Ophthalmology Examinations in Children With Skull Fractures and Underlying Focal Hemorrhage

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Objectives: To assess the frequency and yield of retinal examination in children below 2 years old undergoing abuse evaluations in the setting of skull fracture(s) and small underlying intracranial hemorrhage.

Methods: This cross-sectional study used CAPNET, a multicenter child physical abuse network, to identify children below 2 years with a skull fracture(s) and intracranial injury limited to an underlying small focal intracranial hemorrhage undergoing subspeciality child abuse evaluations. Our outcomes of interest were (1) the performance of a retinal examination, (2) the identification of retinal hemorrhages, and (3) associations of clinical factors and CAPNET site with the performance of retinal examinations. We hypothesized that retinal hemorrhages would be identified in <5% of patients.

Results: Of 242 children who met inclusion criteria, the majority (189, 78.1%) presented with a reported history of accidental trauma, and most (211, 87.2%) lacked additional injuries. Only 9 (3.7%) had loss of consciousness and/or seizures/seizure-like activity. The majority (201, 83.1%) had low concern for abuse. Overall, 104 (43.0%) children underwent retinal examinations, of which 0 had retinal hemorrhages (one-sided 95% CI: 0-2.8%). Children without a reported accidental mechanism of injury (P=0.004), those with intermediate/high concern for abuse (P<0.001), and children with occipital fractures (P=0.008) were more likely than their counterparts to undergo retinal examination. The proportion of children undergoing retinal examination varied by CAPNET site (P<0.001).

Conclusions: Our findings suggest that it may be reasonable to forgo retinal examinations in children below 2 years of age with skull fracture(s) and intracranial injury limited to an underlying small focal hemorrhage who are overall neurologically well-appearing.

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