

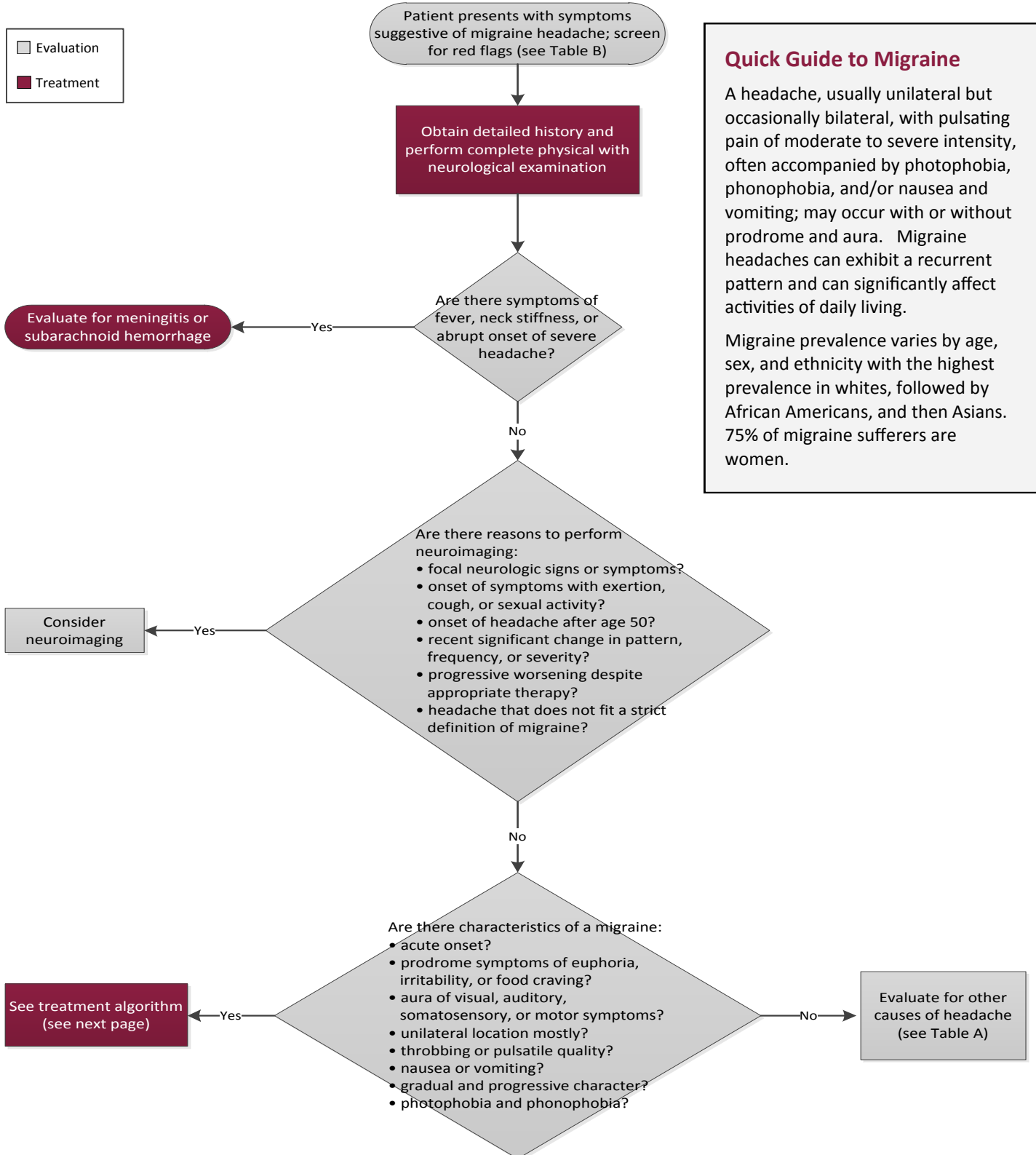
Definition: Migraine refers to a chronic neurological disorder characterized by episodic attacks often in association with enhanced sensitivity of the nervous system and activation of the trigeminal-vascular system. A diagnosis of migraine requires secondary headache causes be ruled out as it is classified as a primary headache and is not associated with other diseases.

Management of Acute Migraine Headache

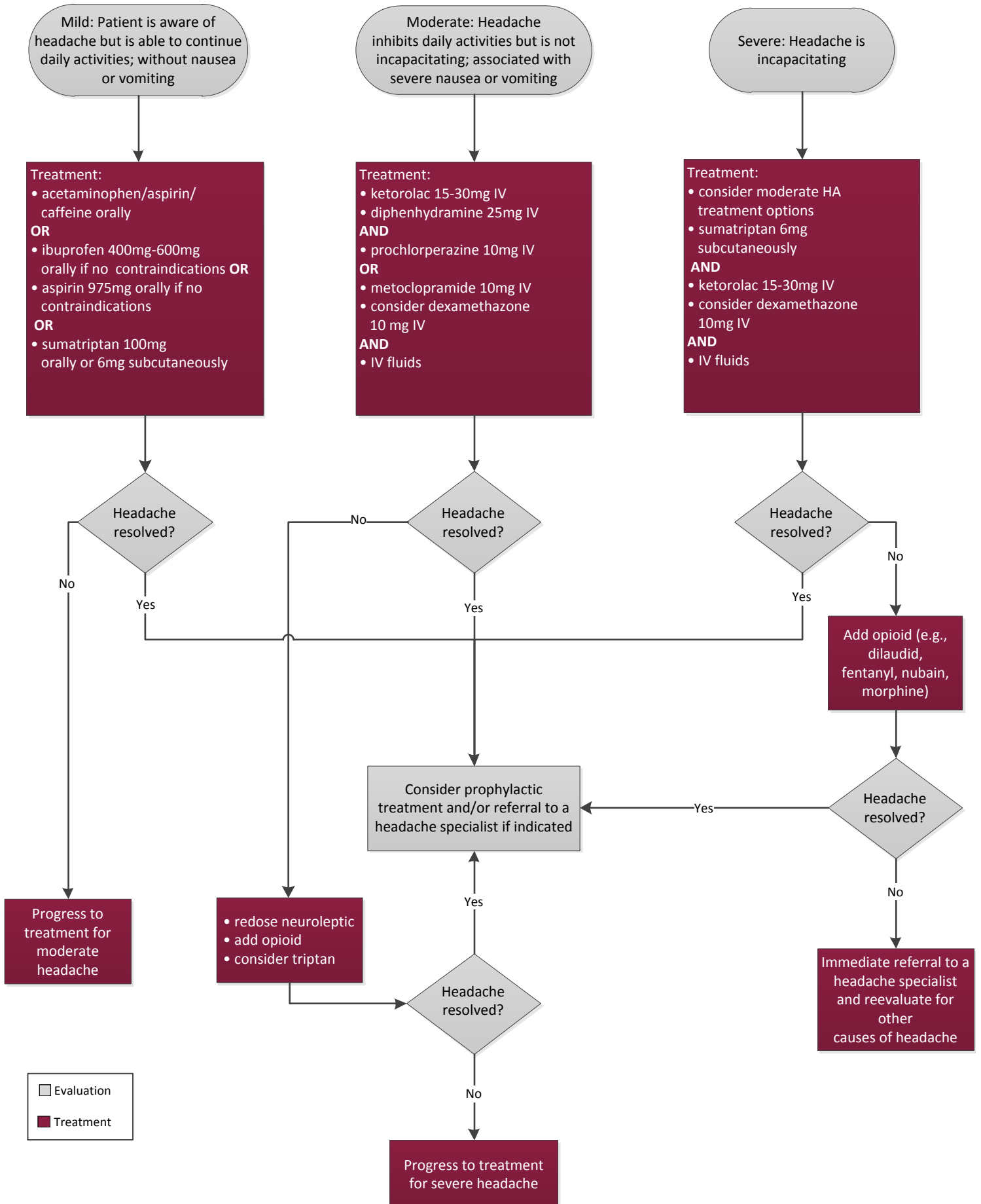
Quick Guide to Migraine

A headache, usually unilateral but occasionally bilateral, with pulsating pain of moderate to severe intensity, often accompanied by photophobia, phonophobia, and/or nausea and vomiting; may occur with or without prodrome and aura. Migraine headaches can exhibit a recurrent pattern and can significantly affect activities of daily living.

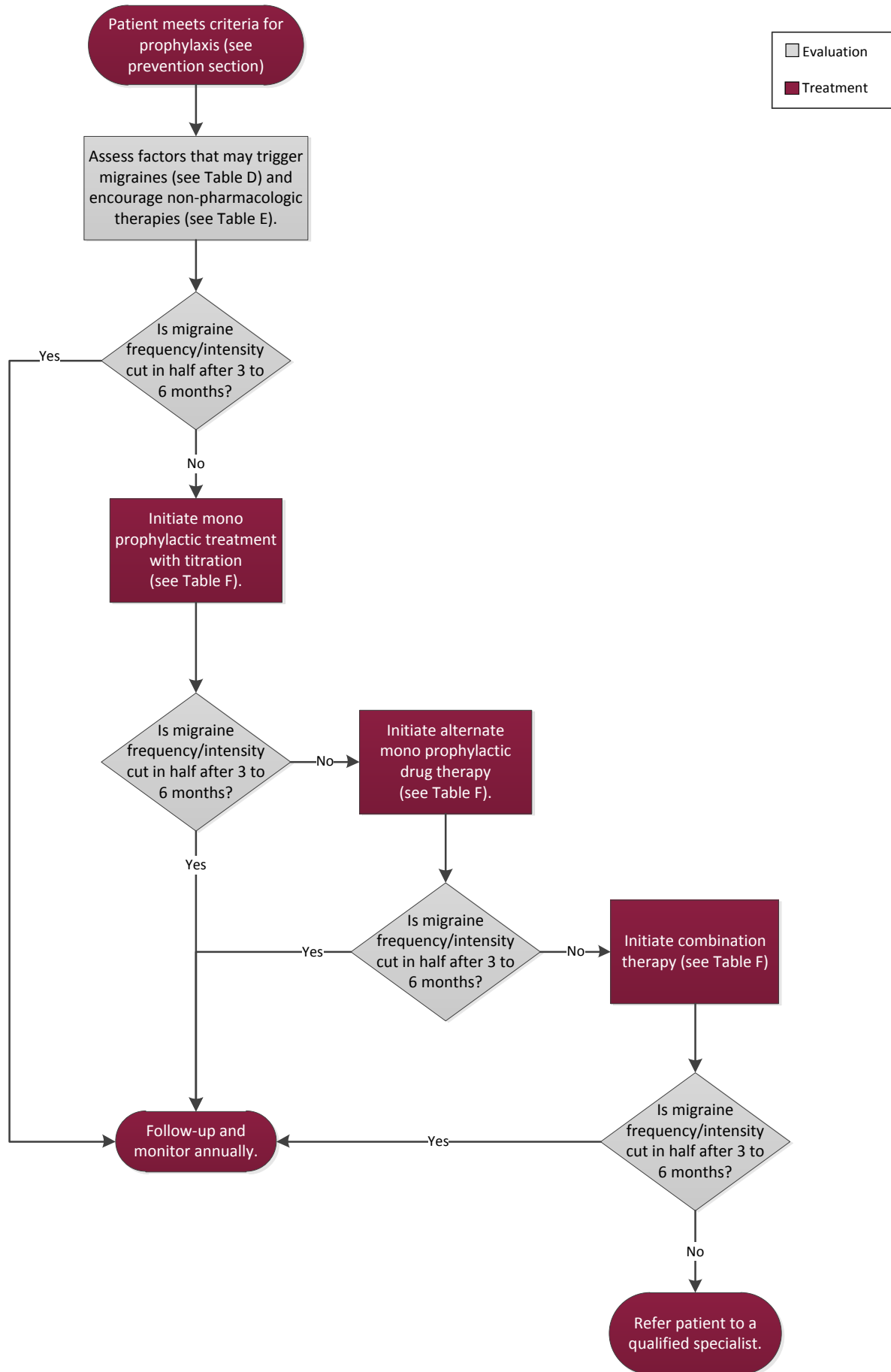
Migraine prevalence varies by age, sex, and ethnicity with the highest prevalence in whites, followed by African Americans, and then Asians. 75% of migraine sufferers are women.



Treatment for Acute Migraine Headache



Prophylactic Treatment for Migraine Headache



Migraine Clinical Guideline

Migraine is a common condition characterized by enhanced sensitivity of the nervous system and activation of the trigeminal-vascular system. Individuals prone to migraine have a genetic migrainous threshold that renders them susceptible to an acute migraine attack depending upon the balance between excitation and inhibition of the nervous system.

Diagnosis

A migraine is a severe headache, usually unilateral but occasionally bilateral, that may be accompanied by nausea, vomiting, and visual disturbances. Findings suggest that the best criteria differentiating migraine from other headache types are the presence of nausea and/or vomiting in combination with two of the following three symptoms: photophobia, phonophobia, and osmophobia—all of which may be made worse with movement or activity. (National Headache Foundation, 1996 [NA])

Testing

Neuroimaging is subject to physician judgment with consideration of the following:

- Patients with an unexplained finding on neurologic examination
- Patients with atypical headache features or headaches that do not fulfill the definition of migraine or other headache disorder
- Patients with a first-time sudden severe headache to rule out subarachnoid hemorrhage
- A head CT without contrast is sufficient to rule out subarachnoid hemorrhage. An MRI with contrast is indicated when posterior fossa lesions or a cerebrospinal fluid leak are suspected.

Prevention

Prophylactic treatment is indicated if the headaches are frequent (2 or more per month), long lasting (3 days of disability or more per month), or significantly interferes with daily routine despite acute treatment.

- For menstrual migraines, preventive medication is started one to two days prior to the expected onset of a headache and continued for the expected duration of the headache.
- Antihypertensives: blood pressure treatment appears to reduce the overall prevalence of headache.
- Beta-blockers: may take several weeks to be effective and should NOT be used as initial therapy for migraine prophylaxis in patients over age 60 and in smokers. They are contraindicated in patients with uncontrolled asthma, decompensated heart failure, heart block, severe bradycardia and severe hepatic impairment. Use caution with patients with depression, impotence, or hypotension.
- Calcium channel blockers: tolerance may develop. Verapamil is the first choice for therapy.
- ACE inhibitors/ARBs
- Tricyclic antidepressants and venlafaxine: established role in headache prophylaxis. Severe anticholinergic effects and weight gain can be limiting.
- Anticonvulsants: valproate and topiramate are approved by the US FDA for migraine prophylaxis. Avoid use in females of childbearing age.

Evaluation

Clinical Manifestations:

- Commonly begins early in the morning.
- Nocturnal migraines can occur as well. If a patient has a recent onset of nocturnal headaches, brain tumor, and glaucoma should be excluded.
- 60 to 70 percent of patients have lateralized headache; bifrontal or global occurs in 30 percent.
- Pain has a gradual onset, following a crescendo pattern with gradual resolution.
- Headache is dull, deep, and steady when mild to moderate; headache becomes throbbing when severe.

Premonitory symptoms:

Such symptoms precede a migraine attack by several hours up to two days. Symptoms include: fatigue, concentration difficulty, neck stiffness, sensitivity to light or sound, nausea, blurred vision, scintillation, scotoma, yawning, or pallor.

Migraine aura: An aura occurs before the onset of a migraine and presents as a progressive neurologic deficit or disturbance. The headache begins simultaneously or just after the end of the aura phase. Most auras resolve in less than one hour, but motor auras may persist longer.

Types of auras:

- Visual disturbances
- Sensory symptoms
- Motor weakness
- Speech disturbances

Autonomic and sinus symptoms:

- Tearing
- Changes in pupil size
- Changes in color and temperature
- Nasal congestion
- Rhinorrhea

A migraine can occur with or without an aura. Oral contraceptives are absolutely contraindicated in women with migraines with aura. Oral contraceptives are relatively contraindicated in women less than 35 in migraine without aura.

Treatment

The main goal of acute migraine treatment is to abort an attack once it begins. Therapeutic success is higher at the onset of an acute attack than when the migraine is well-established.

- Have the patient keep a diary of migraines. This will help the patient identify triggers that precipitate a migraine.
- Try non-steroidal anti-inflammatory (NSAID) drugs first. If the patient is unresponsive to those, triptans or dihydroergotamine are indicated.
- Use a non-oral medication for patients with significant early nausea or vomiting.
- Use prophylactic medications for patients with frequent headaches to prevent medication overuse.
- Anti-emetics may be helpful.

Table A: Types of Headaches

| Headache Type | Symptoms |
|---|--|
| Tension | Bilateral pressure or tightness that waxes and wanes; variable duration |
| Cluster | <ul style="list-style-type: none"> • Always unilateral and usually begins around the eye or temple; pain begins quickly and crescendos within minutes; pain is deep, continuous, and excruciating; duration is 30 minutes to 3 hours. • Other symptoms include ipsilateral lacrimation and redness of eye; stuffy nose; rhinorrhea; pallor; sweating; Horner Syndrome |
| Secondary | Associated with fever, hypertension, sinusitis, post-traumatic expansive intracranial mass |
| Cerebral Venous and Dural Sinus Thrombosis | <ul style="list-style-type: none"> • Is an uncommon form of stroke, related to prothrombotic conditions, thrombophilias, inflammatory bowel disease, thyroid disease, pregnancy, or infection • Pain is slowly progressive over days to weeks and is diffuse • Associated with lethargy, focal neurologic deficits, altered level of consciousness, confusion, visual loss, bilateral leg and/or arm weakness, and altered mental status; can be associated with general seizures |
| Temporal Arteritis | <ul style="list-style-type: none"> • Affects medium to large arteries of the head and neck • Can lead to rapid, irreversible blindness due to ischemia of optic nerves • Headache is located over eye or localized to the scalp with malaise, fever, or weight loss • Consider in any new headache in patients aged 50 or older • Lab shows ESR above 50 |
| Pseudotumor Cerebri (Benign Intracranial Hypertension) | <ul style="list-style-type: none"> • Elevated CSF pressure without mass, lesion, or obvious obstruction • Usually occurs in young obese females • Headache is of prolonged duration; is worse in the morning and with maneuvers that increase ICP • Papilledema and sixth nerve palsy may be present • Lumbar puncture reveals increased CSF pressure (250-400 mmHg) |
| Trigeminal Neuralgia (Tic Douloureux) | <ul style="list-style-type: none"> • Pain causes tic or twitch that affects the trigeminal or 5th cranial nerve; pain is usually unilateral sharp or “electric shock-like” that begins and ends abruptly • Can be triggered by stimulation to the face, i.e., loud noise, light, washing, shaving, brushing teeth • Occurs predominantly in patients over 50 years and more often in females rather than males |
| Obstructive Hydrocephalus | Headache in 90% of patients; nausea and vomiting with symptoms worse in the morning; decreased vision; decreased level of consciousness; urinary incontinence |
| Post-lumbar Puncture | Postural (most important clue): condition is improved by laying flat and is exacerbated by sitting in an erect position; usually occipital or frontal location and feeling of pressure |
| Drug or Toxin-Related | H ₂ blockers, oral contraceptives, indomethacin, minocycline, tetracycline, trimethoprim-sulfamethoxazole, Tamoxifen, carbon monoxide, nitrates, ACE inhibitors, sympathomimetics, MAO inhibitors combined with tyramine containing foods; withdrawal from caffeine, ergotamine, NSAIDs |
| Tumor/Intracranial Mass | Usually deep-seated nagging pressure which progressively worsens; symptoms are worse in the morning; exacerbated by exertion; associated with nausea and vomiting |
| Hypertension | Unusual with DBP less than 120 mmHg |
| Subdural Hematoma | <ul style="list-style-type: none"> • Most common in elderly or alcoholics secondary to falls • Deep-seated headache pain and dizziness with fluctuating but progressive course |
| Glaucoma | Severe headache with mid-position pupils, visual dysfunction, and increased tonometric reading |
| Temperomandibular Joint Syndrome | Pain in the face or jaw usually after trauma |
| Sinusitis | Progressive facial pain, maxillary or dental pain, nasal congestion or drainage or postnasal drip over 3-4 days; worse with straining |
| Carbon Monoxide Exposure | Associated with drowsiness, lethargy, amnesia, nystagmus, and gait and movement disorders; is usually a mild frontal headache |

TABLE B: Red Flags Associated with Headaches

| | |
|--|---|
| Abnormal vital signs including fever and/or elevated WBC | New HA under age 5 or over age 50 |
| Altered level of consciousness, decreased cognitive ability, or personality change | Papilledema |
| Awakens from sleep | Worsening of established headache pattern |
| Carbon monoxide | Post-traumatic HA or associated with Valsalva straining or manipulation |
| Cerebral venous and sinus thrombosis | Pseudotumor cerebri |
| Drug/toxin-related HA, i.e., sympathomimetic, MAO inhibitors in combination with tyramine-containing foods | Seizure |
| Exercise or sexual activity or exertion leading to HA | Subdural hematoma (warfarin, platelet, or thrombin inhibitor use) |
| Focal neurological symptoms, CVA/TIA | Sudden onset of “worst headache” |
| Glaucoma | Syncope |
| Hydrocephalus (N/V, altered vision or level of consciousness, incontinence) | Temporal arteritis (tic douloureux) |
| Hypertensive emergency | Vertigo |
| Immunosuppression or associated with HIV | Visual disturbance |
| Lyme disease history | Vomiting |
| Malignancy or tumor | Worsening of established headache pattern |

TABLE C: Goals of Therapy

| Acute Migraine Treatment | Migraine Prophylaxis |
|--|---|
| Treat attacks quickly and consistently | Reduce frequency by 50% |
| Improve quality of life | Reduce intensity and duration of attacks |
| Optimize self-care for overall treatment | Increase efficacy of abortive therapy for acute attacks |
| Cost-effective drug therapy | Eliminate or minimize adverse effects |
| Eliminate or minimize adverse effects | Minimize use of abortive therapy and rescue medications |
| | Diminish impact on activities of daily living |

TABLE D: Precipitating and Exacerbating Factors

| Precipitating | Exacerbating |
|--|-------------------|
| Fasting | Rapid head motion |
| Hormones/menstrual cycles | Sneezing |
| Nitrates (cured meats) | Straining |
| Stress, sleep deprivation, or sleep apnea | Coughing |
| Visual stimuli (bright light) | Loud noises |
| Weather/extreme changes in temperature or pressure | Strong odors |
| Wine (especially red) | |

TABLE E: Non-Pharmacologic Therapies

| Lifestyle Management | Environmental Management |
|--|------------------------------|
| Stress management/relaxation management | Biofeedback |
| Regular exercise and sleep | Cryotherapy/thermotherapy |
| Routine meal schedule | Cognitive behavioral therapy |
| Limit caffeine | Avoidance of known triggers |
| Consume at least 40-80 oz. of non-caffeine fluid daily | |

TABLE F: Prophylactic Therapy

| Medication | Remarks |
|--|---|
| Antihypertensives <ul style="list-style-type: none"> Beta-blockers (atenolol, metoprolol, nadolol, nebivolol, propranolol, timolol) Calcium channel blockers (verapamil) ACE inhibitors/ARBs (lisinopril, candesartan) | <p>Blood pressure treatment appears to reduce the overall prevalence of headache. Can take several weeks to be effective and should NOT be used as initial therapy for migraine prophylaxis in patients over age 60 and in smokers.</p> <p>Contraindicated in patients with uncontrolled asthma, decompensated heart failure, heart block, severe bradycardia and severe hepatic impairment. Use caution with patients with depression, impotence, or hypotension.</p> <p>Tolerance may develop. Verapamil first choice for therapy.</p> <p>Established role in headache prophylaxis; can lead to hypotension, dizziness, fatigue, and cough.</p> |
| Tricyclic antidepressants (amitriptyline, doxepin, nortriptyline) | Established role in headache prophylaxis. Severe anticholinergic effects and weight gain can be limiting. May be useful if patient has depression or a sleep issue. |
| Serotonin-norepinephrine reuptake inhibitors (SNRI) (venlafaxine) | May be useful in patients with co-morbid panic or anxiety disorders |
| Anticonvulsants (divalproex sodium, topiramate) | Valproate and topiramate are approved by the US FDA for migraine prophylaxis. Avoid using in females of childbearing age. |

TABLE G: Abortive Therapy

| Medication | Remarks |
|--|---|
| NSAIDs | Avoid in patients with active gastritis, peptic ulcer disease, renal insufficiency, and bleeding disorders. Not recommended for chronic daily use. |
| Acetaminophen | Can be used in combination with NSAIDs but avoid daily use. |
| Triptans: sumatriptan, zolmitriptan, naratriptan, rizatriptan, almotriptan, frovatriptan | Inhibits the release of vasoactive peptides, promotes vasoconstriction and blocks pain pathways in the brainstem. Do not use in complex migraine as it increases the risk of stroke. (Complex migraine is one in which there are neurologic symptoms, such as weakness, vision loss, and difficulty in speaking, in addition to headache. It may be mistaken for a stroke.) |
| Ergotamine | May worsen nausea and vomiting. Should be avoided in patients with coronary artery disease, peripheral vascular disease, hypertension, and hepatic or renal disease. Should not be used in patients with prolonged aura. |
| Dihydroergotamine (DHE 45) | An alpha-adrenergic blocker with fewer side effects than ergotamine. Should not be used in patients with hypertension or ischemic heart disease, in combination with MAO inhibitors, or the elderly. |
| Antiemetic: chlorpromazine prochlorperazine metoclopramide | Use for treatment of symptomatic nausea and vomiting. |
| Other medications | Some patients may require additional analgesics (i.e., fioricet, tramadol). Benzodiazepines, opioids, and barbiturates are all options, but they should not be used on a chronic basis since they are habit-forming and can contribute to rebound and chronic daily headaches. |

Table H: Migraine ICD 10 Codes

| ICD 10 Equivalent Code and Description | |
|--|---|
| G43.109 | Migraine with aura, not intractable, without status migrainosus |
| G43.119 | Migraine with aura, intractable, without status migrainosus |
| G43.101 | Migraine with aura, not intractable, with status migrainosus |
| G43.111 | Migraine with aura, intractable, with status migrainosus |
| G43.009 | Migraine without aura, not intractable, without status migrainosus |
| G43.019 | Migraine without aura, intractable, without status migrainosus |
| G43.001 | Migraine without aura, not intractable, with status migrainosus |
| G43.011 | Migraine without aura, intractable, with status migrainosus |
| G43.809 | Other migraine, not intractable, without status migrainosus |
| G43.819 | Other migraine, intractable, without status migrainosus |
| G43.801 | Other migraine, not intractable, with status migrainosus |
| G43.811 | Other migraine, intractable, with status migrainosus |
| G43.809 | Hemiplegic migraine, not intractable, without status migrainosus |
| G43.419 | Hemiplegic migraine, intractable, without status migrainosus |
| G43.401 | Hemiplegic migraine, not intractable, with status migrainosus |
| G43.411 | Hemiplegic migraine, intractable, with status migrainosus |
| G43.829 | Menstrual migraine, not intractable, without status migrainosus |
| G43.839 | Menstrual migraine, intractable, without status migrainosus |
| G43.821 | Menstrual migraine, not intractable, with status migrainosus |
| G43.831 | Menstrual migraine, intractable, with status migrainosus |
| G43.509 | Persistent migraine aura without cerebral infarction, not intractable, without status migrainosus |
| G43.519 | Persistent migraine aura without cerebral infarction, intractable, without status migrainosus |
| G43.501 | Persistent migraine aura without cerebral infarction, not intractable, with status migrainosus |

(continues next page)

Migraine ICD 10 Codes (continued)

| | |
|----------------|--|
| G43.511 | Persistent migraine aura without cerebral infarction, intractable, with status migrainosus |
| G43.609 | Persistent migraine aura with cerebral infarction, not intractable, without status migrainosus |
| G43.619 | Persistent migraine aura with cerebral infarction, intractable, without status migrainosus |
| G43.601 | Persistent migraine aura with cerebral infarction, not intractable, with status migrainosus |
| G43.611 | Persistent migraine aura with cerebral infarction, intractable, with status migrainosus |
| G43.709 | Chronic migraine without aura, not intractable, without status migrainosus |
| G43.719 | Chronic migraine without aura, intractable, without status migrainosus |
| G43.701 | Chronic migraine without aura, not intractable, with status migrainosus |
| G43.711 | Chronic migraine without aura, intractable, with status migrainosus |
| G43.809 | Other migraine, not intractable, without status migrainosus |
| G43.819 | Other migraine, intractable, without status migrainosus |
| G43.801 | Other migraine, not intractable, with status migrainosus |
| G43.811 | Other migraine, intractable, with status migrainosus |
| G43.909 | Migraine, unspecified, not intractable, without status migrainosus |
| G43.919 | Migraine, unspecified, intractable, without status migrainosus |
| G43.901 | Migraine, unspecified, not intractable, with status migrainosus |
| G43.911 | Migraine, unspecified, intractable, with status migrainosus |



References

- 1.UpToDate. Acute Treatment of Migraine in Adults. 2017. Retrieved from: uptodate.com
- 2.An Imaging Guide for the Busy Physician. Michael Komarow, M.D., J.D. 2010.
- 3.Treatment of Acute Migraine Headache. Benjamin Gilmore, MD, and Magdalena Michael, MD. American Family Physician, Volume 83, Number 3. February 1, 2011.
- 4.UpToDate. Preventive treatment of migraine in adults. 2017. Retrieved from: uptodate.com
- 5.Evidence-based guideline update: Pharmacologic treatment for episodic migraine prevention in adults. SD Silverstein, MD et al. American Academy and Neurology. 2012; 78: 1337-1345.
- 6.UpToDate: Chronic migraine. 2017. Retrived from: uptodate.com
- 7.UpToDate: Pathophysiology, clinical manifestations, and diagnosis of migraine in adults. 2017. Retrieved from: uptodate.com

This clinical guideline outlines the recommendations of Mount Carmel Health Partners for this medical condition and is based upon the referenced best practices. It is not intended to serve as a substitute for professional medical judgment in the diagnosis and treatment of a particular patient. Decisions regarding care are subject to individual consideration and should be made by the patient and treating physician in concert.