

Title:

- Sensitivity of computed tomography performed within six hours of onset of headache for diagnosis of subarachnoid hemorrhage: prospective cohort study

Background:

- Current standard of care for patients presenting within six hours of headache onset with concern for subarachnoid hemorrhage (SAH) is noncontrast CT head followed by LP if CT is negative.

Objective:

- Is modern third generation CT sensitive enough to rule out SAH without the need for follow up LP if negative, when presenting in the first six hours of symptoms.

Materials and Methods:

- Prospective cohort study that included 3,132 patients over the age of 15 with a non-traumatic acute onset of headache in eleven different centers in Canada. Pts were AAOx3 with GCS of 15 without neurologic deficit, meaning patients were low risk for SAH.

Results:

- Overall, 7.7% were found to have SAH. The overall sensitivity was 92.9%. Of all the patients that presented within six hours of symptom onset, 100% of patients that had SAH were identified by CT scan. In other words, CT scan is **100% sensitive**.
- Overall sensitivity of CT scan in patients presenting for headache **after six hours from onset was 85.7%**.

Discussion:

From this paper, it concluded that modern third generation CT scanners are sensitive to rule out SAH when patient presents within 6 hours of headache onset without the need for confirmation LP as CT scan was found to be 100% sensitive in this patient population. There were however limitations to the study that affect my application of this into my practice. As emergency medicine physicians, LP is the standard of care to rule out SAH. In this study however, LP was not performed in all patients to rule out SAH and therefore the comparison to CT head could not be performed. In fact, only half of all patients who presented with headache onset less than six hours prior had an LP performed. What the study did do instead was perform follow up with all patients enrolled. They state even if they overestimated the amount of patients lost to follow up as 25%, the negative likelihood ratio only rises to 0.024. From this study, I think they have provided a good baseline study. However, at this time my practice will not change. I would like to see another study designed with CT head and confirmation LP performed in all patients to compare the results to our current gold standard diagnostic workup.

Reference:

- Perry JJ, Stiell IG, Sivilotti ML, et al. Sensitivity of computed tomography performed within six hours of onset of headache for diagnosis of subarachnoid haemorrhage: prospective cohort study. *BMJ*. 2011;343:d4277.