

What's New in the Patient Safety World

February 2024

Another Canadian Head CT Rule

We've often discussed clinical decision rules dealing with when to get a head CT scan in patients who have had minor head trauma (see columns below). Not only do unnecessary scans expose patients to ionizing radiation but they add expense and often uncover incidental findings that trigger the "diagnostic cascade" or "investigation momentum" where one test leads to another and on and on....

Our March 2017 What's New in the Patient Safety World column "[Update on CT Scanning after Minor Head Trauma](#)" noted the many clinical decision rules for CT scanning in adult patients with minor head trauma, including the Canadian CT Head Rule, the New Orleans Head CT Rule, the NICE guideline, and for children CHIP, CATCH, and the NICE guideline.

But what about doing head CT scans in the elderly when they did not hit their head? We were unaware that such a scenario was really a problem, but Canadian researchers recently developed a clinical decision support rule for that exact scenario ([de Wit 2023](#)). The rule indicates that no head CT is required in cases with no history of head injury on falling, no amnesia of the fall, no new abnormality on neurologic examination, and a Clinical Frailty Scale score <5.

The original Canadian CT Head rule determines the need for head CT in patients with head injuries, but applies to patients who have experienced disorientation, amnesia or loss of consciousness. The new Canadian rule was developed for elderly patients who fell but did not have those features. It was derived from patients aged 65 years or older who presented to the emergency department at eleven academic hospitals in Canada and the United States within 48 hours of having a fall.

The new rule indicates very low benefit of a head CT scan for diagnosing intracranial bleed if there is definitely no history of head injury, the patient can confirm they have no amnesia of the fall, there is no new abnormality on neurologic examination, and the Clinical Frailty Scale score is less than 5. When the history of head injury or amnesia is unclear, the patient requires neuroimaging.

In a cohort of 4308 participants, the rule had a 98.6% sensitivity for clinically important intracranial bleeding was 98.6%, specificity of 20.3%, and negative predictive value 99.8%. Application of the rule would have avoided CT scanning in 19.9% of the study population.

It's an interesting potential addition to our armamentarium of clinical decision rules for head CT scanning in the elderly. However, the rule should receive external validation before being widely adopted.

Some of our previous columns on CT scans in minor head trauma:

April 16, 2007 "[Falls With Injury](#)"
July 17, 2007 "[Falls in Patients on Coumadin or Heparin or Other Anticoagulants](#)"
March 2010 "[CATCH: New Clinical Decision Rule for CT in Pediatric Head Trauma](#)"
November 23, 2010 "[Focus on Cumulative Radiation Exposure](#)"
June 5, 2012 "[Minor Head Trauma in the Anticoagulated Patient](#)".
July 8, 2014 "[Update: Minor Head Trauma in the Anticoagulated Patient](#)"
January 2017 "[Still Too Many CT Scans for Pediatric Appendicitis](#)"
March 2017 "[Update on CT Scanning after Minor Head Trauma](#)"
September 2017 "[Clinical Decision Rule Success](#)"
August 21, 2018 "[Delayed CT Scan in the Anticoagulated Patient](#)"
September 21, 2021 "[Repeat CT in Anticoagulated Patients After Minor Head Trauma Not Cost-Effective](#)"
December 14, 2021 "[Delayed Hemorrhage After Head Trauma in Anticoagulated Patients](#)"
August 2022 "[CDSS Success for Pediatric Head CT](#)"

Some of our previous columns on head trauma in the anticoagulated patient:

April 16, 2007 "[Falls With Injury](#)"
July 17, 2007 "[Falls in Patients on Coumadin or Heparin or Other Anticoagulants](#)"
June 5, 2012 "[Minor Head Trauma in the Anticoagulated Patient](#)".
July 8, 2014 "[Update: Minor Head Trauma in the Anticoagulated Patient](#)"
August 21, 2018 "[Delayed CT Scan in the Anticoagulated Patient](#)"
September 21, 2021 "[Repeat CT in Anticoagulated Patients After Minor Head Trauma Not Cost-Effective](#)"
December 14, 2021 "[Delayed Hemorrhage After Head Trauma in Anticoagulated Patients](#)"
January 17, 2023 "[Patient Safety with NOAC's and DOAC's](#)"

References:

de Wit K, Mercuri M, Clayton N, et al. Derivation of the Falls Decision Rule to exclude intracranial bleeding without head CT in older adults who have fallen. CMAJ 2023; 195(47): E1614-E1621

<https://www.cmaj.ca/content/195/47/E1614>



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