REVIEW

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Headaches in older patients: Special problems and concerns

ABSTRACT

Any patient older than 50 years who develops headaches for the first time or who has a change in a chronic headache pattern should be investigated for an underlying cause or exacerbating condition. Several headache syndromes occur almost exclusively in older people. One of these, temporal arteritis, needs to be recognized and promptly treated with corticosteroids to avoid permanent visual loss. Other causes of headache that are more common in older people include subdural hematomas, trigeminal neuralgia, herpes zoster infection, and malignancies.

KEY POINTS

Migraine rarely arises initially in older people, and attacks tend to diminish with age. However, migraine auras without headache may become more common in people with a history of migraine and must be distinguished from ischemic attacks.

Tension headaches can arise from a number of age-related causes, including arthritis, degenerative changes, visual abnormalities, and ill-fitting dentures.

Subdural hematoma can develop even without direct head trauma or, gradually, several weeks after mild trauma.

Trigeminal neuralgia causes waves of sharp pain triggered by touching the face, laughing, or chewing.

Patients presenting with headache should have their medication list reviewed: a number of common drugs can cause headache.

HEADACHE IN AN ELDERLY PATIENT poses special problems and concerns—and in the field of headache, the term "elderly" often means people over age 50!

Age 50 may not seem so old, but it does seem to be a reasonable dividing line. The three most common headache conditions, ie, migraine, tension-type headache, and cluster headache, almost always appear before age 45. Conversely, some headache syndromes occur more commonly in older people, and a few occur almost exclusively in people older than 50.

Furthermore, common headache syndromes are often associated with concomitant medical conditions in this age group, which may cause problems in management. Headaches that are secondary to other diseases (including malignancies) are much more common in older people. Many elderly people also take multiple medications, some of which can cause headaches.

For these reasons, any headache occurring for the first time in someone over the age of 50, or a changing headache pattern in a patient with chronic headaches, necessitates a complete evaluation to look for an underlying cause.

MIGRAINE TENDS TO DIMINISH WITH AGE

Migraine rarely occurs for the first time after age 40. An older person who presents with the new onset of migraine should be evaluated for "symptomatic migraine," meaning a migraine-type headache due to an underlying condition.

Usually, migraine attacks become less frequent and milder over the years, and associated problems, such as nausea and general dis-

TABLE 1

Distinguishing migraine-associated symptoms from ischemia-associated symptoms

SYMPTOMS	MIGRAINOUS	ISCHEMIC
Visual	Bright, shimmering	Dark, dim
	Both visual fields	Unilateral
	Moving shapes	Static
	15–60 minutes in duration	2–5 minutes in duration
Paresthesias	Come on gradually	Arise suddenly
	Area involved first clears last	Symptoms develop and clear in same order
	20–30 minutes in duration	5–10 minutes in duration

ability, tend to diminish. Most women with hormonally triggered migraine have few attacks after menopause.

On the other hand, migraine variants such as migraine aura without headache, total global amnesia, and transient migrainous accompaniments occur more commonly in older patients with a history of migraine.[1,2]

Distinguishing migraine aura from ischemic attacks

It is important to distinguish between visual or neurologic symptoms associated with migraine (ie, auras, which may occur without a subsequent headache) and those associated with ischemic disease (TABLE 1). Cerebral vascular disease, clotting disorders, and embolic phenomena must be excluded in patients with episodic visual or neurologic symptoms.

Visual symptoms associated with migraine aura tend to evolve slowly and last from 15 minutes to 1 hour. The visual abnormalities seem to enlarge, grow, move across the visual field, and then clear. They tend to be "positive" (bright and shimmering), may take on various designs, and are homonymous (occur in both visual fields).

In contrast, the visual defects of transient ischemic attacks are usually dark, dim, and static. Symptoms tend to last for only a few minutes and are usually unilateral because one of the carotid arteries is more narrowed than the other.

Paresthesias due to migraine (transient migrainous accompaniments) tend to spread slowly up or down the extremities. Tingling tends to last for 20 to 30 minutes and then clears in the reverse order. In contrast, ischemic paresthesias tend to arise suddenly, last only 5 to 10 minutes, and clear in the same order they developed.

Total global amnesia lasts 1 to 3 hours, during which the patient functions and acts normally, with no other neurologic deficit, but afterward cannot recall anything that happened. Total global amnesia was once thought to be an epileptic disorder but is now believed to be migrainous.

Migraine rarely occurs for the first time after age 40

Treating migraine in older people

Triptans and ergotamines are vasoconstrictors and should be used cautiously in older patients. They are contraindicated in patients with uncontrolled hypertension or evidence of cerebral, coronary, or peripheral vascular disease, but they appear to be safe in patients without evidence of significant vascular disease. Hall et al,[3] in a study of 13,664 patients with migraine with prescriptions for triptans, found no increased risk of stroke, myocardial infarction, cardiovascular death, ischemic heart disease, or death compared with matched controls without migraine.[3]

Preventive drugs (ie, those that are taken on a regular schedule to prevent migraine attacks, such as calcium channel blockers, beta-blockers, anticonvulsants, antidepressants, and nonsteroidal anti-inflammatory drugs [NSAIDs]), may be effective at lower doses in older patients.

Patients who use NSAIDs long-term should be closely monitored for azotemia,

TABLE 2

Possible causes of tension-type headache in the elderly

- Anxiety, stress
- Depression
- Cervical spondylosis
- Poor posture
- Temporomandibular joint disorders
  - Degenerative arthritis in the joint
  - Malalignment of the bite
  - Clenching, bruxism
- Uncorrected refractive errors
- Overuse of analgesics (rebound headache)
- Endocrine disorders

worsening of hypertension, or enhanced cerebral or coronary artery disease. The newer cyclooxygenase-2 inhibitors cause less gastric irritation and are often very effective in easing the pain of migraine but have either been removed from the market or have been greatly restricted because of the increased risk of stroke and coronary events due to their blocking the effects of prostaglandins.[4]

Migrainous auras that occur without headache are usually infrequent and do not require treatment.

Consider rebound headache in anyone who wakes every morning with a headache

TENSION-TYPE HEADACHE CAN BE DUE TO AGE-RELATED CAUSES

Tension-type headache usually appears before age 45, but can develop later due to a number of age-related factors, alone or in combination (TABLE 2).[5] As in younger patients, stress and depression are the most common causes. However, in older people, excessive muscle tension in the neck, scalp, and face may be caused or aggravated by cervical arthritis, poor posture, visual abnormalities, and temporomandibular joint disorders. Spasm in the temporomandibular muscles may be due to teeth-clenching, arthritis in the joint, or an abnormal bite because of ill-fitting dentures.

Degenerative arthritis in the cervical spine is common in the elderly but rarely causes headache unless there is nerve root irritation at the C1 through C3 levels. Tenderness over the occipital neurovascular bundle suggests that the roots of the occipital nerve are irritated from disease in the upper cervical spine. An occipital nerve block should provide relief.

Degenerative changes at any level, however, can irritate the cervical muscles, causing spasm, local tenderness, and limited range of motion. Poor posture with slouching, rounded shoulders, and a forward-positioned head are common in the elderly and may cause pain from strain, spasm, and tightness in the cervical muscles.

Treatment of tension headache in the elderly

Physical therapy with exercises for range of motion, posture, and balance may help some patients with neck and head pain and may lessen the need for medications. If stress is an important factor, relaxation techniques, biofeedback, and stress management skills may help.

Preventive medications for tension-type headache such as tricyclic antidepressants, muscle relaxants, and NSAIDs should be used with caution in the elderly because of possible sedation and other side effects.

Rebound headache or analgesic-maintained headache can occur when analgesics are used daily or near-daily. In a vicious circle, these medications are believed to suppress endogenous endorphins and sensitize neurons, so that headache recurs when blood levels drop.[6] Rebound headache should be considered in anyone who wakes every morning with a headache.

CLUSTER HEADACHE

Cluster headache, like migraine, tends to be less of a problem as one grows older, as the attacks tend to come further apart with longer remissions as one ages.

The usual preventive medications for cluster headache—verapamil, lithium, and antiepileptic drugs—can safely be used in most older people. On the other hand, prolonged treatment with prednisone, which is usually very effective against cluster headache, can accelerate osteoporosis, elevate blood sugar levels, and cause easy bruising and gastric complications.

Vasoconstrictive drugs for alleviating

acute attacks should only be used with caution in patients at risk for vascular disease. Oxygen by mask is usually well tolerated and may be quite effective in aborting cluster headache attacks.[7]

HYPNIC HEADACHE OCCURS MOSTLY IN OLDER PEOPLE

Hypnic headache is a very uncommon primary headache syndrome of unknown cause that occurs mostly in older people. Pain awakens the patient at about the same time each night and lasts for about 1 to 2 hours. The pain is usually located in the frontal area of the head and is described as a steady discomfort. The parasympathetic symptoms that commonly accompany cluster headache are absent.

Hypnic headache is usually self-limited and may ease after a few months. Lithium carbonate, a tricyclic antidepressant, or an antiepileptic drug taken at bedtime usually prevents attacks. NSAIDs may also be effective.[8]

TEMPORAL ARTERITIS: A TRUE HEADACHE EMERGENCY

Temporal arteritis, also known as giant cell arteritis, occurs almost exclusively in older people and should be considered in anyone over 50 who presents with a new onset of headache. It is one of the few headache emergencies: permanent loss of vision occurs in 20% to 30% of patients without treatment. Stroke is uncommon but may occur.[9]

The pain is typically a steady ache or a dull throbbing discomfort in the temples but can be of other types and involve any area of the head. In addition, this is a systemic condition, and many patients present with fatigue and low-grade fever. They may have stiff and painful proximal muscles, especially in the morning. Scalp tenderness is common, and the temporal artery is often thickened and tender with a diminished or absent pulse. Pain with chewing (jaw claudication) is quite specific for this condition but is uncommon.

Temporal arteritis is autoimmune

Temporal arteritis is an autoimmune disorder that causes systemic, necrotizing granulomatous inflammation of medium-sized arteries. Branches of the aorta and the coronary arteries may also be involved.[10] It is thought that injury to the elastic lamellae invokes an inflammatory response of lymphocytes, plasma cells, macrophages, and giant cells. Visual loss occurs due to ischemia of the retina or the optic nerve (or both) from inflammation in the vessel wall, which results in narrowing of the lumen of the ciliary arteries or the central retinal artery.[11]

Biopsy required for diagnosis

The combination of a recent onset of headache and an elevated erythrocyte sedimentation rate (ESR) strongly suggests temporal arteritis. ESR values performed by the Westergren method are usually more than 60 mm/hour in patients with temporal arteritis, and often over 80 mm/hour. An elevated C-reactive protein level is also very common, as is a mild normocytic and normochromic anemia.

However, temporal artery biopsy is needed to confirm the diagnosis, and should be done if the condition is suspected even if acute-phase reactant levels are normal. A fairly long segment of artery should be taken for biopsy because the inflammatory process may be intermittent. If the biopsy findings are negative and the history, physical examination, and laboratory results are characteristic of temporal arteritis, a biopsy of the other temporal artery should be considered.

Untreated, 20% - 30% of patients with temporal arteritis have permanent loss of vision

Start prednisone immediately if temporal arteritis is suspected

If temporal arteritis is suspected, prednisone 60 to 80 mg/day should be started immediately, even if a biopsy has not yet been done; a few days of treatment will not significantly alter the pathological findings. If the biopsy findings are negative and the history and physical examination do not strongly suggest the condition, prednisone should be tapered and discontinued.

The headache of temporal arteritis responds quickly and dramatically to high doses of prednisone, as does the ESR. In contrast, a headache caused by another condition is not likely to fully respond to prednisone.

Corticosteroid therapy should continue for several months and sometimes for a year or

more until the process heals. Patients should be followed clinically and with laboratory tests while prednisone is very gradually tapered over several months.

Visual loss and other complications occasionally occur during therapy but are very uncommon after 4 to 6 weeks of high-dose corticosteroid therapy. After a few months of treatment, most patients can be maintained on prednisone 10 to 20 mg/day.

Long-term use of corticosteroids in older people is likely to cause gastric complications, hyperglycemia, and osteoporosis, all of which need to be monitored and treated if necessary. Calcium supplementation, vitamin D, and bisphosphonate therapy may be needed.

Adjuvant treatments

Some studies have found that methotrexate, cyclophosphamide, and other immunosuppressive agents combined with prednisone may help reduce the amount and duration of prednisone needed and the number of relapses.[12,13] However, a similar study found no benefit to adjuvant methotrexate treatment.[14]

Polymyalgia rheumatica sometimes accompanies temporal arteritis

In older people, subdural hematomas can develop after minor trauma or even vigorous sneezing

Polymyalgia rheumatica, a low-grade inflammatory condition of muscles, is sometimes associated with temporal arteritis. It causes diffuse muscle aching and stiffness, which are especially prominent in the proximal muscle groups. The stiffness and pain are worse at night and upon awakening. Headache alone is usually not a prominent feature. The ESR is usually elevated, and mild anemia may be present.

Prednisone in the high doses used for temporal arteritis will control the symptoms of polymyalgia rheumatica as well. If the patient has only polymyalgia rheumatica without temporal arteritis, low doses of prednisone (5–20 mg/day) are adequate.

SUBDURAL HEMATOMA IS MORE COMMON IN ELDERLY

Subdural hematomas occur much more frequently in older people. A hematoma can develop after a minor head trauma, falling with no direct head trauma (jolt effect), or even vigorous sneezing or coughing. People who use sedatives or abuse alcohol are more prone to falls, making head injuries more likely. Those taking daily aspirin or anticoagulants may develop a subdural hematoma with minimal head injury.

Bleeding is usually caused by rupture of a bridging vein, and symptoms may not develop for several days or even weeks.[15] Headache is usually dull, mild, and generalized. Other symptoms may include drowsiness, confusion, and personality changes, but focal or localizing neurologic signs are unusual.

Subdural hematoma is diagnosed with magnetic resonance imaging or computed tomography with or without contrast. Most small hematomas resolve without surgical intervention and warrant observation only. Patients with a large hematoma with significant brain compression or who have confusion and drowsiness require prompt surgical drainage.

TRIGEMINAL NEURALGIA OCCURS MOST OFTEN IN ELDERLY

Ninety percent of cases of trigeminal neuralgia occur in people older than 40 years. In a younger person, trigeminal neuralgia is usually caused by a neurologic disease, such as multiple sclerosis, an intracranial neoplasm, or an infection.[16]

In the usual idiopathic variety, the second and third divisions of the trigeminal nerve, ie, the maxillary and the mandibular nerves, are most often affected. Headache is unilateral, sharp, and jabbing and occurs in a repetitive, crescendo, wave-like pattern lasting a few seconds. Pain can be triggered by touching or stimulation of the face, eg, from shaving, chewing, laughing, or brushing teeth. Trigeminal neuralgia is sometimes confused with cluster headache, but the latter is not triggered by touching the face and involves steady pain for 30 to 120 minutes with each attack.

Trigeminal neuralgia can be caused by compression of the root of the fifth cranial nerve by an artery in the posterior fossa, by an irritation of the gasserian ganglion, or by an irritation of any of the three divisions of the trigeminal nerve. A prior viral infection involving the nerve may be a factor.[17]

Treated with anticonvulsants, surgery

Carbamazepine, gabapentin, pregabalin, baclofen, topiramate, or other anticonvulsant drugs are usually effective in controlling symptoms of trigeminal neuralgia.

Surgery should be considered if medication does not control pain. The gasserian ganglion can be effectively treated with radiofrequency waves or glycerol instillation. The trigeminal root entry zone can be treated with gamma knife irradiation.[18] Posterior craniotomy to relieve pressure on the nerve from an arterial loop can be effective but is rarely necessary.

HERPES ZOSTER

Herpes zoster is caused by reactivation of dormant varicella virus in a nerve ganglion, which may be triggered by altered immunity from chronic illness or by the use of corticosteroids or other immunosuppressive drugs.

The face is affected if the gasserian ganglion is involved. Eye pain can be severe, and visual loss may occur. Pain may precede vesicular lesions by several days. Early treatment with acyclovir, famciclovir, or valacyclovir may help reduce the pain and rash, and may also prevent involvement of the cornea.[19]

Postherpetic neuralgia is pain that persists for more than 3 months after the lesions have healed. It tends to be more common in older people and may occur in up to 50% of those afflicted in their 60s and 70s. Amitriptyline, nortriptyline, gabapentin, and pregabalin may help control the pain. Tricyclic antidepressants should be used only with caution in older patients because of anticholinergic effects.

OTHER MEDICAL CONDITIONS THAT CAN CAUSE HEADACHE

Headache can be secondary to a number of medical conditions.

Hypertension. Hypertensive headache may occur if the diastolic pressure is consistently higher than 120 mm Hg. The pain typically is generalized, throbbing, and worse upon awakening and tends to ease with activity. Migraine is commonly exacerbated by only mildly elevated blood pressure (diastolic levels 90–110 mm Hg).

TABLE 3

Medications that can cause headache

Vasodilating drugs
- Diltiazem
- Hydralazine
- Isosorbide
- Minoxidil
- Nifedipine
- Nitroglycerine
- Prazosin
- Verapamil

Nonsteroidal anti-inflammatory drugs
- Diclofenac
- Indomethacin
- Piroxicam

Others
- Cyclosporine
- Danazol
- Estrogens
- Histamine$_2$-receptor antagonists
- Sulfa drugs, tetracyclines
- Tamoxifen

Sleep apnea with either hypoxia or hypercarbia may cause headache upon awakening and generally eases after the patient gets up and moves around.

Endocrine abnormalities such as hypothyroidism, hyperthyroidism, and hypercalcemia can cause headaches. Hypoglycemia can cause headache but is also associated with other symptoms, such as sweating, palpitations, and hunger.

Malignancies are more prevalent in older people and need to be considered in anyone with the new onset of headache. Headache can be caused by primary brain tumors or brain metastases, especially from breast or lung cancer.

Intracranial neoplasms tend to cause neurologic symptoms that are more troublesome than the headache. Headache is usually not severe or localized. A large lesion may obstruct cerebrospinal fluid flow and cause a positional component to the pain.

Infections involving any area of the head, including the sinuses and teeth, may be associated with headache, as can systemic infections with or without sepsis. Examination should reveal evidence of infection in the

Intracranial neoplasms can cause headache, but neurologic symptoms are more troublesome

involved areas.

Acute glaucoma may be associated with severe periorbital pain that comes on abruptly and is accompanied by visual blurring and redness of the eye.

Other conditions. Connective tissue diseases, anemia, polycythemia, thrombocytosis, and electrolyte abnormalities may cause or exacerbate headaches.

MEDICATIONS THAT CAN CAUSE HEADACHE

Elderly people tend to take multiple medications. It is important to thoroughly review a patient's drug list, especially when he or she presents with a new headache or a different pattern, or if the medications have recently changed. Commonly used medications that can cause headache are listed in **TABLE 3**.

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