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The Challenge of Identifying Pediatric Abusive Head Trauma During the COVID-19 Pandemic

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**Abbreviations:**
abusive head trauma (AHT)
emergency department (ED)
International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM)
Pediatric Health Information System (PHIS)
United Kingdom (UK)
United States (US)
Abusive head trauma (AHT) is a leading cause of traumatic death in infants and young children\(^1\). Children who suffer AHT are often subjected to repeated and sustained episodes of abuse; thus, timely identification is crucial, and can be lifesaving\(^2\). However, there are numerous challenges associated with the identification of AHT. Because the clinical signs and symptoms can vary and be subtle, AHT can be missed by practitioners\(^3\).

The COVID-19 pandemic has had a profound adverse impact on families/households. As a result, concerns have been raised that children may be at increased risk for physical abuse and that some cases may go undiagnosed\(^4\). In this issue of *Pediatrics*, Maassel et al.\(^5\) report findings from a national study conducted in the United States (US) that examined changes in the frequency of AHT hospitalizations during the COVID-19 pandemic. Using data from the Pediatric Health Information System (PHIS) database, the study compared mean hospital admission rates for AHT and key demographic and admission characteristics at 49 children’s hospitals during March–September 2020, with those across the same months of the preceding three years. There was a statistically significant decrease in hospital admissions for AHT during the COVID-19 pandemic compared to each previous year. In addition, there were no statistically significant differences in the proportion of children who: were admitted to an Intensive Care Unit; required a ventilator; presented with subdural or retinal hemorrhage; or died from their injuries\(^5\). The study findings echo those of a recent, very similar US study that used the PHIS database to investigate emergency visits and hospitalizations for all types of physical child abuse during the COVID-19 pandemic\(^6\).
As Maassel et al.\textsuperscript{5} note, their findings differ from earlier, single-center studies documenting an increase in the number\textsuperscript{7} or proportion\textsuperscript{8} of children presenting with abuse-related injuries during the COVID-19 pandemic. While one United Kingdom (UK) study reported an alarming 1493\% rise in the incidence of AHT during the pandemic compared to equivalent time periods in three prior years, the data represented only 1 institution over the first month of the national lockdown\textsuperscript{7}. In contrast, Sanford et al.\textsuperscript{9} reported a decrease in the number of emergency department (ED) visits for blunt trauma at 1 US tertiary pediatric hospital during the first 2 months of the pandemic, and no corresponding increase in the proportion of suspected abuse cases. A major strength of the studies conducted by Maassel and colleagues\textsuperscript{5} and Kaiser et al.\textsuperscript{6} is the inclusion of 6 months of data from multiple children’s hospitals across the US. These studies highlight the value of national administrative data in facilitating rapid, population-wide child abuse surveillance studies that will ultimately help to inform public health policy and practice.

Maassel et al.\textsuperscript{5} hypothesized that due to the severity of AHT, it is difficult for caregivers to forego seeking medical care for the child, implying that the decrease in hospitalizations represents a true decrease in AHT incidence. However, the brief acknowledgement that “milder cases of AHT may be able to forego care”\textsuperscript{5} necessitates discussion. Evidence suggests that even when medical care is sought, many AHT cases go unrecognized by medical professionals, even without the additional challenges posed by the pandemic.\textsuperscript{2,3,10,11} Existing challenges in the identification of AHT have been exacerbated by COVID-19-associated physical distancing measures. For example, national US data demonstrates that patterns in child abuse-related ED presentations changed during the pandemic\textsuperscript{12}. Although the number of presentations decreased, the percentage requiring hospital admission increased in children aged 0–4 years, suggesting that
less severe cases are not being brought for care. Such changes in healthcare utilization can be attributed in part to anxieties around contracting COVID-19\textsuperscript{7}.

If milder AHT is being missed, we might expect more severe hospitalizations for AHT/physical abuse in the COVID-19 period compared to earlier time periods, which was not the case\textsuperscript{5,6}. However, while hospital admission data are undeniably useful for assessing the scope of AHT and trends in incidence and case composition, they represent only one piece of the puzzle. A recent study examining the accuracy of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) coding for physical child abuse demonstrated that AHT hospitalization data alone are likely to significantly underestimate the incidence of AHT and only represent the “tip of the iceberg” of likely cases.\textsuperscript{13} Meanwhile, there is evidence that the incidence of AHT increases during and following an economic recession\textsuperscript{14,15,16} and following a natural disaster\textsuperscript{17}. For these reasons, the observed decrease in hospitalizations for AHT is indeed surprising. Although Maassel et al.\textsuperscript{5} conjecture that this decrease may be explained by an increased number of caregivers in the home, there may also be some under-recognition of cases. Kaiser et al.\textsuperscript{6} postulate that either 1) the true occurrence of abuse decreased similarly across the whole spectrum of severity, or 2) presentation of abuse cases to medical care and/or missed cases decreased similarly across the whole spectrum of severity. Regardless, we agree with Maass et al.\textsuperscript{5} that it is paramount to consider all possible explanations in these unprecedented times, and that emerging hypotheses must be explored going forward.

Important questions remain regarding implications for the identification and prevention of AHT. What are the factors that are driving the changes in frequency of AHT hospital admissions, and
how do we best study them? What does this mean for prevention interventions during and post-pandemic? If children are not being brought for care, how can we ensure that risk factors of abuse and sentinel injuries are recognized? It is likely that a strengthened community approach is required. Future research should focus on untangling the factors driving changes in healthcare use and designing and implementing interventions to better understand and mitigate the short- and long-term effects of COVID-19 on violence and abuse in children.

References


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