Does Specialty Training And Practice Setting Effect Adherence To The PECARN Criteria For Pediatric Head Trauma?

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Background: Pediatric head injuries account for a significant portion of emergency department (ED) visits. While computed tomography (CT) use in these patients can be a definitive diagnostic test, the effects of ionizing radiation exposure are a significant consideration. Previously, the Pediatric Emergency Care Applied Research Network (PECARN) developed an algorithm for the utilization of CT scans when evaluating pediatric head trauma. The goal of this study was to determine the effects of specialty training, in addition to, practice settings on the adherence to PECARN criteria.

Methods: A retrospective study was conducted on a two campus hospital. Chart documentation was used to determine adherence to PECARN criteria. Inclusion criteria was any traumatic head injury within 24 hours in patients under the age of 18 years over a one-year period. Exclusion criteria was penetrating trauma, brain tumors, pre-existing neurological disorders, or neuroimaging at an outside facility. Specialty training was subdivided into three groups: pediatric emergency medicine (PEM), emergency medicine (EM), and general pediatrics (GP). The two hospital campuses are distinctly different practice settings. One being an academic practice setting, which is also a trauma center that has a dedicated pediatric ED, staffed by PEM, EM and GP physicians. The second campus is a community practice and is staffed solely by EM physicians. Statistical analysis was performed utilizing $\chi^2$ and the Cochran–Mantel–Haenszel (CMH) test. All analyses were two-sided, and a P-value of <0.05 was considered statistically significant.

Results: A total of 709 pediatric patients with traumatic head injuries were analyzed. CT scans were obtained on 119 (16.8%) patients. Overall adherence to PECARN criteria was 93%. No statistical difference was found between different specialty training on the academic campus. Additionally, the rate of adherence amongst EM physicians at the academic and community settings was 94.8% vs. 86.5% respectively, which was statistically significant ($P=0.004$).

Conclusions: Practice setting had an effect on adherence to PECARN criteria in pediatric patients with acute traumatic head injury. The same determination on adherence was not demonstrated among physicians with different specialty trainings.