Occult Head Injuries in Infants Evaluated for Physical Abuse

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Abusive head injuries in infants may be occult but clinically or forensically important. Data conflict regarding yield of neuroimaging in detecting occult head injuries in infants evaluated for physical abuse, with prior studies identifying yields of 4.3-37.3 %. OBJECTIVES: 1) To quantify yield of computed tomography or magnetic resonance imaging in identification of occult head injuries in infants with concerns for physical abuse and (2) to evaluate risk factors for occult head injuries. PARTICIPANTS AND SETTING: We conducted a retrospective, stratified, random systematic sample of 529 infants <12 months evaluated for physical abuse at 4 urban children's hospitals in the United States from 2008-2012. Infants with signs or symptoms suggesting head injury or skull fracture on plain radiography (N = 359), and infants without neuroimaging (N = 1) were excluded. METHODS: Sampling weights were applied to calculate proportions of infants with occult head injuries. We evaluated for associations between hypothesized risk factors (age <6 months, rib or extremity fracture, facial bruising) and occult head injury using chi-square tests. RESULTS: Of 169 neurologically normal infants evaluated for abuse, occult head injury was identified in 6.5 % (95 % CI: 2.6, 15.8). Infants <6 months were at higher risk (9.7 %; 95 % CI: 3.6, 23.3) than infants 6-12 months (1.0 %; 95 % CI: 1.3, 20.2). Rib fracture, extremity fracture and facial bruising were not associated with occult head injury. CONCLUSIONS: Occult head injuries were less frequent than previously reported in some studies, but were identified in 1 in 10 infants <6 months. Clinicians should have a low threshold to obtain neuroimaging in young infants with concern for abuse.

Journal:

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