

Neuroimaging in migraine

To the Editor: In a recent paper published in *Cephalalgia*, the official journal of the American Headache Society, Callaghan *et al.*^[1] reported on information extracted from more than 50 million headache visits in the USA. This indicated that as many as 9.8% of patients with a diagnosis of migraines underwent neuroimaging – either magnetic resonance angiography or computed tomography. After removing those patients with ‘red flags’ on neurological evaluation, the percentage undergoing neuroimaging decreased from 9.8% to 8.3%. This was contrary to the guidelines originally laid down by Frishberg,^[2] and later confirmed in a number of studies.^[3,4] These guidelines suggested that for migraines, there was no difference in the incidence of clinically meaningful pathology to the incidence in the general population, and that neuroimaging is unnecessary.^[5] Exceptions to these recommendations are the presence of the following red flags:

- new-onset or change in headache in patients who are >50 years old
- thunderclap: rapid time to peak headache intensity (seconds to 5 minutes)
- focal neurological symptoms (such as limb weakness, aura <5 minutes or >1 hour)
- non-focal neurological symptoms (such as cognitive disturbance)
- change in headache frequency, characteristics or associated symptoms
- abnormal findings on neurological examination
- headache that changes with posture
- headache that wakes the patient up (migraine is the most frequent cause of morning headache)
- headache precipitated by physical exertion or Valsalva manoeuvre (such as coughing, laughing and straining)

- patients with risk factors for cerebral venous sinus thrombosis
- jaw claudication or visual disturbance
- neck stiffness
- fever
- new-onset headache in a patient with a history of HIV infection
- new-onset headache in a patient with a history of cancer.

Most headache specialists agree that neuroimaging in migraine is unnecessary, but in spite of this, many still continue to overuse neuroimaging because of the fear of litigation. All the evidence suggests that neuroimaging should only be used in migraine patients with red flags.^[5]

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