

Distinguishing inflicted versus accidental abdominal injuries in young children

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OBJECTIVES: To compare the presentation of young children with abdominal trauma caused by high-velocity accidental (HVA), low-velocity accidental (LVA), and inflicted injury, and to test the hypothesis that a delay in care is highly predictive of an inflicted injury.

METHODS: We performed a retrospective chart review at an urban Level I pediatric trauma center between 1991 and 2001 of children younger than 6 years who were admitted with abdominal injuries and an Abbreviated Injury Scale (AIS) score ≥ 2 . Charts were abstracted for demographic information, history of presentation, mechanism of injury, and diagnoses. Accidental injuries were defined as high velocity (motor vehicle crash or a fall from > 10 feet) or low velocity (household trauma, bicycle crash, or a fall from < 10 feet). Inflicted trauma was defined as a constellation of unexplained injuries, confessions by a perpetrator, or disclosure by the victim.

RESULTS: Of the 121 children in the study, 77 (64%) had HVA injuries, 31 (26%) had LVA injuries, and 13 (11%) had inflicted injuries. Solid organ injuries (e.g., liver, spleen, and kidney) were most common in all groups, and abused children were significantly more likely to have suffered a hollow viscus injury ($p = 0.03$). Abused children were also significantly more likely to have suffered injuries with an AIS score > 3 and combined hollow viscus and solid organ injuries than the HVA group or the LVA group ($p < 0.001$). Presentation for medical care occurred within 12 hours for 100% of the HVA group but only 65% of the LVA group, and 46% of the abuse group ($p < 0.001$). Presentation to care at greater than 12 hours was neither specific nor highly predictive of abuse, as some children with LVA injuries presented for care late despite developing symptoms shortly after their injury occurred (specificity, 65% [95% confidence interval, 45-81%]; positive predictive value, 39% [95% confidence interval, 17-64%]).

CONCLUSION: Young children with inflicted abdominal injuries are more likely to have more severe injuries, multiple injuries, and a delay in seeking care than young children with accidental abdominal trauma. However, delay in seeking care is not specific for inflicted injury and occurs in some children with LVA abdominal trauma.

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