Use and Utility of Skeletal Surveys to Evaluate for Occult Fractures in Young Injured Children

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OBJECTIVE: To describe the percentage and characteristics of children aged <24 months with non-motor vehicle crash (MVC)-related injuries who undergo a skeletal survey and have occult fractures. METHODS: We performed a retrospective chart review of a stratified, systematic random sample of 1769 children aged <24 months with non-MVC-related bruises, burns, fractures, abdominal injuries, and head injuries at 4 children's hospitals between 2008 and 2012. Sampling weights were assigned to each child to allow for representative hospital-level population estimates. Logistic regression models were used to test for associations between patient characteristics with outcomes of skeletal survey completion and occult fracture identification. RESULTS: Skeletal surveys were performed in 46.3% of children aged 0 to 5 months, in 21.1% of those aged 6 to 11 months, in 8.0% of those aged 12 to 17 months, and in 6.2% of those aged 18 to 24 months. Skeletal surveys were performed most frequently in children with traumatic brain injuries (64.7%) and rib fractures (100%) and least frequently in those with burns (2.1%) and minor head injuries (4.4%). In adjusted analyses, older age, private insurance, and reported history of accidental trauma were associated with decreased skeletal survey use (P ? .001 for all). The prevalence of occult fractures on skeletal surveys ranged from 24.6% in children aged 0 to 5 months to 3.6% in those aged 18 to 24 months, and varied within age categories based on the presenting injury (P < .001). CONCLUSIONS: The high rate of occult fractures in infants aged 0 to 5 months underscores the importance of increasing the use of skeletal surveys in this population. Further research is needed to identify the injury characteristics of older infants and toddlers most at risk for occult fractures.

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