

Evaluation of Headache in Patients With Cancer

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Headache is a common complaint and is often benign. When patients with cancer describe new headaches, it is important to ensure that there are no emergent or concerning etiologies, including metastatic disease. This review article details primary and secondary headaches. Red flags—the do-not-miss warning signs—are described. An initial approach to the evaluation, including suggestions for imaging, features to look for in a targeted examination, and when to request a consultation, is outlined. An overview of headache etiologies is described with a particular emphasis on the most common types: migraine and tension. The classification of headaches, based on criteria from the *International Classification of Headache Disorders* (3rd edition; beta version), is reviewed. Medications used for treatment, including newer biological agents, are described, and there are details about both abortive and preventive medication therapies. Suggestions for complementary and integrative therapies, some of which may be synergistic in treating other cancer symptoms, are outlined; they include mindfulness therapies, which are gaining traction in treating a variety of medical conditions. Readers should have an understanding of headache evaluation in patients with cancer and should know how to formulate a plan for a diagnosis. In addition, readers will gain familiarity with common treatments, both pharmacological and complementary/integrative. **Cancer 2021;127:4368-4375.**
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INTRODUCTION

Headache is a common ailment and affects 50% of the worldwide adult population at some point.¹ It may present as no more than a mild painful nuisance or as an indicator of a serious underlying medical condition. The *International Classification of Headache Disorders* (3rd edition; beta version) guide to the classification of headache disorders describes more than 10 categories, which are divided into primary and secondary diagnoses.² Being familiar with common types of headaches, understanding red-flag warning signs, and separating out those related to the underlying malignancy versus other etiologies will be useful for practicing oncologists.

Being able to quickly identify worrisome symptoms and to triage as needed is essential. It is often helpful for patients if a primary headache disorder can be clearly diagnosed and treatment can be started without the need to wait to see a headache specialist. Patients with cancer are often saturated with medical visits, and if the oncologist is comfortable with diagnosing a nonworrisome tension-type headache, for example, and initiating a straightforward treatment, it may improve that patient's quality of life quickly and prevent waiting for a specialty consult.

OFFICE EVALUATION

An understanding of primary headaches versus secondary headaches is a useful starting point. Primary headache disorders include those without an external causative pathology such as head trauma, space-occupying central nervous system (CNS) lesions, or systemic illness. Migraines, tension-type headaches, and trigeminal autonomic cephalgias (TACs) such as cluster headaches are the common diagnoses in this category. It is worth noting that all primary headaches are diagnoses of exclusion; that is, other causes must be ruled out, often with imaging, laboratory, and other evaluations, before the diagnosis is made. Each of the primary headaches must occur a certain number of times as well. One experience of a headache that sounds like a migraine is not adequate to make a firm diagnosis. Multiple similar events will help to change the category from “probable” to a definitive diagnosis.²

When a patient notes a headache during an oncology visit review of systems, the first question should be around whether this represents a new event. Careful history taking, including previous episodes, and then details of the phenotype are essential. The quality and location of the pain, accompanying features such as photophobia, phonophobia, nausea, and vomiting, and focal neurologic changes such as hemibody numbness or weakness with headache can all help to determine the diagnosis. The severity of pain on a scale of 1 to 10 and any positional components are all key.³ For patients with

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cancer, any changes in treatment, including medication/chemotherapy, radiation, and other treatments, may trigger headaches. Details about muscular pain, limitations in movements such as neck turning, changes in arterial appearance (think of Giant Cell Arteritis, which can present with a nonspecific headache but may involve swollen and tender temporal arteries), and autonomic symptoms such as lacrimation, rhinorrhea, and pupillary meiosis are important.

The infamous headache red flags can be reduced to “first or worst” or “new or different.”⁴ The patient who spontaneously describes a new headache is concerning in a way that another who describes one of his typical migraines is not. Thunderclap headaches—sudden-onset severe pain, often in the middle of the night—should trigger prompt imaging, either magnetic resonance angiography or computed tomography angiography of the brain (which is more reliable but requires an infusion of contrast), to look for an aneurysm once frank blood has been excluded by non contrast head computed tomography. These headaches may represent a sentinel bleed, which could portend an aneurysmal rupture. Pain with focal features such as diplopia or hemibody weakness may also be ominous. The sixth cranial nerve can be a false localizing sign because of its circuitous course in the brain. Double vision, especially when the patient is bending forward, can indicate increased intracranial pressure, which could be related to a primary CNS tumor, a metastatic lesion, or idiopathic intracranial hypertension, which can lead to vision loss if it is not recognized and treated.

When a patient describes a new-onset headache in the oncology examination room, the first question is often whether to image. A patient with known metastatic disease and a new headache should likely have imaging. If there is concern for edema, blood, or any acute process, a computed tomography scan with contrast is often a quick choice and will help to plan immediate steps. It is often preferable, however, to perform a magnetic resonance imaging (MRI) scan with contrast to look for meningeal enhancement if there is concern for meningitis (carcinomatous or infectious) or uptake around a lesion. Magnetic resonance angiography or computed tomography angiography is appropriate if the patient describes a thunderclap headache—an acute, sudden, and severe explosive pain that is unlike anything previously experienced—because this can portend a sentinel bleed from an aneurysm. Malignancy often increases hypercoagulability, and magnetic resonance venogram can demonstrate a sinus or venous thrombosis.⁵

HISTORY

Characteristics of the headache will help to determine the investigation. When did it begin? How long does the individual headache last? Is it continuous or episodic? What is the quality of the pain? Is it throbbing/stabbing/aching/pounding/pressing? Where on the head does it hurt? (It is often useful to have the patient point to the areas.) Is there focal swelling, such as in the temporal artery region? What features accompany the headache?⁶ It is often useful to ask this question first and then parse the response. Autonomic symptoms may indicate a TAC. Hemibody weakness can be part of hemiplegic migraines. Neck pain, headache, and Horner’s syndrome (ptosis, meiosis, and anhidrosis) may indicate a carotid dissection, which can be insidious in its presentation. Vision changes and throbbing in the temples may indicate giant cell arteritis. Asking about rhinorrhea, lacrimation, diplopia, and vertigo is important in helping to distinguish a worrisome headache. Another clue is positionality. A headache that is worse when the patient is lying down or bending over may portend increased intracranial pressure, which is always concerning but perhaps even more so in a patient with an underlying malignancy.⁷

Once the headache phenotype has been clarified, the next focus should be on potential contributors. Many chemotherapeutic agents, including immunotherapies, can cause headaches. Often but not always, there is a clear link between the start of the drug and the onset of the headache; these headaches may be more holocephalic, nonthrobbing, and lacking other accompanying features. It may not be feasible to stop the cancer treatment, so managing the headache will be key (see later discussion). Other noncancer medications can certainly cause headaches; it is important to understand the timing. Potential exposures should be reviewed, as should any travel or illness. Coronavirus disease 2019 (COVID-19) in particular can cause headaches both acutely and in long-haul patients; this may present along the course of cancer treatment, so a clear understanding of recent infections will be useful.⁸ Changes in lifestyle are often overlooked but may well be responsible for a new headache presentation. The patient who becomes nauseated from his chemotherapy and is unable to drink his usual morning coffee may present with a caffeine-withdrawal headache. Another patient whose treatment has caused insomnia because of medications or anxiety or pain may develop headaches because of a lack of sleep. A change in diet, dehydration (perhaps from medication or from nausea and vomiting), a lack of regular exercise, or changes in daily structure

may trigger a migraine.⁹ If there is a new headache clearly referable to a specific trigger, this may lead to straightforward treatment.

EXAMINATION

A neurologic examination for a headache patient will help to rule out certain potential causes but is more likely to reassure the patient that a focal CNS lesion is unlikely. A mental status examination is important, and moving beyond basic orientation questions may help to focus the differential. Ask about current events: examine short-term recall with 3 words, multistep commands, and left-right discrimination; and check reading and writing as well. A funduscopic examination may help if there are obvious signs of disc abnormality such as blurred margins or disc pallor. This part of the examination can be difficult, and if there are any concerns, it may also be important to have an ophthalmologist see the patient for a dilated examination. Other basic elements of the neurologic examination, including pupillary response, visual field testing, facial movement and symmetry, and facial sensation, should be checked. In these times of COVID infections, it would also be helpful to check smell because anosmia with headache can be a presenting symptom of this viral illness. A motor examination should screen for focal weakness, and a sensory examination involving light touch and pinprick as well as reflexes should be performed. Hyperreflexia in a patient with a new headache and/or an extensor plantar response may indicate an upper motor neuron lesion. Coordination, and finger-to-nose testing, assessing for accuracy, and gait testing, completes the examination. This is a screening examination and is not expected to be a detailed neurologic examination, but it will help the oncologist to focus on the next steps of the evaluation. If there is anything of concern, such as clonus or unilateral weakness, this should prompt imaging and a neurology consult.¹⁰

IMAGING

New-onset headache in an oncology patient should almost always prompt imaging as discussed previously. The clinical question to be answered is whether there is any type of focal lesion causing increased pressure or inflammatory changes that could be causing headaches. Although the differential is expansive, ruling out the need for immediate treatment with steroids and medications to lower intracranial pressure if indicated is emergent. Head computed tomography will show blood, increased pressure if there is a shift or ventricular compromise, and a new infarct with surrounding edema, for example. Although

it is generally a quick study to obtain, it does not provide the detail that an MRI would demonstrate; often, this is the examination of choice, and for oncology patients in particular, gadolinium contrast may add additional detail.

Patients with headaches often have difficulty with tolerating MRI, and if there are changes in CNS pressure (eg, elevation), it may worsen the pain for patients to lie flat for the study. It helps to be alert to the need for premedication so that imaging can be obtained quickly. Once completed, a normal examination is reassuring; any abnormality will help to focus the workup.¹¹

FURTHER INVESTIGATIONS

If there is any chance of carcinomatous or infectious meningitis, a lumbar puncture is the next step. Immunocompromised patients may have fungal or unusual bacterial or viral infections that can be insidious, and one must be alert to the possibilities. It is often useful to obtain extra cerebrospinal fluid (CSF) to hold for future studies rather than have to retap. However, malignant cells may be sparse, and repeated lumbar punctures may be required to assess for carcinomatous changes. The opening pressure is also important, and the patient needs to be recumbent (not seated) for the procedure and relaxed. For cytologic evaluations, fresher specimens often have a greater yield, and if it is possible to perform the CSF collection earlier in the day and send it to the laboratory marked for a stat evaluation, this will increase the likelihood of capture. Patients may develop a post-lumbar puncture headache on top of what they are experiencing; this will be exquisitely positional and often will respond to caffeine and lying prone for at least 4 hours after the procedure. CSF should be sent for an infection panel (BioFire or something similar assessing for fungal, viral, bacterial, and parasitic infections). Laboratory investigations of serum may demonstrate increased white blood cell counts and bands and elevated inflammatory markers, although these may be altered because of chemotherapy and immunotherapy, and should be sent to rule out non-oncological diagnoses such as COVID-19, Lyme disease (which can present with a nonspecific headache), electrolyte or other abnormalities that may help to sort out systemic processes contributing to the headache.¹² Biomarkers that may be useful include circulating tumor DNAs, microRNAs, and proteins for various brain tumors.¹³

DIFFERENTIAL

Once investigations have been completed, the etiology of the headache will likely be clarified to a degree. Any

abnormality in imaging or laboratory studies will be treated accordingly. Headache is listed as a side effect of many chemotherapeutic and immunotherapeutic treatments, and this must be considered. A lack of localizing features on examination and normal imaging and studies make a primary headache more likely, although, as discussed previously, one must often experience more than a single event to make the diagnosis.

It is important to be familiar with the criteria for migraines, tension-type headaches, and TACs because these are the most common types of primary headaches. Each has distinct characteristics that help with identification (Table 1). Migraines are very common and affect 38 million Americans. An episode can be triggered by multiple factors, including stress, poor sleep, dehydration, poor nutrition, and others; all of these may occur in patients with cancer. The condition can be quiet for some time and then be triggered. An important question to ask is whether there is any past history of migraines, even if many years before. The evaluation will be the same as for any new-onset headache, but once other more worrisome etiologies have been ruled out, it may be easier to diagnose. The *International Classification of Headache Disorders* (3rd edition; beta version) guide details specific characteristics: unilateral headache, throbbing pain, moderate to severe intensity, attacks lasting 4 to 72 hours (if untreated), and accompaniment by either photophobia and phonophobia or nausea/vomiting. There are variants, such as migraine with aura, in which the actual headache is preceded by visual, sensory, language, or other focal neurologic changes. In such cases, one must rule out stroke or another acute lesion if this is an initial presentation.¹⁴ To be classified as a migraine with aura, there must be 2 discrete events lasting 5 to 60 minutes that are then followed by headache. Auras may occur without the headache (acephalgic migraine), and other variants include vestibular migraines, menstrual migraines, and hemiplegic migraines.² Again, all of these variants can present dramatically, and red flags must be addressed before any other diagnosis can be considered.

Tension-type headaches are very common; the literature suggests that 42% of the population will have experienced a tension-type headache at some point in their lives.¹⁵ The old name for this headache was hat-band headache, and this dramatic description is very apt. Patients describe a band of pain around their heads. It is not severe and does not throb, and although a patient may have mild nausea, photophobia, or phonophobia, these other factors do not dominate in the way that migraine sufferers experience them. It is usually possible to

TABLE 1. Primary Headaches

Migraine without aura
A. At least 5 attacks fulfilling criteria B-D
B. Headache attacks lasting 4-72 h (untreated or unsuccessfully treated)
C. Headache has at least 2 of the following 4 characteristics:
1. Unilateral location
2. Pulsating quality
3. Moderate or severe pain intensity
4. Aggravation by or causing avoidance of routine physical activity (eg, walking or climbing stairs)
D. During headache, at least 1 of the following occurs:
5. Nausea and/or vomiting
6. Photophobia and phonophobia
E. Not better accounted for by another ICHD-3 diagnosis
Episodic tension-type headache
1. At least 10 episodes of headache occurring on 1-14 d/mo on average for >3 mo (≥12 and <180 d/y) and fulfilling criteria B-D
2. Lasting from 30 min to 7 d
3. At least 2 of the following 4 characteristics:
a. Bilateral location
b. Pressing or tightening (nonpulsating) quality
c. Mild or moderate intensity
d. Not aggravated by routine physical activity such as walking or climbing stairs
4. Both of the following:
a. No nausea or vomiting
b. No more than 1 of photophobia or phonophobia
5. Not better accounted for by another ICHD-3 diagnosis
Episodic cluster headache
F. At least 5 attacks fulfilling criteria B-D
G. Severe or very severe unilateral orbital, supraorbital, and/or temporal pain lasting 15-180 min (when untreated)
H. Either or both of the following:
7. At least 1 of the following symptoms or signs, ipsilateral to the headache:
• Conjunctival injection and/or lacrimation
• Nasal congestion and/or rhinorrhea
• Eyelid edema
• Forehead and facial sweating
• Miosis and/or ptosis
8. Sense of restlessness or agitation
I. Occurring with a frequency between 1 every other day and 8 per day
J. Not better accounted for by another ICHD-3 diagnosis

Abbreviation: ICHD-3, *International Classification of Headache Disorders* (3rd edition).

Adapted with permission from *Cephalalgia*.²

carry on with daily activities despite the headache, and it may be more of a nuisance than anything else. Again, this is a diagnosis of exclusion.

TACs are complicated and quite specific and depend on the duration of the symptoms. These stereotypical headaches can last anywhere from 30 seconds to days on end if they become chronic. The most common type of TAC is a cluster headache. This is by definition unilateral, lasts between 30 minutes and 2 hours, and is always on the same side of the head. Pain is either behind or just over the eye and is very severe, stabbing, and accompanied by ipsilateral tearing, rhinorrhea, nasal congestion, ptosis, or a combination of these. Patients often make a video recording and appear unrecognizable at times because

of the expression of the headache. Side-locked headaches should always trigger concern for indomethacin-responsive hemicrania (see the “Treatment” below). The time and accompanying autonomic symptoms help to clarify this diagnosis.²

Other primary headaches include hypnic headaches, which are nonspecific and wake patients up with regularity in the middle of the night. This variant is more common in patients older than 50 years. Nummular headaches involve a small, circumscribed area of neuropathic-type pain (more tingling) on the occiput or crown and are always in the same location. Menstrual headaches often have a migrainous phenotype; this may, of course, be affected by various chemotherapeutic agents that alter hormonal cycling.²

Although not a primary headache, a postconcussive headache can be subtle, and it is always important to ask about any recent head trauma, even if mild. A fall, hitting one’s head on a shelf or other fixed object, or a minor blow to the head can trigger a nonspecific headache that can persist and create an ongoing impact on a patient’s well-being. Sometimes, the trauma is so minor that the patient has not made the association, and once it is clarified, it is reassuring to know the etiology and be able to reassure the patient that the pain will resolve (6 months is generally the outer limit, although most posttraumatic headaches resolve within 2 months).

SECONDARY HEADACHES

This is, of course, an area of tremendous concern for oncology patients with new headaches. A detailed discussion is beyond the scope of this article, but as discussed previously, a new presentation should prompt imaging and a CSF evaluation if there is any suspicion of carcinomatous meningitis or infection, and it may be helpful to review infections that can present in the imaging of immunosuppression with an infectious disease colleague before initiating the lumbar puncture so that CSF is sent appropriately for fungal, viral, and bacterial screening in certain cases.

An underlying diagnosis of malignancy may trigger a hypercoagulable state. This most typically presents as a deep venous thrombosis in the leg or as a pulmonary embolism. A patient may also present with a venous sinus thrombosis, which can trigger a nonspecific headache or a phenotype similar to a migraine. It is especially difficult to sort this out when a patient has a preexisting diagnosis of migraine. Again, any headache that is new and/or different and persistent should be imaged; in this patient

population, in particular, one should consider vascular imaging that includes the venous system (eg, brain magnetic resonance venogram).¹⁶

TREATMENT

Medication

Once secondary headache types have been ruled out, treatment can be initiated. Again, minimizing additional medical visits for oncology patients, if possible, is beneficial because it eliminates the necessity of an extra medical encounter. Using an e-consult system within one’s organization or obtaining a “curbside” with a headache specialist colleague may allow for the initiation of treatment and may improve quality of life by decreasing headache pain, regardless of the need for further specialist evaluation. Patients may well prefer to avoid or minimize additional medications; an understanding of complementary and integrative medicine therapies is useful. When a patient is starting treatment, headache frequency is the first consideration once a presumptive diagnosis has been made. Medications are categorized as preventive or abortive/rescue. Both the frequency and severity of the headache should be factored into decision-making. Four or more headaches per month is usually the cutoff for starting a preventive medication. There is variation between counting headache events and headache days. A headache that is constant enough that a patient cannot perform activities of daily living without interference merits a preventive treatment. Unfortunately, there is a great deal of misinformation on the internet about headache management. It is always helpful to ask what the patient understands about the type of headache and the planned treatment.¹⁷

Migraines are well understood in terms of pathophysiology, and this has led to targeted biologics that offer significant reductions of headache (Table 2). Older preventive treatments fall into 3 classes: antidepressants, anticonvulsants, and antihypertensives. Each class carries both risks and benefits, and if there is coexisting illness, it may be possible to treat 2 diagnoses with a single agent. Topiramate is often very effective, and the dose is often lower than what is required for an epileptic patient. However, it can cause sensory symptoms in the hands and feet as well as nausea, all of which can be intolerable for an oncology patient who has developed a neuropathy, for example, or who has chemotherapy-related nausea already. Valproic acid is also an appropriate choice for migraines (both medications are Food and Drug Administration [FDA]–approved for this indication), but it can affect platelet production and elevate liver

TABLE 2. Preventive Primary Headache Therapeutics

Migraine	Tension-Type Headache	Cluster	Occipital Neuralgia
Propranolol	Off-label	Galcanezumab	Off-label
Metoprolol	Amitriptyline	Off-label	Occipital nerve blocks
Topiramate	Nortriptyline	Verapamil	Baclofen
Valproic acid	Gabapentin	Steroids	
Onabotulinum toxin A		Lithium	
Erenumab			
Fremanezumab			
Galcanezumab			
Eptinezumab			
Off-label			
Verapamil			
Candesartan			
Duloxetine			
Venlafaxine			
Amitriptyline			
Nortriptyline			

function tests. Older antidepressants such as amitriptyline, though not FDA-approved for migraines, are often used as a standard of care with good evidence to support them. These medications can also help with sleep, which can be challenging for oncology patients, but they are profoundly anticholinergic, and this can limit their tolerability. Antihypertensives such as propranolol and metoprolol are also FDA-approved for migraine indications, but they can cause fatigue and dizziness and are often difficult for the oncology patient population. There are a number of other off-label medications, but the newer FDA-approved biologics, including monoclonal antibodies targeted at the calcitonin gene-related peptide (CGRP) receptor or ligand, delivered by either monthly home-administered injections or a newer infusion every 90 days (approximately 3 months), can be tremendously effective. If a patient might benefit from one of these nonoral formulations, a referral to a neurologist or headache specialist is in order. It is useful to be familiar with these medications; it is unlikely that there would be any interaction with chemotherapy or immunotherapy, and patients who do experience migraine worsening generally tolerate these medications with few side effects.¹⁷

Migraine patients may note an increase in occasional episodic migraines while undergoing cancer treatment. Stress, poor sleep, dehydration, a lack of exercise, and other factors may trigger them. Abortive medications may be all that is required for these patients if the migraines are occurring sporadically without changes in expression or a crescendo in frequency. Triptans are often very effective; there are 7 formulations, including orally disintegrating tablets, which are fast acting and well tolerated. Nonsteroidal anti-inflammatory drugs (NSAIDs) may alleviate an acute migraine, although the potential

for interactions with other medications may be greater. Newer biologics, specifically gepants, have been evidenced and FDA-approved as abortives. These are CGRP antagonists, have few side effects or interactions, and can also be very effective.¹⁷

Medication treatment for TACs can be more complicated. These primary headaches are short in duration, and often a triptan such as zolmitriptan or sumatriptan can abort the pain quickly. For some patients, breathing 100% oxygen through a nonrebreather mask can abort the event as well. A steroid taper can break a cluster cycle. Some preventive medications such as verapamil are also helpful as abortives.¹⁸ One CGRP monoclonal antibody, specifically galcanezumab, has been evidenced as a cluster headache preventive; the dose is higher than that for migraines and consists of 3 injections that a patient can perform at home on a monthly basis.¹⁹ These headaches are often excruciating and can interfere tremendously with sleep, so if there is concern, a referral to a headache specialist is entirely appropriate.

Tension-type headaches may respond to a muscle relaxant such as tizanidine or baclofen, although neither is labeled specifically for this diagnosis. If the headache is occasional, NSAIDs or acetaminophen may give adequate relief. Amitriptyline or nortriptyline at a low dose, though not specifically indicated, is evidenced for tension-type headaches, and they may work well as preventives and boost sleep as well.²⁰

Secondary headaches should be treated according to their etiology; for example, cerebral venous sinus thrombosis would require anticoagulation. A headache that presents in the setting of chemotherapy or immunotherapy (see Table 3) may respond to a tricyclic antidepressant or serotonin norepinephrine reuptake inhibitor

TABLE 3. Cancer Therapeutic Classes That May Cause Headaches

- | |
|---|
| 1. Fluorouracil ^a |
| 2. Procarbazine ^a |
| 3. Immunotherapies such as checkpoint inhibitors ^b |

^aSee the American Cancer Society website.

^bSee Reynolds and Guidon.²¹

(much like a tension-type headache treatment). There is no FDA-specific guideline for treating these headaches; many will respond to acetaminophen or an NSAID. It is also worth considering nondrug therapies (discussed later). A headache triggered by a CNS infection should resolve when the infection has been treated. These headaches may require consultations with specialists.

Complementary and Integrative Medicine Therapies

These therapies should be considered in addition to medications for treating headaches. The evidence varies for each specific therapy. Research has shown that many patients are interested in using nondrug therapies for headache and pain, and they will often research and seek out these treatments themselves. It is helpful to understand the various options and to be able to discuss them. One concern for oncology patients with headaches is the use of herbal therapies for pain. Even though these are “nonmedicinal,” they may have interactions, side effects, and even toxicities when combined with chemotherapy or immunotherapy. For this reason, it is useful to have a pharmacology colleague who can advise on the safety of adding an herbal remedy if a patient is interested in doing so. Acupuncture has significant evidence for migraines, pain, and nausea and may be a good option for patients. There are data to support the anti-inflammatory effects of this treatment, and it may be covered by health insurance. For many patients with nonsevere headaches, it can provide significant relief without the need for additional medication. Treatments are usually once per week and, after an initial series of 4 to 6 weekly treatments, may be spaced out. Massage may be relaxing, although it is unlikely to adequately treat an ongoing headache condition. Gentle chiropractic care may also be useful for stretching, trigger point release, and palpation. There is evidence for yoga as a therapy for migraines; avoiding forward bends is important, and patients should be counseled to avoid hot yoga (because this can be dehydrating) and power yoga (because this vigorous practice may be more energetic than patients undergoing cancer treatment can tolerate, and it is possible for patients to be injured if not properly monitored).²²

There is great interest in cognitive and mindfulness therapies for headache and pain. These modalities can also be helpful in coping with anxiety. Cognitive behavioral therapy can be taught remotely. It is a concrete and specific set of techniques used to change thought patterns, such as catastrophizing, by learning to synchronize breath with the heart rate, for example, or how to warm one’s hands by using specific focal exercises and a thermometer for immediate feedback. It is a concrete type of therapy, and once it is mastered, patients can use the technique when they feel a headache starting, for example, or when they feel stressed or anxious. Health insurance is likely to cover this type of therapy. Mindfulness-based stress reduction is a more abstract approach. Patients attend 8 weekly sessions, including an all-day retreat, and learn a series of tools for being present in the immediate moment. Again, this can be helpful around anxiety and stress. Mindfulness-based stress reduction requires daily meditation work and may be overwhelming for patients who are also dealing with cancer therapies. Acceptance and commitment therapy has been evidenced for various forms of pain, and ongoing research is studying the treatment for headaches and specifically for migraines. This third-wave form of treatment helps patients to observe pain and understand that they may not be able to change the pain itself but that they have a locus of control over the effect it may have on their life and activities. It is often taught in a group setting and is likely to be covered by health insurance under psychological treatments, although it is focused on pain specifically. These various mindful therapies should be considered as options for patients in addition to medications.²³ Some patients will want to avoid further drugs completely. Again, creating a referral base of complementary and integrative medicine therapists will be extremely useful and will expedite treatment referrals.

In conclusion, headache is a common complaint both in oncology treatment and in other medical settings. Often, a headache is primary, straightforward, and treatable. For oncology patients in particular, minimizing additional medical visits, if possible, can decrease anxiety and the burden of involving additional providers. For the treating oncologist, when a patient describes headaches under a review of systems, it is important to look for red flags, image expeditiously if imaging is indicated, and refer the patient to a neurology or headache specialist. Many headaches can be managed easily, and treatments may include both medication and complementary and integrative medicine therapies. Patients with cancer have concerns about metastases, and it is important to

address this clearly so that additional worry and fear can be avoided when possible. Familiarity with both primary and secondary headaches is important for oncologists, who often are the medical locus for patients with cancer. Understanding commonly used medications and newer targeted biologics when appropriate and addressing risk-benefit will help both patients and oncologists.

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