu & Coronad, 2012).

While AHT is far too common, studies of serious injuries due to physical abuse indicate that the majority of the injuries are fractures and skin and open wounds with traumatic brain injury ranking third. Burns, abdominal injuries, and other physical injuries are less common (Leventhal & Gaither, 2012). Examining data from 1997 to 2009, Leventhal and Gaither found no major decrease and a small, but statistically significant increase in the incidence of hospitalizations of children with serious injuries due to physical abuse.

A baby’s crying is the most common stimulus for AHT (Barr, 2012). There is evidence that parents who are high risk for serious physical abuse experience higher levels of arousal in response to children’s behaviors and to children’s crying. When a parent is aroused (such as being agitated, stressed, frustrated or anxious) aggressive or rough behaviors are more likely. Additionally, negative arousal decreases one’s ability to think clearly or to find alternative means of problem-solving, particularly if there are accompanying dysfunctional attributions towards the child (studies cited in Seng & Prinz, 2008).

The review by Seng and Prinz (2008) corresponds well with the findings of Francis and Wolfe (2008) who found that abusive fathers (compared to nonabusive fathers) had more anger, greater
likelihood to express anger aggressively, a higher level of depression, hostility and paranoid ideation, less empathy and a higher level of stress.

Some parents who physically injure children show difficulties in problem-solving due to neuropsychological deficits. High-risk parents show lower levels of cognitive flexibility and problem-solving abilities. Additionally, high-risk individuals have difficulty incorporating feedback to correct their responses (studies cited in Seng & Prinz, 2008).

Social isolation can be a factor in physical child abuse. Social isolation decreases the opportunities for positive role modeling and lowers the level of support. Social isolation decreases the chance that negative behaviors will be noticed and identified by others who might offer help, ideas and intervention.

It has been known for some time that parents who physically abuse children can possess both developmental information and the ability to articulate appropriate approaches to child rearing (Crittenden, 1996). The parent can have child development knowledge but that information does not guide the parent in difficult situations. Consequently, a simple course of parenting education may increase feelings of competence and authority without actually changing the misperceptions, miscommunications, and deficient coping strategies that underlie a violent episode.

Stress is a known trigger for child maltreatment when combined with other risk factors. For example, Berge et al. (2011) found AHT increased significantly in 3 distinct geographic regions during 19 months of economic recession compared to 47 months prior to the recession. Stress can be in many forms such as marital distress, lack of employment or under-employment resulting in financial strain, a
high level of responsibility (such as caring for an elderly parent or having a larger number of children),

loss of familiar routines or supports (such as when moving).

In the vast majority of cases of serious injury or death of a child, it is believed that the parent did not plan or intend to harm the child. The most frequent set of conditions is that the parent felt panic and upset, frustration, anger, and/or felt overwhelmed due to the baby or child’s crying.

While there is no accepted protocol for treating parents who shake their babies or severely injure them, there are cases in the literature where parents are said to be successfully treated and the parent who killed or seriously injured the child is integrated back into the family and are thought to be parenting other children without injury.

Even though remediation is possible, literature suggests that infants with non-accidental fractures have a high risk of further abuse, even with intervention. For example, Skellern, Wood, Murphy & Crawford (2000) determined that of cases of fractures that were founded as abusive in children under age 12 months, 53% experienced additional substantiated reports. In the group where abuse was suspected but not founded, 35% experienced additional injuries that were thought to be due to abuse. These figures compare to 1% of infants with accidental trauma with subsequent injury. Infants at greatest risk for re-abuse were those who had been injured at less than four months of age.

Repetitive injuries suggest that the child is at risk for further injury (Adamsbaum, Méjean, Merzoug & Rey-Salmon, 2010). Deans et al. (2013) conclude that their findings are similar to other studies. Mortality risk increases with recurrent episodes of non-accidental trauma. It is critically important to intervene early.
If injuries result in child impairments, then there is an additional stress level added to the already complex mix of risk factors. According to Michelle Clayton, M.D., Assistant Professor of Pediatrics and Child Abuse Pediatrician at Children’s Hospital of the Kings Daughter in Norfolk, there are many cases where neurological manifestations are not apparent until later in the child’s life. Dr. Clayton, when interviewed for VCPN, Volume 91, noted that about a quarter of the babies who are later determined to have sustained ongoing neurological damage do not show immediate effects. Clinical outcomes for NAT are varied. Effects can range from learning difficulties and other cognitive impairments to vision problems. According to Dr. Clayton, many of the outcomes can’t be assessed until the child’s later stages of development.

Studies support Dr. Clayton’s statements. According to Parks et al. (2012), good outcomes with no impairment or later disability are seen only in 10% to 15% of survivors of AHT. Fanconi & Lips (2010) found good recovery in only 36% of children who had non-accidental head injury. They note a lack of long-term outcome studies, especially for less severe injuries. A number of other studies have similar findings of about a third of victims making a full recovery (Duhaime, Christian, Moss & Seidl, 1996). Children with non-accidental injury, as a group, have significantly worse outcomes when compared to babies and children with accidental injuries (Adamo et al., 2009). Caretakers will likely need additional support as they cope with the long-term consequences of the infant’s abuse.

Child physical abuse is rarely simplistic. More often, physical abuse is the end result of complex interactions of multiple factors. Child factors (such as physical vulnerability; degree of fussiness or colic; poor feeding; aversive behaviors; difficult behaviors) combine with parent risk factors and stress.

Prevention

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In contrast to many forms of child maltreatment, AHT meets a number of criteria that make this form of abuse a candidate for prevention through a public health strategy. The outcomes can be severe with substantial financial costs, making prevention cost-effective. There is a clear stimulus (crying) and risk behavior (caregiver shaking) that permit specific targeting of the prevention message. The prevention strategy needs to be primary (delivered before the occurrence) and universal (delivered to all parents of newborns) (Barr, 2012).

There is emerging evidence that AHT is preventable (Barr, 2012). For example, initial studies have reported as much as a 47% reduction in AHT cases (studies reported in Barr, 2012). According to The Centers for Disease Control and Prevention (Spies & Klevens, 2016), annual rates of fatal AHT declined significantly between 2009 and 2014. The fatal AHT rates in 2013 were 0.41 per 100,000 children aged 5 or less and 0.43 per 100,000 aged 5 or less in 2014. These were the lowest rates in the 16-year study period. There was no evidence that cases were simply being classified differently during the time frames.

Lowered rates of AHT are good news for those working in prevention. Many states and hospitals have implemented programs to educate new parents about the dangers of shaking babies and how to avoid head injury. Spies & Klevens (2016) note that additional prevention efforts are needed, despite the encouraging statistics.

References Available on the VCPN Website