Prediction rules for patients with minor head injury suggest that the use of computed tomography (CT) may be limited to certain patients at risk for intracranial complications. These rules apply only to patients with a history of loss of consciousness, which is frequently absent. OBJECTIVE:

To develop a prediction rule for the use of CT in patients with minor head injury, regardless of the presence or absence of a history of loss of consciousness. DESIGN:

Prospective, observational study. SETTING:

4 university hospitals in the Netherlands that participated in the CT in Head Injury Patients (CHIP) study. PATIENTS:

Consecutive adult patients with minor head injury (> or =16 years of age) with a Glasgow Coma Scale (GCS) score of 13 to 14 or with a GCS score of 15 and at least 1 risk factor. MEASUREMENTS:

Outcomes were any intracranial traumatic CT finding and neurosurgical intervention. The authors performed logistic regression analysis by using variables from existing prediction rules and guidelines, with internal validation by using bootstrapping. RESULTS:

3181 patients were included (February 2002 to August 2004): 243 (7.6%) had intracranial traumatic CT findings and 17 (0.5%) underwent neurosurgical intervention. A detailed prediction rule was developed from which a simple rule was derived. Sensitivity of both rules was 100% for neurosurgical interventions, with an associated specificity of 23% to 30%. For intracranial traumatic CT findings, sensitivity and specificity were 94% to 96% and 25% to 32%, respectively. Potential CT reduction by implementing the prediction rule was 23% to 30%. Internal validation showed slight optimism for the model's performance. LIMITATION:

External validation of the prediction model will be required. CONCLUSION:

The authors propose the highly sensitive CHIP prediction rule for the selective use of CT in patients with minor head injury with or without loss of consciousness [1].

[1]

Smits M, Dippel DW, Steyerberg EW, de Haan GG, Dekker HM, Vos PE, Kool DR, Nederkoorn PJ, Hofman PA, Twijnstra A, Tanghe HL, Hunink MG. Predicting intracranial traumatic findings on computed tomography in patients with minor head injury: the CHIP prediction rule. Ann Intern Med. 2007 Mar 20;146(6):397-405. PubMed PMID: 17371884.