GroupHealth®

Migraine and Tension Headache
Diagnosis and Treatment Guideline

Last guideline approval: June 2011

Guidelines are systematically developed statements to assist patients and providers in choosing appropriate health care for specific clinical conditions. While guidelines are useful aids to assist providers in determining appropriate practices for many patients with specific clinical problems or prevention issues, guidelines are not meant to replace the clinical judgment of the individual provider or establish a standard of care. The recommendations contained in the guidelines may not be appropriate for use in all circumstances. The inclusion of a recommendation in a guideline does not imply coverage. A decision to adopt any particular recommendation must be made by the provider in light of the circumstances presented by the individual patient.

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Diagnosis: Headache Classification

Table 1. Identification of headache type: migraine, tension, or cluster

	Migraine	Tension	Cluster
Location	Unilateral	Bilateral	Supraorbital/temporal
Pain intensity [1]	Moderate to severe	Mild to moderate	Severe
Duration	4–72 hours	30 minutes to 7 days	15–180 minutes
Characterization of pain	Pulsing	Pressure/squeezing	Boring/stabbing
Sensitivity to light/sound	One or both may be present.	Both are absent or only one is present.	No
Nausea/vomiting	One or both may be present.	No	One or both may be present.
Aggravated by routine activity	Yes	No	No
Aura	May be present	No	No
Associated symptoms	None	None	Miosis, ptosis, rhinorrhea

[1] Pain intensity
- Mild—Patient is aware of a headache, but is able to continue daily routine with minimum alterations.
- Moderate—The headache inhibits daily activities, but is not incapacitating.
- Severe—The headache is incapacitating.

Alternative Diagnoses to Consider

For patients with a rapidly accelerating course, a recent history of head injury, or focal neurologic findings, consult with a neurologist or neurosurgeon.

Table 2. Warning signs for possible disorders other than primary headache

Signs/symptoms	Alternative diagnoses	Testing/investigation
Subacute and/or progressive headaches that worsen over time (weeks to months)	Intracranial head lesion • Tumor • Subdural hematoma • Hydrocephalus (acute or obstructive)	• MRI with or without contrast
• A new or different headache in patients with established headache disorders • Statement by the patient that "This is the worst headache of my life." • Headache of sudden onset (e.g., like a thunder clap)	Vasculopathy • Subarachnoid hemorrhage • Venous sinus thrombosis • Carotid dissection Infection • Bacterial meningitis Structural defect •Spontaneous cerebral spinal fluid leak	• CT scan without contrast • If there is no evidence of subarachnoid hemorrhage, a lumbar puncture should be performed. • If both tests are normal and suspicion is still high, order an MRI with or without contrast (i.e., gadolinium). • Discuss next steps with Neurology.
• Red eye • Halos • Unilateral visual symptoms	Angle closure glaucoma	Acute angle closure glaucoma is an ophthalmological emergency.
Age 50 or older and symptoms including: • Polymyalgia rheumatica • Jaw claudication • Scalp tenderness • Fever • Firm, nodular temporal arteries • Decreased temporal pulses	Giant cell arteritis	• Elevated sedimentation rate • C-reactive protein • Consider brain imaging if associated with focal neurologic findings. [1] • Discuss next steps with rheumatology
Rhinosinusitis symptoms lasting 7 days or longer and any of the following: • Yellow-green or blood-tinged nasal discharge • Pain, pressure, and fullness in cheeks, brow, or forehead, especially unilateral • Unilateral maxillary sinus tenderness • Worsening symptoms after initial improvement • Fever • Sore throat • Cough • Fatigue • Achy feeling in upper teeth	Acute bacterial rhinosinusitis	• Non-contrast CT is indicated in patients with clinical signs or symptoms of complicated acute bacterial rhinosinusitis, including: diminished visual acuity, diplopia, periorbital edema, severe headache, or altered mental status. • Non-contrast CT may also be helpful in recurrent or treatment-resistant sinusitis to help identify anatomic blockage of the ostiomeatal complex.
• Jaw soreness • Pain radiating from the jaw • Waking with headache • Ear pain • Hyperacusis • Tinnitus • Palpable or audible joint click as the jaw is opened and closed	Temporomandibular joint (TMJ) disorder	• History • Exam • Consider dental referral. • Consider bite splint/night guard.

[1] In most cases a non-contrast CT is the best initial test. Contrast-enhanced CT or MRI might be appropriate in persons with a rapidly accelerating course, a recent history of head injury, or focal neurologic findings.

Treatment: Migraine Headaches

Goals

Develop a **written headache treatment plan** for prevention and management of acute migraine to:

- Decrease headache frequency. (Aim for fewer than 5 headache days per month.)
- Decrease headache severity. (Headaches will respond quickly to an abortive therapy.)
- Avoid medication/caffeine overuse headache. (See Treatment: Medication Overuse Headaches.)
- Within Group Health, consider using the .pidxmigraine SmartPhrase in Epic to document the headache treatment plan for the After Visit Summary.

Lifestyle Modifications/Non-Pharmacologic Options

Provide self-management education. Teach and encourage patients to:

- Maintain a healthy lifestyle. Develop an action plan to address:
  - Proper nutrition
  - Regular physical activity
  - Adequate sleep
  - Stress reduction strategies
- Identify and avoid triggers (e.g., tobacco smoke, strong odors, or sprays).
- Address workplace ergonomics. (Attention to workplace ergonomics and instruction in self-care of neck tension can have a dramatic effect on headache frequency.)

Pharmacologic Options

- The choice of acute migraine treatments should be dictated by the rapidity of onset, headache severity, associated symptoms (e.g., nausea/vomiting), and patient preference.
- Rule out rebound syndrome prior to initiating therapy. If rebound is present, prevention and acute migraine medications may not be effective.
- Before considering a patient to have failed treatment with a given migraine prevention medication, advance to the maximum recommended dose.
- If a patient doesn't respond to 1–2 adequate doses of a given medication during a migraine episode, it is appropriate to try another medication.
- Individuals may respond differently to different triptans. If patient does not respond to one triptan, offer an alternative triptan.

For information on side effects, contraindications, formulary status (e.g., prior authorization), and other pharmacy-related issues, see the Group Health Formulary online:

Table 3. Pharmacologic options for acute treatment of headache

Eligible population	Medication [1]	Initial dose	Maximum dose
Patients with mild to moderate headache	Aspirin	1000 mg PO once. Give an additional 1000 mg if needed.	4000 mg daily. Do not exceed 3 days of use per week.
	Ibuprofen	400 mg PO once. Give an additional 200–400 mg if needed.	1200 mg daily. Do not exceed 3 days of use per week.
	Acetaminophen/ aspirin/caffeine	500 mg (aspirin component) PO once. Give an additional 500 mg if needed.	4000 mg daily. Do not exceed 3 days of use per week.
	Naproxen	500–750 mg PO once. Give an additional 250–500 mg if needed.	1250 mg daily. Do not exceed 3 days of use per week.
Patients with: Moderate to severe headache **or** Mild to severe headache with nausea or vomiting **or** Rapid progression to severe headache **or** Mild to moderate headache that responds poorly to first-line treatment	Sumatriptan [2,3]	**Oral tablet** 25–100 mg PO once. May repeat after 2 hours.	**Oral tablet** 200 mg daily
		Nasal [PA] 5–20 mg spray in one nostril once. May repeat after 2 hours.	**Nasal** 40 mg daily
		SQ [PA] 6 mg SQ once. May repeat after 1 hour.	**SQ** 12 mg daily
	Rizatriptan [2,3,4]	5–10 mg PO once. May repeat after 2 hours.	30 mg daily
	Naratriptan [2,3,5]	1–2.5 mg PO once. May repeat after 4 hours.	5 mg daily
	Dihydroergotamine mesylate (DHE) [3,6]	**Nasal** 1 spray (0.5 mg) each nostril. May repeat after 15 minutes.	**Nasal** 2 mg daily (4 sprays); 4 mg/week (8 sprays)
		SQ/IM 1 mg (1 mL) SQ/IM once. May repeat after 1 hour.	**SQ/IM** 3 mg daily; 6 mg/week
	Ketorolac [7]	**IM** 60 mg	**IM** 120 mg daily
		IV 30 mg	**IV** 120 mg daily

1 If the patient is experiencing nausea, consider adding an antiemetic such as metoclopramide or prochlorperazine.
2 If using two different formulations of a triptan, use no more than two doses combined in 24 hours. Do not exceed 3 days of use per week.
3 Do not take triptans within 24 hours of any ergotamine or vice versa.
4 Use a 5 mg dose of rizatriptan in patients receiving propranolol with a maximum of 15 mg daily.
5 Naratriptan has a longer half-life than other triptans and therefore may be better for those patients with headaches of long duration.
6 Some patients may benefit from DHE IV. This treatment option may be offered to patients in urgent care settings. See Appendix 1, DHE Raskin Protocol (Urgent Care).
7 For patients under 110 lbs or aged 65 years or over: IM dose = 30 mg, IV dose = 15 mg.

Additional pharmacologic acute treatment options: There is insufficient evidence pertaining to safety and effectiveness to support a recommendation for or against the use of the following medications. When the options above have failed to provide relief, local expert opinion favors consideration of the following agents:

- Corticosteroids (60 mg PO initially, then 5 mg less per day over 12 days).
- IV valproic acid (500 mg IV x 1). **FDA safety alert:** Valproic acid is pregnancy category X when used for headaches (category D for more serious conditions such as seizures and bipolar disorder). It is therefore contraindicated in women who are pregnant or may become pregnant. It should be used in women of childbearing age only after shared decision making of the potential risks, and only if contraception is used regularly.

Not recommended: The following pharmacologic options are **not** recommended/**not** on the Group Health formulary due to the high potential for the development of medication overuse headaches. Consider virtual or phone consultation with a neurologist to discuss next steps.

- Opioid medications
- Fiorinal (butalbital, caffeine, and aspirin)

Treatment: Medication Overuse Headaches

- Medication overuse headache is a state of daily or near-daily refractory headaches resulting from overuse of acute pain medicines by a patient with migraine.
- Potential triggers include over-the-counter or **prescribed** symptomatic medications **(all** narcotics, analgesics, triptans, DHE, benzodiazepines, or decongestants) and caffeine in more than moderate amounts.
- It is **imperative** that this condition be eliminated in order to allow prevention and acute migraine treatments to work.

Treatment Overview

1. Provide patient education.
2. Stop overused medication. (Tapering may be required—see the Chronic Opioid Therapy for Chronic Non-Cancer Pain Guideline or the Adult Drug Misuse & Withdrawal Guideline.)
3. Treat symptoms during withdrawal of overused medication. (See Table 4.)
4. Develop a written headache treatment plan that includes acute and prophylactic treatment. Within Group Health, consider using the .pidxheadachemedoveruse SmartPhrase in Epic to document the treatment plan for the After Visit Summary.
5. Develop a follow-up and relapse prevention plan. (See Monitoring/Follow-up section.)

Table 4. Symptomatic outpatient treatment for medication overuse headache [1]

Eligible population	Line	Medication	Initial dose	Maximum dose
Patients with: Headache 15 or more days/month Regular overuse for more than 3 months of one or more acute/symptomatic treatments: • Ergotamine, triptan, opioids, or combination analgesic medications on 10 or more days/month • Simple analgesic or any combination of ergotamine, triptans, or analgesic opioids on 15 or more days/month Headache developed or markedly worsened during medication overuse	1st	Stop overused medication. Advise patient that rebound headache may take 2–6 weeks to resolve after elimination of medication overuse.		
	2nd	Prednisone	60 mg on days 1 and 2 40 mg on days 3 and 4 20 mg on days 5 and 6 **or** 60 mg PO with a 5 mg per day taper over 12 days	—
	3rd	Dihydroergotamine mesylate (DHE) SQ/IM	1 mg SQ/IM at the first sign of headache, then repeat hourly up to total of 3 mg	3 mg daily; 6 mg/week

Treatment: Migraine Prophylaxis

Overview

There are no clear evidence-based recommendations for when to start preventive therapy for migraine.

The choice of migraine prevention medication should be made based on comorbid conditions (e.g., tricyclics for patients with depression and/or neuropathic pain syndromes, valproic acid/divalproex for persons with seizure disorders) and the relative value the patient places on efficacy versus avoidance of side effects.

Pharmacologic Options

Guiding principles of prophylaxis

- Each medication dose change may take 2–4 weeks to reach maximal effectiveness.
- Using 4 headache days per month as a goal, the initial dose of each medication should be fairly low, and gradually increased to the maximal tolerated or maximal safe dose. Keep medication at that dose for 1 month before making modifications to therapy.
- If there is no relief after 4 weeks at the maximal recommended or tolerated dose of the initial medication, add a second prophylactic medication.
- When headache days remain fewer than 4 per month for 1 to 2 months, start tapering therapy of the least well-tolerated medication to find the lowest effective dose.
- Patients not responding to combinations of two or three prophylactic medications should be reassessed for an alternate diagnosis, analgesic or acute migraine drug rebound, or confounding psychiatric or social stresses. Drug therapy alone may not be sufficient.

Table 5a. Pharmacologic options for migraine prophylaxis [1]				
Eligible population	**Line**	**Medication**	**Initial dose**	**Maximum daily dose**
Patients with: Four or more days with migraine headaches per month Fewer than four migraine headaches per month but with severe pain refractory to all migraine-specific acute therapies Complicated migraines (e.g., migraine associated with focal neurologic signs such as nystagmus or hemiplegia)	1st	Propranolol [2]	40 mg b.i.d.; increase by 40 mg every week (in 3 divided doses).	240 mg
	2nd	Nortriptyline [3]	10–25 mg daily at bedtime; increase by 10–25 mg every week.	150 mg
	3rd	Venlafaxine IR	37.5 mg daily; increase by 75 mg every week (in 2 divided doses).	150 mg
		Topiramate [4,5]	25 mg daily in the evening; increase by 25 mg every week (in 2 divided doses).	100 mg
		Divalproex DR [6]	125 mg twice daily; increase by 125 mg every week (in 2 divided doses).	2,000 mg
		FDA safety alert: Divalproex is pregnancy category X when used for headaches (category D for more serious conditions such as seizures and bipolar disorder). It is therefore contraindicated in women who are pregnant or may become pregnant. It should be used in women of childbearing age only after shared decision making of the potential risks, and only if contraception is used regularly.		

1 Gabapentin is not FDA-approved for the prophylaxis of migraine headache. There is insufficient evidence to determine the safety and efficacy of gabapentin for the prophylaxis of migraines.
2 The best evidence favors propranolol. Efficacy is less certain with other beta-blockers.
3 Other tricyclics may be as effective (e.g., amitryptiline).
4 Check serum bicarbonate after 2 weeks of therapy and every 3 months.
5 Within Group Health, see Anticonvulsant/Contraceptive Drug-Drug Interactions information for patients on oral contraceptives, at http://incontext.ghc.org/rx/med/documents/anticonvulsant_contraceptive_ddi.pdf.
6 Check trough level, CBC, platelets, and SGOT at 500 mg twice daily. Don't exceed trough level of 100 mcg/dL. Divalproex XR is non-formulary.

Note: Consider Neurology consultation for patients with migraine headache who have not responded to the recommended options for migraine prophylaxis. OnabotulinumtoxinA (Botox) may be an option for patients who meet all the following criteria:

- Meet diagnostic criteria for migraine or migraine with muscle tension headache.
- Patients will do what is necessary to eliminate rebound headache prior to authorization for Botox.
- Patient has tried and failed at least four prophylactic agents and three abortive drugs listed in the Headache Guideline.
- Patient has been seen by a neurologist who recommends the trial of Botox.

Botox is administered as a trial; if the treatment is found unhelpful after two injection sessions, then it is discontinued. Botox is approved by the FDA for chronic migraine (defined as 15 or more headache days per month with a headache lasting 4 hours or longer each day).

There is insufficient evidence pertaining to safety and effectiveness to support a recommendation for or against the use of the following medications for migraine prophylaxis:

- Lisinopril
- Verapamil

Special Population: Women With Menstruation-related Migraines

Advise a woman with suspected menstrual migraine to keep a headache diary for at least 2 months to determine if she is having regular and predictable menses and if these correlate with headache onset. Some women experience migraines during ovulation (either alone or in addition to menses).

Consider a short course of prophylaxis with naproxen or a triptan taken twice a day starting 2–3 days before the anticipated onset of the headache and continued for 5 days through the at-risk period (ICSI 2011, SIGN 2008).

Table 5b. Pharmacologic options for the prevention of menstrual migraine

Eligible population	Line	Medication	Daily dose	Timing
Women with regular and predictable menses that correlate with headache onset	1st	Naproxen	500–750 mg	2–3 days before the anticipated onset of the headache and continuing through the at-risk period
	2nd	Sumatriptan	**Oral tablet** 25–100 mg	
		Rizatriptan [1]	5–10 mg	
		Naratriptan	1–2.5 mg	
Women with irregular, unpredictable menses that correlate with headache onset **or** Women for whom NSAIDs and triptans are ineffective for prophylaxis of menstrual migraines	1st	Oral contraceptives [2]	Within Group Health, see Think Preferred OCP, at http://incontext.ghc.org/rx/med/documents/oralcontraceptive_pocketcard.pdf **CAUTION:** Women with migraines with aura should avoid taking combined oral contraceptive pills because of increased risk for stroke. Among women with migraine, women who also had aura had a higher risk for stroke than did those without aura. Women with a history of migraine who use combined oral contraceptive pills are about 2–4 times as likely to have an ischemic stroke as nonusers with a history of migraine (CDC MMWR).	

[1] Use a 5 mg dose of rizatriptan in patients receiving propranolol, with a maximum of 15 mg daily.

[2] Combined oral contraceptive pills may be offered for prophylaxis, although the evidence for this option is limited. In a contraceptive-containing drosperinone, an extended 168-day placebo-free oral contraceptive regimen showed a significant decrease in duration and severity of headaches and in loss of function due to headache compared with a standard 21/7 oral contraceptive cycle (Sulak 2007).

Non-prescription Options for Migraine Prophylaxis and Treatment

While there is some evidence supporting their use for the prevention of migraine headaches, there is insufficient evidence to determine the long-term safety and effectiveness of the following therapies:

Table 6. Complementary and alternative therapies for migraine prophylaxis

Eligible population	Medication	Initial dose
Patients with: • Four or more days of headache per month • Four or more episodes of headache per month • Fewer than 4 headache days per month but with severe pain refractory to all migraine-specific acute therapies	Riboflavin [1]	400 mg daily
	Coenzyme Q10 [1]	100 mg t.i.d.
	Butterbur [2]	75 mg daily

[1] Weak evidence from a small, placebo-controlled trial.
[2] Placebo-controlled RCTs suggest that a 75 mg dose of butterbur may be effective at reducing headache frequency; however, there is insufficient evidence pertaining to the long-term safety and efficacy of butterbur.

There is insufficient evidence to make a recommendation on the safety or efficacy of the following non-prescription therapies for **migraine prophylaxis:**

- Magnesium

There is insufficient evidence to make a recommendation on the safety or efficacy of the following non-pharmacologic therapies for the **treatment of migraine:**

- Transcutaneous electrical stimulation (TENS)
- Massage
- Acupuncture

Monitoring/Follow-up

Advise the patient to keep and review a headache diary to monitor the effects of treatment on severity, frequency, and disability. Diary entries should include:

- Day/time
- Headache severity
- Other symptoms (nausea, vomiting, photophobia)
- Impact on usual activities
- Duration of attack
- Prescribed medication
- OTC medication
- Menstrual cycle day

Evidence Summary

This guideline was adapted from the following:

Scottish Intercollegiate Guideline Network (SIGN). Diagnosis and management of headache in adults. Edinburgh: SIGN 2008 (SIGN publication no.107, cited May 2011). Available online at: www.sign.ac.uk/pdf/sign107.pdf [PDF].

Institute for Clinical Systems Improvement (ICSI). Diagnosis and treatment of headache. ICSI 2011 (Tenth edition, cited May 2011). Available online at: http://www.icsi.org/headache/headache__diagnosis_and_treatment_of_2609.html [PDF].

Medication overuse headache

The evidence base for the treatment of medication overuse headache is limited.

Prednisone

Two randomized controlled trials (RCTs) evaluated the efficacy of prednisone for treatment of medication overuse headache. Results from these trials were mixed. Results from the first trial, which included 102 patients, suggest that compared to placebo, 60 mg of prednisone tapered down over 6 days does not reduce withdrawal headaches in patients with medication overuse headache (Bøe 2007). Results from the second trial suggest that 100 mg of prednisone given once daily for the first 5 days of withdrawal may be more effective than placebo for reducing headache severity. These results should be interpreted with caution, as the study included only 20 patients and an ITT analysis was not performed (Pageler 2008).

Migraine prophylaxis

Gabapentin

The Group Health Pharmacy and Therapeutics (P&T) committee recently reviewed the evidence on the safety and efficacy of gabapentin for migraine prophylaxis and concluded that the evidence does not support the use of gabapentin for migraine prophylaxis. The published evidence on the use of gabapentin for migraine prophylaxis mostly revolves around one study with major flaws in study design (e.g., unblinding) and publication bias (Mathew 2001). Additionally, other unpublished studies found negative results.

Botulinum toxin type A

Two double-blind, placebo-controlled randomized trials evaluated the safety and efficacy of onabotulinumtoxinA (botox) for the prevention of migraine headache in adults with chronic migraines. In both trials, participants were given two injections of onabotulinumtoxinA 12 weeks apart. The first trial followed 679 participants for 24 weeks. There was no significant difference in the primary outcome frequency of headache episodes after 24 weeks. However, patients who received onabotulinumtoxinA had significantly fewer headache days and migraine days compared to patients who received placebo. Additionally, the mean Headache Impact Test (HIT)-6 score was significantly lower for patients who received onabotulinumtoxinA (Aurora 2010).

The second trial followed 705 participants for 24 weeks. The primary outcome was changed during the study. Results from this study suggest that patients who received onabotulinumtoxinA had significantly fewer headache days (new primary outcome), migraine days, moderate to severe headache days, headache episodes, and HIT-6 scores compared to patients who received placebo (Diener 2010). It should be noted that both of these trials received industry funding and the treatment was compared to placebo and not to another active prophylactic treatment. The most common adverse events with onabotulinumtoxinA were neck pain, muscle weakness, eyelid ptosis, myalgia, worsening migraine, and musculoskeletal stiffness (Aurora 2010, Diener 2010).

Complementary and alternative medicine

Riboflavin

There is weak evidence from one small trial with 55 patients that riboflavin has more than a placebo effect in migraine prophylaxis and minimal adverse effects. The study showed that patients receiving oral riboflavin (400 mg daily for 3 months) had a significantly reduced attack frequency and had fewer migraine days compared with those in the placebo group. The trial had a valid methodology but a very small sample size (Schoenen 1998). Larger trials are needed to provide more evidence on the efficacy of riboflavin in migraine prophylaxis and to compare riboflavin with other standard prophylactic agents.

Coenzyme Q10

There is weak evidence from one recent, small (N = 43) RCT that coenzyme Q10 may be effective in migraine prophylaxis (Sandor 2005). Larger trials with longer follow-up are needed to determine the efficacy and safety of CoQ10 in migraine prophylaxis.

Butterbur

The best evidence on the safety and efficacy of butterbur for the prevention of migraines comes from a placebo-controlled RCT that followed 233 subjects for 16 weeks. Results from this trial suggest that compared to placebo, a 75 mg dose of butterbur may reduce the frequency of migraine attacks. The long-term safety and efficacy of this medication is unknown. Additionally, the efficacy of butterbur compared with other prophylactic medications is unknown (Lipton 2004).

Magnesium

The available literature does not provide sufficient evidence to determine the efficacy of magnesium in migraine prophylaxis.

Acupuncture

Results from a meta-analysis of RCTs suggest that compared to acute treatment only or pharmacological prophylaxis, acupuncture may reduce headache frequency; however, there was no significant difference when acupuncture was compared with a sham intervention (Linde 2009).

Transcutaneous electrical stimulation (TENS)

The available literature does not provide sufficient evidence to determine the efficacy of transcutaneous electrical stimulation for the treatment of migraine.

Massage

The available literature does not provide sufficient evidence to determine the efficacy of massage for the treatment of migraine.

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Guideline Development Process and Team

Development Process
To develop the Migraine & Tension Headache Guideline, Group Health adapted recommendations from externally developed evidence-based guidelines. The Group Health guideline team reviewed additional evidence in the areas of medication overuse headache, migraine prophylaxis, and complementary and alternative medicine. For details, see Evidence Summary and References.

This edition of the guideline was approved for publication by the Guideline Oversight Group in June 2011.

Team
The Migraine & Tension Headache Guideline development team included representatives from the following specialties: emergency medicine, family medicine, internal medicine, neurology, nursing, pharmacy.

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Appendix 1. Dihydroergotamine Mesylate (DHE) Raskin Protocol (Urgent Care)

This protocol is for use with patients being treated in urgent care settings. When headache relief is achieved, patients may be discharged and directed to follow up with primary care or return to urgent care as needed.

Table 7. Dihydroergotamine mesylate (DHE) [1] Raskin protocol for refractory migraine headache (urgent care settings)

	Step	Medication	Dose
Anti-emetic premediation [2]	**1**	Metoclopramide	10 mg IV over 30 minutes
Analgesic test dose	**2**	DHE test dose	0.5 mg IV over 2–3 minutes
	Monitor/assess patient for 1 hour post–test dose. If blood pressure is greater than 165/95 mm Hg or patient develops chest pain or severe nausea, discontinue DHE. If not, go to Step 3.		
Analgesic	**3a** Headache persists WITH side effects [3]	Metoclopramide	10 mg IV every 8 hours as needed
		DHE	**NO** DHE for 8 hours, then repeat DHE 0.3–0.4 mg IV every 8 hours as needed, if tolerated, for up to 3 days.
	3b Headache relief, no side effects	Metoclopramide	10 mg IV every 8 hours as needed
		DHE	0.5 mg IV given if/ when headache recurs and repeated every 8 hours as needed for 2–5 days
	3c Headache persists, no side effects	Metoclopramide	**HOLD** when administering DHE 1 hour post–test dose
			10 mg IV every 8 hours as needed, with subsequent doses of DHE
		DHE	0.5 mg IV administered 1 hour post–test dose **WITHOUT** metoclopramide **THEN**
			If patient is nauseated: 0.75 mg IV administered WITH metaclopramide if/ when headache recurs and repeated every 8 hours as needed for 2–5 days
			If patient is NOT nauseated: 1.0 mg IV administered WITH metaclopramide if/ when headache recurs and repeated every 8 hours as needed for 2–5 days

[1] DHE should not be given within 24 hours of a triptan.
[2] Consider IV hydration if needed.
[3] Common side effects include: nausea, vomiting, diarrhea, abdominal cramps, dizziness, paresthesia, and leg pain. By reducing the dose and co-administering metoclopramide as an antiemetic, these side effects can usually be resolved.