



Acceptance of Shaken Baby Syndrome and Abusive Head Trauma as Medical Diagnoses

Sandeep K. Narang, MD, JD¹, Cynthia Estrada², Sarah Greenberg², and Daniel Lindberg, MD³

Objective To assess the current general acceptance within the medical community of shaken baby syndrome (SBS), abusive head trauma (AHT), and several alternative explanations for findings commonly seen in abused children.

Study design This was a survey of physicians frequently involved in the evaluation of injured children at 10 leading children's hospitals. Physicians were asked to estimate the likelihood that subdural hematoma, severe retinal hemorrhages, and coma or death would result from several proposed mechanisms.

Results Of the 1378 physicians surveyed, 682 (49.5%) responded, and 628 were included in the final sample. A large majority of respondents felt that shaking with or without impact would be likely or highly likely to result in subdural hematoma, severe retinal hemorrhages, and coma or death, and that none of the alternative theories except motor vehicle collision would result in these 3 findings. SBS and AHT were considered valid diagnoses by 88% and 93% of the respondents, respectively.

Conclusions Our empirical data confirm that SBS and AHT are still generally accepted by physicians who frequently encounter suspected child abuse cases, and are considered likely sources of subdural hematoma, severe retinal hemorrhages, and coma or death in young children. Other than a high-velocity motor vehicle collision, no alternative theories of causation for these findings are generally accepted. (*J Pediatr* 2016;177:273-8).

Although shaking, with or without impact, has been recognized as a dangerous form of child physical abuse since the early 1970s,^{1,2} the validity of shaken baby syndrome (SBS) and abusive head trauma (AHT) has recently been called into question in prominent national newspapers such as the *New York Times* and *Washington Post*,^{3,4} judicial decisions,^{5,6} and some medical literature.^{7,8} In fact, a US Supreme Court Justice recently commented in a dissenting opinion that there is widespread "controversy" within the medical community regarding the concepts of AHT and SBS.^{9,10} Not surprisingly, this has resulted in confusion in the courts and a chilling effect on child protection hearings and criminal prosecutions.¹¹

Legal interventions are an important part of primary safety determinations and secondary prevention for victims of maltreatment. In that process, courts frequently rely on medical expert testimony to opine on the most likely source of a child's injuries. To determine the admissibility of scientific testimony, courts must assess whether concepts are "generally accepted" in the medical community. In approximately one-half of the US jurisdictions, known as Frye jurisdictions, "general acceptance" is the sole criterion for admitting expert testimony on a certain concept.¹¹ In the remainder of US jurisdictions, known as Daubert jurisdictions, "general acceptance" is one of several criteria used to assess reliability, but is still afforded significant weight.¹² In addition, several professional medical society ethical guidelines for expert testimony state that testimony should reflect generally accepted opinions, and/or that an expert who endorses a minority opinion should volunteer that information.¹³⁻¹⁶

In courts, evidence of what is generally accepted in the medical community has typically been adduced by the opinion of a solitary expert or a small cadre of experts. This approach is susceptible to the biases and knowledge base of the testifying physicians, and leaves open the possibility that a small group could create an incorrect impression about whether or not any particular concept is generally accepted. Courts are ill-equipped to measure the broad opinion of the wider medical field or to assess the validity of a single physician's assessment of that broad opinion. Although SBS has historically been considered a valid medical diagnosis,¹⁷ to date no well-conducted study has measured the acceptance of SBS or AHT as diagnoses, or of the likelihood that shaking will result in subdural hematoma (SDH), retinal hemorrhages (RH), or coma or death, the findings commonly associated with SBS and AHT.^{18,19}

Given the importance of this issue to child protection and legal outcomes, we aimed to attain empirical data on the acceptance of SBS and AHT as valid medical

From the ¹Department of Pediatrics, Division of Child Abuse Pediatrics, Northwestern University Feinberg School of Medicine, Chicago, IL; ²Department of Pediatrics, University of Texas Health Science Center at Houston, Houston, TX; and ³Department of Pediatrics, Division of Pediatric Emergency Medicine, University of Colorado School of Medicine, Aurora, CO

Supported by the Texas Children's Justice Act (CJA-15-03). S.N. and D.L. have provided paid expert testimony in cases of alleged child maltreatment. The other authors declare no conflicts of interest.

0022-3476/\$ - see front matter. Published by Elsevier Inc.
<http://dx.doi.org/10.1016/j.jpeds.2016.06.036>

AHT	Abusive head trauma
MVC	Motor vehicle collision
REDCap	Research Electronic Data Capture
RH	Retinal hemorrhages
SBS	Shaken baby syndrome
SDH	Subdural hematoma

diagnoses by the physicians most commonly involved in those cases. We also sought to determine whether shaking, with or without impact, and other mechanisms of injury are generally accepted as reasonable explanations for SDH, RH, and coma or death.

Methods

This observational survey study was reviewed and approved by the University of Texas-Houston Institutional Review Board, and was conducted between March and October 2015. To identify a feasible sample size and limit enrollment or response bias, we surveyed hospitals identified from the 2014-15 *US News & World Report* Honor Roll of Children's Hospitals.²⁰ From the 10 leading children's hospitals, we identified faculty physicians (MD, DO) within the specialty departments most commonly involved in suspected AHT cases: Emergency Medicine, Critical Care, Child Abuse Pediatrics, Pediatric Ophthalmology, Pediatric Radiology, Pediatric Neurosurgery, and Child Neurology. Because forensic pathologists are not typically located within children's hospitals, we contacted the medical examiners' offices that jurisdictionally comported with the surveyed hospitals and offered participation in the survey. If no medical examiner's office comported with a particular jurisdiction, we contacted the responsible coroner's office and offered participation in the survey.

We obtained contact information (e-mail and mailing addresses) from hospital websites or physician collaborators. In March 2015, physicians were invited to participate by e-mail, and were informed that the survey was voluntary and anonymous. Using a modified Dillman method,²¹ the lead investigator (S.N.) sent an e-mail to eligible physicians, providing a summary of the study's objective and methods, along with a unique, anonymous online link to the survey. After the initial e-mail, nonresponders were sent a reminder e-mail (with survey links) every 2 weeks on 2 separate occasions. If a physician had not completed the survey after 3 e-mail attempts, then a hard copy of the survey (with \$1 attached) was mailed to the physician's office address on 2 separate occasions at 2-week intervals. After this, if the participant still had not responded, he or she was logged as a nonresponder, and his or her contact information was permanently deleted. Data collection efforts were completed in October 2015. As an incentive to improve response rates, participants were entered into up to 5 randomized, biweekly drawings for a \$200 gift card (depending on the time of response, with earlier responders being eligible for and entered into more drawings).

To minimize the potential for bias, we did not approach nonresponders and used no additional methods to encourage recruitment by any respondent. To ensure an appropriate sampling frame, we asked each respondent to report his or her specialty on the survey, and those who reported specialties other than those being sought to be surveyed excluded.

Study data were collected and managed using REDCap (Research Electronic Data Capture) tools hosted at the Univer-

sity of Texas at Houston.²² REDCap is a secure, web-based application designed to support data capture for research studies. No identifying information was recorded in REDCap, and once a physician completed the survey, his or her contact information was permanently deleted, thereby preserving anonymity.

Survey

Each participant reported his or her age (20-30, 31-40, 41-50, 51-60, 61+ years), board certification status, and years in practice (0-5, 6-10, 11-20, 20-30, 31-40, or 41+ years). Each participant was also asked to choose his or her field of specialty from the list of specialties sought (ie, Emergency Medicine, Critical Care, Child Abuse Pediatrics, Pediatric Ophthalmology, Pediatric Radiology, Pediatric Neurosurgery, and Child Neurology), or to report another specialty. Those reporting more than 1 surveyed specialty (n = 8) were included under each specialty for the report of respondent characteristics, but were only counted once in the remainder of the survey. Those reporting a specialty that was included in the sampling frame and a specialty that was not included (eg, Pediatric Emergency Medicine, General Pediatrics) were counted within the included specialty. Those identified within a division of pediatric emergency medicine who listed their specialty as "urgent care" were included with Emergency Medicine. Those listing only exclusion specialties (eg, General Pediatrics, Allergy and Immunology, Anesthesia, Pulmonology) were excluded.

Respondents rated the likelihood of each finding (SDH, RH, coma or death) to result from several proposed mechanisms in a child aged <3 years using a 5-point Likert scale (from "highly unlikely" to "highly likely"). "Severe RH" was defined as too numerous to count, multilayered hemorrhages extending to the periphery. Proposed mechanisms included shaking without impact, shaking with impact against a soft surface (eg, a bed), a very short fall (<3 feet) with impact against a hard surface, a high-velocity motor vehicle collision (MVC), hypoxia, dysphagic choking, vitamin D deficiency rickets, and adverse reaction to vaccines.

Finally, respondents were asked whether they believed SBS to be a valid medical diagnosis (yes, no, don't know/unsure), whether they believed AHT to be a valid medical diagnosis (yes, no, don't know/unsure), and the basis for those opinions (clinical experience, medical literature, both, or neither). Respondents were offered the chance to ask questions or to comment on the survey or the study as a whole by contacting the principal investigator.

For analysis, we defined a "fringe opinion" as one in which <5% of respondents deemed a given mechanism for a finding as likely/highly likely or unlikely/highly unlikely (Table 1). For analysis of shaking with impact versus shaking without impact results, we defined "discordance" as a rating that changed from highly unlikely or unlikely to likely or highly likely (or vice versa), depending on whether or not impact was present. Descriptive statistics were used to determine the prevalence of each response along with associated 95% CIs. Comparisons were conducted using OR with 95% CI.

Download English Version:

<https://daneshyari.com/en/article/6218759>

Download Persian Version:

<https://daneshyari.com/article/6218759>

[Daneshyari.com](https://daneshyari.com)