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Clinical usefulness of the Ottawa subarachnoid hemorrhage clinical decision rule for emergency department headache patients

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Background: Causes of headache range from benign to life-threatening. Subarachnoid hemorrhage (SAH) is one of the most serious diagnoses. Ottawa subarachnoid hemorrhage (OSAH) rule is a clinical decision rule, which identifies patients with acute nontraumatic headache who require further investigation. OSAH rule had high sensitivity for SAH.

Purpose: The present study had two purposes they are to validate the OSAH rule to assess its classification performance in ED headache patients; to evaluate the impact of OSAH rule for ICH and other intracranial hemorrhage (ICH) and intracranial pathology (ICP).

Methods: We conducted a retrospective cohort study from January 2016 to March 2017. Patients with acute headache, defined as those with a primary complaint of headache onset within 14 days before ED visit, were included. We excluded patients who had sustained direct head trauma in the previous 7 days, and those with new onset abnormal neurologic findings, or patients with changes in levels of consciousness. Per the OSAH rule, patients with any of the following predictors require further investigation: age 40 years or older, neck pain, stiffness or limited flexion, loss of consciousness, onset during exertion or thunderclap.

Results: During the study period, 913 patients were included. Of them, 15 patients were diagnosed as SAH. The OSAH Rule had sensitivity for SAH: 100% (95% CI, 78.2%-100%), specificity 37.0% (95% CI, 33.8-40.2%-10.6%). Total 22 cases diagnosed as SAH or ICH, when applied with OSAH rule, 100% sensitivity (95% CI, 84.6%-100%), 37.3% (95% CI, 34.1%-40.5%) specificity were noted. When we applied OSAH rule to non-hemorrhagic ICP, the sensitivity decreased to 75.0% (95% CI, 53.3%-90.2%), and negative predictive value (NPV) decreased to 98.2% (95% CI, 96.1%-99.3%).

Conclusions: In our cohort, OSAH rule had 100% sensitivity and NPV for SAH and ICH, with acute headache. The sensitivity and specificity were lower for non-hemorrhagic ICP. These data suggest that applying the rule might be an effective tool to exclude acute ICH and SAH in our setting.

Biography

Fu-Jen Cheng graduated from Chang Gung University College of Medicine on 2004. He is an Attending Physician in Department of Emergency Medicine, Kaohsiung Chang Gung Memorial Hospital, since 2009. He has published more than 10 papers in reputed journals.

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