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Assessment of factors resulting in abuse evaluations in young children with minor head trauma

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Abstract

Objective: The primary objective was to determine which of the examined factors prompted physicians to initiate a further abuse evaluation in young children with minor head injury. The recording of important historical elements in the charts of these patients was also evaluated.

Methods: Charts of 349 children less than 3 years of age with minor head injury were retrospectively reviewed. Age, race, sex, insurance status, findings on head CT, mechanism of injury, witnessing of event and delay in seeking care were analyzed for association with performance of skeletal survey and referral to Child Protective Services (CPS).

Results: Increased odds of CPS referral and increased odds of obtaining a skeletal survey were associated with positive findings on head CT, delay in seeking care, and unknown mechanism of injury. Despite a known association of age/ambulatory status with abuse, the age of the child was not associated with increased odds of abuse evaluation, and younger age was not associated with increased odds of documenting whether the injury was witnessed or when the injury occurred. Documentation of timing of injury was lacking in 29.2% of the charts. Witnessing of the event was undocumented in 48.7% of cases.

Conclusion: Clinicians may not be using readily available, important information when considering the initiation of an abuse evaluation in young children. Clinicians seeing acutely injured children may need further education regarding developmental status and its effect on mechanisms of injury and the importance of detailed documentation in cases where abuse is a possible cause of injury.

Practice implications: Historical factors associated with injuries in young children continue to be poorly documented. Increased pediatric training for emergency medicine physicians, clinical protocols for evaluation and

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documentation of injured children, and regular continuing medical education on child development and its implications on mechanisms of injury for clinicians practicing in acute care settings are needed changes that may bring about improvements.

Keywords: Child abuse; Pediatrics; Head injury; Shaken baby syndrome

Introduction

Inflicted head injury is the leading cause of death in abused children less than 2 years of age (Billmire & Myers, 1985; Duhaime, Christian, Rorke, & Zimmerman, 1998). Jenny showed that many young children with non-accidental head trauma are seen by physicians and misdiagnosed (Jenny, Hymel, Ritzen, Reinert, & Hay, 1999). Reducing the likelihood of misdiagnosis is crucial to preventing further child abuse. Physicians caring for acutely injured children are responsible for efficient yet thorough evaluations of each patient that may incorporate an assessment for the possibility of abuse. Determining which factors prompt physicians to initiate a further child abuse evaluation is critical to improving detection of inflicted trauma. Analysis of documentation of historical factors and physical findings in injured children has previously been studied (Boyce, Melhorn, & Vargo, 1996; Limbos & Berkowitz, 1998; Solomons, 1980); however, no studies have evaluated medical charts for recording of historical factors, such as timing of and witnessing of injurious event, specifically in children with minor head injury.

The primary goal of this study was to evaluate the association of eight demographic, historical and radiographic factors (age, sex, ethnicity, insurance status, witnessing of event, delay in seeking care, findings on head CT, and mechanism of injury) with the obtainment of Child Protective Services (CPS) referral and/or skeletal survey in children less than 3 years of age with minor head injury seen in the Emergency Department (ED) or admitted to the hospital through the ED. Age, witnessing of event, delay in seeking care, and mechanism of injury were chosen based on previous documentation as indicators of abuse (Benger & Pearce, 2002; Brodeur & Monteleone, 1998; Hettler & Greenes, 2003; Limbos & Berkowitz, 1998; Sugar, Taylor, & Feldman, 1999; Ziegler, Sammut, & Piper, 2005). Gender, ethnicity, and insurance status were included due to documented and/or potential association with clinician bias in evaluating injury for abuse (Lane, Rubin, Monteith, & Christian, 2002). In addition, the frequency of recording of important historical factors related to the injury, such as timing of injury and witnessing of injurious event, was evaluated.

Methods

The study was conducted at Christus Santa Rosa Children's Hospital and University Hospital, both in San Antonio, Texas. Christus Santa Rosa Children's Hospital is a pediatric tertiary referral center with a 24-hour emergency department (ED) staffed by pediatric emergency medicine physicians and general pediatricians. University Hospital is a level 1 trauma center staffed by emergency medicine physicians and general pediatricians.

Subjects were identified through search of hospital databases for discharge ICD9 codes for conditions associated with head trauma in children less than 3 years of age from the years 2001–2005. Specific ICD9