

Letters to the Editors

Commentary on Controversies in Shaken Baby Syndrome and on Gilliland MGF and Folberg R, Shaken babies—some have no impact injuries, (J Forensic Sci 1996 Jan; 41(1):114–16)

Sir:

Recent publications on the shaking baby syndrome (SBS) have questioned the validity of shaking as a mechanism of head injury in children (1) and the time interval between lethal infant shaking and onset of symptoms (2). The two papers demonstrate the changing trends in the interpretation of SBS and only marginally address the legal consequences of expert testimony.

SBS has become one of the most controversial child abuse issues for doctors, lawyers, and those accused of killing a child. The medical profession has been changing its opinions about the cause of SBS as knowledge about the syndrome evolves. Comparing our vast experience with the battered child syndrome, SBS is relatively rare with less than 300 cases in the medical literature. When SBS was first described in the 1970s, the brain and eye injuries were believed to be the result of "violent" shaking of a child typically less than one year old (3). Such a dramatic description would naturally favor the prosecution and many people accused of causing a child's death were convicted. In the 1980s, it was renamed, shaking baby impact syndrome because both shaking and blunt force head impact had to coexist to explain the pattern and distribution of bodily injuries (4). Quantifiable impact forces to a child's head have yet to be determined in a living victim. Experimentation on living models to quantify such forces would obviously be objectionable and unethical. In the 1990s, it was shown that a small percentage of children can suffer similar types of head injuries sustained in minor falls from 1 to 5 ft (0.3 to 1.5 m) high (5). Just one shake for a split second is enough to cause serious harm to a small child. Sociological studies compounded the problems by showing that 25 to 50% of Americans are unaware that shaking a baby can cause brain damage or death (6). Even playful tossing or knee-bouncing can cause head and spinal injuries because young infants lack the muscular strength to hold up their heavy heads. Racial differences might also predispose some non-Caucasian children to SBS (7). Although almost all cases of SBS were considered murders in the past, some are now recognized as accidents and others as a combination of the two. The circumstances of each fatality must be weighed individually. Thus, the medical evidence has created reasonable doubt and caused the pendulum of the criminal justice system to swing slightly in favor of the defense.

Prosecutors often charge defendants accused of SBS with intentional and depraved mind murder. They are both considered second-degree murder in the State of New York and carry the same penalty, a maximum of 25-to-life imprisonment. Juries are instructed to consider first intentional murder; if the verdict is not reached, they are then to consider depraved mind murder. Depraved

mind murder is a nonintentional homicide that differs from intentional murder because the defendant recklessly engaged in conduct that created a grave risk of death to another person and thereby caused the death of another person (8–10). To prove depraved mind murder, the following criteria must be met: (1) causation (11,12); (2) recklessness (13,14); and (3) depraved indifference to human life (9,15,16). The aggravating factors over and above reckless conduct differentiate depraved mind murder from the lesser offense of manslaughter in the second degree (17). The Courts view depraved murder as equal in blameworthiness to intentional murder (9,18). Prosecutors attempt to convince juries that a reasonable person would be able to recognize the signs and symptoms of closed head trauma related to SBS. The timely recognition of such symptomatology would prompt an adult caretaker to seek emergency medical care. Failure to respond to the signs and symptoms of a blood clot on the brain would show depraved indifference to the physical welfare of a child. In their effort to gain a conviction, prosecutors convert medically untrained defendants into astute clinicians and hold them legally responsible for their failure to recognize the gravity of the situation.

The temporal relationship, between shaking, blood clot formation, and onset of symptoms is crucial to the outcome of criminal trials. A study by Howard, et al. (7) reported 28 infants with subdural hematomas, three of them suffered head trauma as a result of documented shaking. The time interval from the onset of injury was 5, 20, and 72 h. The time interval for the other 25 infants with subdural hematomas to neurosurgical evaluation was highly variable with 13 infants presenting within 24 h, 3 between 24 to 72 h, and 9 more than 72 h. The upper limit was four weeks after a head injury was reported or symptoms first noted. This study shows that a substantial delay between shaking and the onset of symptoms can occur. Thus, there can be a range of minutes to days before the symptoms of a blood clot on the brain become clinically manifest. Expert testimony must address the complex medical issue of SBS so that judges and juries can arrive at just verdicts.

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- (8) *People v. Roe*, 74 NY2d 20,24.
- (9) *People v. Register*, 60 NY2d 270, 274–8.
- (10) Penal Law §125.25(2).
- (11) *People v. Stewart*, 40 NY2d 692–7.
- (12) *Matter of Anthony M.*, 63 NY2d 270–80.
- (13) Penal Law §15.05(3).
- (14) *People v. Kern*, 75 NY2d 638, 658.
- (15) *People v. Best*, 202 AD2d 1015 (4th Dept., 1994) Aff'd NY2d 1995 NYSLIPOP 01253.
- (16) Gegan B. A case of depraved mind murder. 49 *St. John's Law Rev* 417, 447.
- (17) Penal Law §125.15(1).
- (18) *People v. Gomey*, 65 NY2d 9, 12.

Author's Response

Sir:

One advantage of a prospective study is to preclude bias in case selection. A significant interval between case selection and statistical evaluation allows time for the protracted outworking of confessions, social work, judicial trials, appeals, retrials and the like. A significant disadvantage of working earlier on individual cases for a lawyer is that one must promptly decide whom to believe: the accused or the accusers.

Most of the difficulty investigating child deaths is assessing the credibility of witnesses. In our study (1) we accepted unrecanted confessions of violent shaking as credible and found injuries corresponding to other violent trauma such as motor vehicle collisions at 55 mph (89 km/h). Some shaken babies did not have impact injuries.

Others, obviously, choose to believe a caretaker's self-serving pretrial allusion to merely trivial events as the whole story. The fact that the overwhelming majority of similar trivial events have trivial, nontraumatic outcomes is conveniently ignored. This sort of single-case and anecdotal material may be the stuff law courts

have to work with during trials, but our conclusions should be based on more and better evidence and reasoning.

Buys et al. in a 1992 prospective study of 79 head-injured children less than 3 years of age found 75 children with accidental head trauma had no retinal hemorrhages. Three children with non-accidental trauma had retinal hemorrhages, one child with no hemorrhages had injuries of indeterminate cause (2). If retinal hemorrhages are found after an alleged short fall, the history must be questioned. There are enough witnessed child head injuries, so called "experiments of nature," that we have more than adequate opportunity to observe the outcomes, even when the impacts are not quantified prospectively.

The variability of the interval between injury and onset of symptoms is significant. Nashelsky and Dix could only find three cases in the English literature describing this interval in shaken babies (3). Two cases correspond to the common experience and belief of forensic pathologists that the interval is quite short and can lead to circular reasoning—If we believe the interval is short, we may describe it as short whether or not we know it to be so. The authors of the letter mentioned a reference citing 3 babies with documented shaking, 25 infants with impact injuries, and 15 of the 28 children presenting in less than 24 h, yet longer intervals for the others (4). The variability of the reported intervals should serve as a caution against dogmatic positions in testimony until the scientific literature is more complete.

Our experience litigating child death cases has included custody removals (civil standard of proof) and criminal prosecutions, but nothing corresponding to the New York statute and cases described in the letter.

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