VIEWPOINT

Flawed Theories to Explain Child Physical Abuse
What Are the Medical-Legal Consequences?

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Over the last 2 decades, a small number of pediatricians, radiologists, neurosurgeons, pathologists, attorneys, and journalists have advanced scientifically unsupported theories both in publications and in the courtroom to explain the findings of physical abuse of children. These individuals have not only obscured facts about child abuse but also generated controversy and confusion among both the public and the medical community about the diagnosis of child physical abuse and, in particular, the diagnosis of abusive head trauma.

The purposes of this Viewpoint are to describe the inappropriate use of scientifically unsupported theories to explain abuse, to review some of these alternative theories, to highlight how the use of such theories can affect the outcome of child abuse cases, and, most important, to clarify that there is no significant controversy about the diagnosis of physical abuse and abusive head trauma in clinical medicine. Rather the existing controversy in the courtroom and media has been created by the use of scientifically unsupported explanations.

> Denying that abusive head trauma occurs, quoting publications that describe flawed theories, ... and using fabricated diagnoses ... have no place in science or medicine.

Flawed explanations of child abuse fall into 3 categories. One category includes legitimate diagnoses that should be considered in the differential diagnosis of a child with injuries. These conditions might occasionally mimic abusive injuries. One example is the rare household fall that results in life-threatening injury or death. Another example is osteogenesis imperfecta, a well-defined genetic disease that predisposes to multiple fractures and is sometimes confused with abuse. Carefully obtained history, thorough physical examination, imaging studies, laboratory tests, and when appropriate, scene investigation by child protection agencies, law enforcement authorities, or both can reliably differentiate these conditions from abusive injuries.

A second category includes other legitimate diagnoses that lack scientific support as explanations of injuries. Examples include vitamin D deficiency and Ehlers-Danlos syndrome, both of which have been used as alternative explanations for fractures due to abuse in young children. Ehlers-Danlos syndrome has emerged more recently in the courtroom and in news media accounts as an explanation for multiple fractures in infants even though evidence for this causal mechanism is lacking and any association remains a speculative hypothesis.[1]

The third category includes fabricated diagnoses, such as "dysphagic choking" and "temporary brittle bone disease." Dysphagic choking has been used to explain fatal abusive head trauma, and temporary brittle bone disease has been used to explain multiple abusive fractures. Both of these are purely speculative diagnoses that lack any scientific support.[2,3]

Proponents of these flawed theories argue that alternative diagnoses can look just like physical child abuse. They argue that if an alternative diagnosis is possible then it is not possible to conclude that abuse occurred. If it is not possible to conclude that abuse occurred, then no crime has been committed and there is no need to provide child protection. Some have even suggested that the shaken baby syndrome does not exist, despite documented admissions of shaking by perpetrators of abusive head trauma whose victims died or sustained serious neurological injuries.[4]

Some of these proponents of flawed theories have written articles about abuse or abusive head trauma; however, these articles have included unproven hypotheses, case reports with omitted facts and misrepresentations, descriptions of conditions that are fallacious, and commentaries or letters without supporting evidence.[2,3] Such publications have then been cited or used in court to assert that there is no evidence base to support the diagnoses of abuse and abusive head trauma.

Some of these proponents have faculty appointments at academic medical centers, and these centers should bear responsibility for medical testimony given by their faculty. If medical faculty at these institutions testified under oath that smoking did not cause cancer or that HIV did not cause AIDS, would such testimony be tolerated?

Although the American Academy of Pediatrics has published recommendations about expert testimony, it does not cover irresponsible testimony. Such testimony involving child physical abuse, however, was addressed by Chadwick and Krous.[5] They stated that irresponsible testimony includes using unique theories of causation, providing unique or very unusual interpretations of medical findings, alleging nonexistent findings, misquoting flagrantly, and making false statements and deliberate omissions. Academic medical centers should consider using these

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criteria to set standards for medical testimony, and professional societies should do likewise.

The US justice system is not perfect. There is reason to believe that innocent people have been wrongfully convicted of child abuse and likewise that guilty people have been acquitted. Physicians provide critically important guidance for legal decisions regarding potential abuse. The high stakes of these decisions underscore the importance for all physicians and others to base their medical testimony on solid science. The use of flawed theories has serious consequences, including failure to hold guilty parties responsible and failure to protect children at risk of returning to an abusive environment.

Is there considerable controversy regarding the diagnosis of abusive head trauma in clinical medicine as opposed to the courtroom? The short answer is no. In 2009, the American Academy of Pediatrics published a statement advising pediatricians to use "'abusive head trauma' rather than a term that implies a single injury mechanism, such as shaken baby syndrome, in their diagnosis and medical communications."[6] The statement confirmed that abusive head trauma was a valid diagnosis and that injury mechanisms include shaking alone, blunt impact alone, or shaking and blunt impact together. Since then, additional clinical studies have appeared confirming that each of these mechanisms can cause abusive head trauma. Currently, in addition to the American Academy of Pediatrics, the World Health Organization, and the Centers for Disease Control and Prevention, many other organizations in both North America and Europe have publicly acknowledged the validity of abusive head trauma. Clearly, there is a consensus regarding the validity of abusive head trauma in clinical medicine. Studies of documented perpetrator admissions[4] and of confessed abuse vs witnessed unintentional injuries[7] confirm this consensus. The only controversy remains in the courtroom and in the media.

Another concern is whether physicians who care for abused children are correctly diagnosing abusive head trauma. In a 2003 study examining the incidence of abusive head trauma, investigators identified all cases of traumatic brain injury resulting in death or admission to an intensive care unit in North Carolina among children younger than 2 years. An expert panel then reviewed these cases to determine if the correct diagnosis of inflicted vs noninflicted injury had been made.[8] Of the 152 cases identified over 2 years, 53% were classified as inflicted injuries. Only 2 cases were reclassified by the research team; both cases had been classified by the medical examiner as "undetermined." One was reclassified as inflicted traumatic brain injury and the other as noninflicted injury. Based on this study, abusive head trauma was correctly diagnosed and not overdiagnosed. No data were provided about cases of abusive head trauma that might have been missed.

Physicians who care for injured children must continue to use a scientific approach and careful clinical judgment in diagnosing abuse because it is critically important to get the diagnosis right. The same scientific approach and careful clinical judgment should be used by those who have advanced scientifically unsupported explanations of the findings of abuse. Denying that abusive head trauma occurs, quoting publications that describe flawed theories as if they are scientifically supported, and using fabricated diagnoses are actions that have no place in science or medicine. Furthermore, these flawed theories have no place in law or journalism. Advocacy of theories based on misrepresentation, omission, or both makes a mockery of scientific reasoning and does a disservice to children, families, and justice.

Physicians, researchers, academic medical centers, journalists, and legal scholars have a responsibility to repudiate scientifically unsupported theories that falsely purport to explain child abuse and abusive head trauma.

ARTICLE INFORMATION

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