

UPDATE IN HEADACHE

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Tips for acute migraine treatment include treating early, limiting to two days per week, and using non-oral medications if the patient has early or severe nausea and vomiting or wakes up with migraine. An acute treatment plan should include initial therapy, back-up therapy, and rescue therapy. Some patients respond to one drug and not another, so try the drug with two headaches before moving on. There is level A evidence for acetaminophen, dihydroergotamine nasal spray, aspirin, diclofenac, ibuprofen, naproxen, the triptans, acetaminophen/aspirin/caffeine, and sumatriptan/naproxen. Consider switching to a nasal or injectable formulation after a patient has failed three oral triptans. If a patient has a good initial response to a triptan, but often has headache recurrence later in the day, add a long-acting NSAID like naproxen sodium to the initial triptan. Transcranial magnetic stimulation can be helpful for acute migraine with aura management.

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Patients are at risk for medication-overuse headache if they regularly use their acute medication more than approximately two days per week. The treatment of patients with chronic migraine and medication-overuse headache includes patient education and behavioral treatment, withdrawal of overused acute medications (sometimes with initiation of bridge therapy for withdrawal headache), initiation of a preventive medication, selection of acute therapy in the post-overuse setting (\leq two days per week), and close follow-up for 8-12 weeks. Patients with chronic migraine should eat, sleep, and exercise in a regular pattern, and limit caffeine. Comorbid depression and anxiety must be addressed in patients with chronic migraine in order for them to improve maximally. There is good evidence for the efficacy of relaxation techniques and biofeedback in patients with chronic migraine. Dr. Dawn Buse from Montefiore Headache Center has created a free online resource to teach relaxation techniques to our patients with chronic migraine (<http://dawnbuse.com/relaxation.htm>). Medication withdrawal typically occurs in the outpatient setting. One option is to taper the overused acute medication over 4-6 weeks by increasing the medication-free days by one per week. Sometimes a long-acting NSAID (naproxen sodium 550 mg po BID) is used during the withdrawal as bridge therapy. Another option in the outpatient setting is abrupt withdrawal with bridge therapy, but this cannot be done with opioids or butalbital-containing medications. If inpatient withdrawal is required, the overused medications are typically abruptly withdrawn and intravenous bridge therapy is employed. Regardless of how the medication is withdrawn, migraine prevention should be started right away, as there is some evidence that preventive medications help decrease acute headache medication use even if patients aren't explicitly told to do so. Bridge therapies include naproxen, prednisone, subcutaneous dihydroergotamine, intravenous dihydroergotamine plus metoclopramide, intravenous valproate sodium, intravenous prochlorperazine, and intravenous methylprednisolone.

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Start migraine preventive treatment if the patient has > three headache days per month when acute treatment is not reliably effective, or > eight headache days per month even if acute medications are effective. In addition, start a preventive when acute medications are contraindicated, not tolerated, or ineffective. The goal of headache prevention is to decrease the headache frequency by 50%. Start low, go slow until therapeutic effects develop, side effects develop, or the ceiling dose is reached. The preventive should be continued for ~2 months at the target dose or maximal tolerated dose before determining utility (some experts recommend a 6 month trial). If the first preventive is not helpful, taper it and try another from a different class. Monotherapy is preferred, but sometimes it is necessary to combine preventives. Patients on migraine preventive medication should be on an effective form of birth control, as no preventives have been proven safe during pregnancy. If the preventive is effective, it can be tapered after 6-12 months. In episodic migraine, there is level A evidence for divalproex sodium, sodium valproate, topiramate, metoprolol, and propranolol. In chronic migraine, the best evidence exists for topiramate and onabotulinumtoxinA. For migraine prevention, remember AAA BB CDEF: antidepressants (old), ACE inhibitor (lisinopril), Angiotensin II receptor blocker (ARB; candesartan), beta blockers, Botox (chronic migraine), calcium channel blockers, Depakote, other epilepsy meds (topiramate, gabapentin), and FDA-free medications (riboflavin, magnesium, CoQ10).

1. Silberstein SD et al. Evidence-based guideline update: pharmacologic treatment for episodic migraine prevention in adults: report of the Quality Standards Subcommittee of the American Academy of Neurology and the American Headache Society. *Neurology* 2012;78:1337-45.
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There is evidence to support the use of occipital nerve blocks with bupivacaine in patients with chronic migraine. I have utilized peripheral nerve blocks (greater occipital nerve, lesser occipital nerve, auriculotemporal nerve, supraorbital nerve, and/or supratrochlear nerve) in the following clinical situations: status migrainosus/severe exacerbation, to facilitate withdrawal of acute medications in medication-overuse headache, between onabotulinumtoxinA cycles, and when waiting for an oral preventive to start working. I have employed peripheral nerve blocks in elderly patients, pregnant patients (lidocaine), patients who don't tolerate or don't respond to the usual preventives, and patients with lots of comorbidity. Transcutaneous supraorbital nerve stimulation also has a role in migraine management.

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9. Schoenen J et al. Migraine prevention with a supraorbital transcutaneous stimulator: a randomized controlled trial. *Neurology* 2013;80:697–704.
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Acute therapies that are being studied now include 5-HT_{1F} agonists and CGRP receptor antagonists. Preventive therapies that are being studied now include the CGRP receptor antagonist atogepant, monoclonal antibodies to CGRP (galcanezumab, eptinezumab, fremenezumab) or its receptor (erenumab), and noninvasive transcutaneous vagal nerve stimulation. CGRP monoclonal antibodies are not for immunomodulation but rather are an example of immunopharmacology (antibodies targeting a molecular pathway). Trials thus far support the notion that targeting the CGRP pathway works acutely and preventively. Given the results of CGRP monoclonal antibody trials, migraine-specific preventive medications will likely be a reality in the near future.

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There is an increased risk of ischemic stroke in patients with migraine with aura (relative risk = two). The odds ratio in migraine with aura patients using combined hormonal contraceptives (pill, patch, or ring) is six. The relative risk in patients with migraine with aura using combined oral contraceptives and smoking is ten. The World Health Organization, American Congress of Obstetricians and Gynecologists, and Centers for Disease Control and Prevention all counsel against combined hormonal contraception in patients who have migraine with aura. Progestin-only contraception (IUD, oral contraceptive, implant, or injection), copper IUD, or barrier methods are options in patients with migraine with aura. Progestin-only contraception does not seem to increase stroke risk.

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