American Headache Society
AHS
HEADACHE PROFILES
Volume II Number 3

CASE VIGNETTE

"I'm stressed by the headaches and then the stress makes the headaches worse. It's a vicious circle, and I feel like I'm spiraling out of control."

Terri, a 36-year-old schoolteacher, was referred by her mother for evaluation of "terrible migraines." She lists propranolol, butalbital compound, and sumatriptan as current medications. Vital signs and physical exam are normal.

Terri, when did your headaches begin? Have there been any recent changes in the headache pattern?

Terri describes a history of severe headaches dating back to the age of 16. For 15 years the attacks would occur approximately 2-3 times per year, but over the last 5 years she has had a gradual escalation to 1 severe attack each month.

Describe these severe headaches. Where do you feel the pain? Do you have other symptoms in addition to the head pain?

The headache is typically unilateral and nearly always left-sided; the occasional right-sided attack has the same evolution and features. The pain builds slowly, beginning with pressure in the jaw that expands to involve the ipsilateral temple (1 hour later) and then the ipsilateral cervical-occipital area (2 hours). Associated symptoms include nausea and light and sound sensitivity. The pain will become severe and the nausea will intensify once the pain has radiated from the face to the hemicranium, at around the 2-hour point. Her scalp is tender so that combing her hair is painful, and she occasionally also notes ipsilateral arm aching several hours into the attack. The total duration is around 48 hours, followed by a postdrome of fatigue lasting 1 day.

Aside from these severe attacks, are you having any other types of headache?

She gets mild "tension" headaches fairly frequently and also some that she feels are "sinus" headaches, but these don't bother her like the severe migraines.

Have you identified any triggers or do you recognize any warning features prior to the development of pain?

The building ache in her jaw is the first sign. She is often very hungry the day before with a craving for sweets; she has read that chocolate can trigger migraines but avoiding chocolate has not helped. She recognizes stress as a frequent trigger. There is no clear link to her menstrual cycles.

How are you treating the headaches, and how effective are your therapies?

She was started on propranolol (Inderal LA 60 mg/day) and butalbital compound (Fiorinal prn) by a previous physician 2 or 3 years ago with only "a little" improvement in her condition. More recently she had been given sumatriptan tablets (Imitrex) to treat more severe episodes, "but this only takes the edge off." She is not currently taking the propranolol, feeling that it is ineffective; she takes it, however, when she is in a "high stress" time, hoping that it will help.

How are the headaches affecting your functioning at work and at home?

She is missing work an average of a day each month. She says she basically "has no life" because of the headaches. She is divorced with no children. She is close to one sister and to her mother. Her mother is very supportive because of her own long history of menstrually associated migraine, which improved with menopause.

At what point do you take medication? Is there a time during the headache when medication is more effective for you?

When Terri recognizes the presence of a migraine, she often tries to "catch it early." She will sometimes treat the stage of facial discomfort with acetaminophen or butalbital compound. Neither completely interrupts the cycle of events, and so she turns to sumatriptan at the 1-2 hour point. This provides modest pain relief, but the attack continues for 48 hours regardless. Since she also has "tension" headaches and "sinus" headaches, and only a limited supply of sumatriptan tablets, she saves the triptan for "definite migraines." Her previous physician had educated her to treat in this fashion, using the butalbital first "because it was cheaper and safer."

Tell me more about the "tension" and "sinus" headaches. How do they differ from your migraines?

Terri reports a history of "tension" headaches for the same duration she has experienced migraines. These have also become more frequent, occurring at least 15 days per month for the past 2 years. She uses 2-4 500 mg acetaminophen to treat these headaches. The pain is frontotemporal, unilateral or bilateral, throbbing, mild to moderate in intensity, and without associated sensory sensitivities or gastrointestinal symptoms. She says, however, that untreated these can "turn into migraines." The sinus headaches are a more intense throbbing frontal headache, but still not as bad as the migraines.

Terri, there are several strategies and treatments we can try to get your headaches under control—and just as important, prevent them from becoming even more frequent.

PRETEST

1. What is the headache diagnosis?
2. Give an acute treatment strategy, with its rationale.
3. Give a preventive treatment strategy, with its rationale.
4. What would be important in the follow-up of this patient?

COMMENTARY

Terri's severe headaches are readily diagnosed as episodic migraine without aura. The headache pattern, with the less severe near-daily headaches, indicates an evolution to chronic migraine is taking place.

Terri, when did your headaches begin? Have there been any recent changes in the headache pattern?

A gradual escalation in a long-established headache pattern suggests an exacerbation of the primary headache disorder rather than the development of secondary headache due to an underlying disorder.

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American Headache Society AHS HEADACHE PROFILES

AHS Headache Profiles is published by the American Headache Society, 19 Mantua Road, Mt. Royal, NJ 08061.
Web address is http://www.ahsnet.org

Letters to the editor should be sent to the above address, or emailed to ahshq@talley.com

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Describe these severe headaches. Where do you feel the pain? Do you have other symptoms in addition to the head pain?

The symptoms are consistent with a diagnosis of migraine. The fact that attacks occur predominantly on one side but occasionally on the other is not unusual. Food cravings are a frequent prodrome (i.e., premonitory symptoms experienced 1-2 days prior to an attack by some patients) and do not have the causative role that many patients attribute to them. A postdrome of fatigue or malaise is not unusual, although a few patients may report feeling refreshed or euphoric following headache resolution. The gradual and highly predictable pattern of onset allows early abortive treatment. Rapid onset of action will not be important, but headache recurrence may be an issue with some medications, given the long duration of the attacks. Her scalp sensitivity, and possibly the arm pain as well, may be a manifestation of central sensitization of neurons late in the migraine process. (See accompanying article on central sensitization.)

Aside from these severe attacks, are you having any other types of headache?

It is important to ask if there is more than one type of headache. Some patients may describe only the most severe attacks but have other frequent headaches that should also be treated. Others may lump all their symptoms from distinct headache syndromes together, making the diagnosis less obvious. Here the evolution to chronic migraine might have been missed had the history not included questions about the less severe headaches.

Have you identified any triggers or do you recognize any warning features prior to the development of pain?

Since she is aware of the role of stress and recognizes food cravings as a prodromal symptom, she may be able to apply relaxation and other anti-stress techniques in advance of an anticipated attack to reduce the intensity of the headache.

How are you treating the headaches, and how effective are your therapies?

Her negativity and her noncompliance might seem discouraging, but as the rest of her history will show, she has not been given an optimal approach to acute therapy, and the goals of preventive therapy may never have been adequately explained to her. It is not clear whether she in fact had an adequate 2-3 month trial of propranolol. The clinician will need to decide whether to persuade her to try the propranolol again, or to move on to another agent on the assumption that she will be more compliant if prescribed something new.

How are the headaches affecting your functioning at work and at home?

The impact of the headaches is considerable, and Terri clearly needs more effective treatment. Once the headaches are under control, she should be asked again about work and social functioning, in case the headache condition functions as the scapegoat for psychological issues that need attention. A positive family history and female predominance are common in migraine.

At what point do you take medication? Is there a time during the headache when medication is more effective for you?

She is aware of a clear sequential development of migraine and recognizes the benefits of treating as early as possible, but her previous physician educated her to treat using a "step-down" strategy of beginning treatment with less specific medications and reserving migraine-specific medications for persistent severe pain. This approach has clearly failed to control her long-lasting and quite disabling headaches and may be promoting overuse of analgesics and barbiturate.

Tell me more about the "tension" and "sinus" headaches. How do they differ from your migraines?

About 80% of patients with chronic migraine have a history of analgesic overuse, but it is not clear whether this is a cause or a consequence of increased headache frequency.

These less intense near-daily headaches are typical of an evolution from episodic to chronic migraine ("transformed migraine"). Often they appear to be a tension-type headache, but they may also resemble a mild migraine that lacks the usual accompanying symptoms (e.g., nausea and vomiting), which is probably what she is characterizing as "sinus" headache. Nonpurulent nasal drainage, nasal congestion or pressure over the sinus area are commonly experienced with migraine, although these symptoms may not occur with every attack. Migraine sufferers will frequently misdiagnose these headaches as sinus-related, and proceed to treat them ineffectively with decongestants or antihistamines.

Terri, there are several strategies and treatments we can try to get your headaches under control—and just as important, prevent them from becoming even more frequent.

The plan would be to continue the same medications, but using them in a different way that might be more effective. The benefits of early intervention were discussed, as well as use of a daily preventive for a 2 to 3 month trial. Terri was instructed to take sumatriptan at the onset of her jaw soreness and to resume daily propranolol. She was told to call if sumatriptan taken early was not fully effective, and another medication would be tried (frovatriptan or naratriptan, for example, which have longer half-lives). The risk of medication overuse headache was explained, and a limit of 2-3 doses of triptan per week was set, or a total <10 days per month. Terri was instructed to discontinue acetaminophen and butalbital. She was also taught some fundamentals of stress management (relaxation techniques). Finally, she was asked to keep

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a calendar record of all headaches and all medication use, recording dosages and headache response.

Using a migraine-specific abortive medication at the first onset of a migraine attack is an effective strategy for patients with relatively infrequent migraines. However, as with other acute pain medications, overuse of triptans (≥ 10 days per month) has been associated with the development of a chronic daily headache syndrome. For patients like Terri who also have frequent headaches of less intensity, such a strategy is only feasible if the severe migraines are differentiated by an aura or other distinct early symptoms. With Terri's headaches, this appears to be the case. However, it will be important to review her headache calendar at the next appointment to verify that she is able to follow the early intervention strategy effectively without overusing her medication. Her medication use should be tracked indefinitely to be sure she does not slip into an overuse pattern in the future.

—Case contributed by Robert G. Kaniecki, MD. Director, University of Pittsburgh Headache Center. Pittsburgh, PA

CHRONIC MIGRAINE AND MEDICATION OVERUSE HEADACHE

Chronic migraine is classified as a complication of migraine in the International Classification of Headache Disorders, 2nd edition (ICHD-II). It is distinguished from medication overuse headache, which is classified as a secondary headache, primarily for research purposes, in order to ascertain the incidence and natural history of chronic migraine in the absence of medication overuse.

CHRONIC MIGRAINE (ICHD-II 1.5.1)

- Headaches occurring on ≥ 15 days per month for > 3 months that meet the following criteria for migraine:
  - The headache has 2 or more of the following characteristics: i) unilateral location, ii) pulsating quality, iii) moderate to severe pain intensity, iv) aggravation by routine physical activity.
  - The attack has at least one of the following associated symptoms: i) nausea and/or vomiting, ii) photophobia and phonophobia.
- Headaches are not attributable to an underlying disorder.
- Headaches are not associated with medication overuse.

MEDICATION OVERUSE HEADACHE (ICHD-II 8.2)

- Migraine-like headache occurring on ≥15 days per month, or mixed migraine-like and tension-type-like headaches occurring on ≥ 15 days per month
- Associated with overuse of analgesic or migraine-specific medications, e.g., regular use of triptans ≥ 10 days per month or of simple analgesics ≥ 15 days per month for 3 months or longer.
- Headache frequency has increased markedly during period of medication overuse.
- Headache reverts to its previous pattern within 2 months after discontinuation of overused medication.

MIGRAINE AND NEURONAL CENTRAL SENSITIZATION

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CLINICAL RELEVANCE OF EARLY TREATMENT

Those experienced in the care of patients with migraine are familiar with the phrase, "If I catch it in time." This statement is expressed by those individuals finding limited success in the treatment of attacks that have already passed a certain point. In essence they describe a "point of no return" when their acute migraine medication loses its ability to eliminate the symptoms of the attack. The result is either complete failure of the drug or partial resolution, commonly reported as "taking the edge off" migraine. From over-the-counter anti-inflammatory agents to prescription triptans, most patients derive the greatest therapeutic benefits if intervention occurs early in the attack—specifically while the pain remains in the mild phase.

Clinical pearl : Teach migraine patients to "treat early, but not too often." As long as use of acute migraine therapy does not exceed 2-3 days per week, totaling <10 days per month, treatment should be administered at the onset of each attack.

SCIENTIFIC BASIS OF CENTRAL SENSITIZATION

Until recently the pathophysiologic basis for the common sense approach of treating migraine attacks early in the course remained undefined. Over the past 3 years, however, an enlarging body of evidence has provided insight into the physiologic underpinnings and therapeutic variability associated with migraine as it progresses through stages. Traditionally migraine has been divided into the clinical phases of prodrome, aura, headache attack, and postdrome. Research has identified a sequence of neurophysiologic events tied to these clinical components of migraine. As the pathophysiologic process progressively activates the neural pathways of migraine, sensitization occurs of first-, second-, and third-order neurons in trigeminal pain pathways. Sensitization of these second- and third-order neurons (located within the brainstem and thalamus) may be clinically expressed through the phenomenon of cutaneous allodynia, when non-noxious stimuli are perceived as painful. Since there is convergence of input from the extracranial and intracranial trigeminal connections, migraine processing (occurring along intracranial lines) could result in a sensitization of neurons that may be expressed as superficial skin sensitivity (trigeminal sensitization manifested along extracranial lines). Manifestations of allodynia during migraine may include scalp soreness to pressure or hair grooming, tenderness of the neck muscles, or particular sensitivity to eyeglasses, contact lenses, earrings, or hair clips. These are signs that central sensitization of second- and third-order neurons has occurred. Although we typically discuss sensitivities to light, noise, and odor during migraine attacks, it may be even more clinically relevant to inquire about progressive sensitivity to touch.

A series of recent studies has provided welcome insight into these physiologic stages of migraine and the ramifications of delayed treatment. The phenomenon of central sensitization appears to occur in the majority of migraineurs, and was initially documented as occurring in 79% of a sample of subjects.[1] A subsequent study of 31 patients treating 61 attacks determined that 93% of attacks treated before the development of allodynia were rendered pain-free with triptans by 2 hours. Only 15% of those attacks treated after the onset of allodynia were completely resolved by triptans within 2 hours.[2] The authors concluded the probability of pain-free outcome was dramatically increased if triptan therapy was timed to precede signs of cutaneous allodynia. In a recently completed and as yet unpublished study at our headache center of 100 patients treating 381 attacks, the presence or absence of allodynic neck tenderness directly impacted the efficacy of 100 mg oral sumatriptan in resolving a migraine attack (Table 1).

Table 1

Allodynic Neck Pain	2-hr Head Pain-free	2-hr Neck Pain-free
Allodynia absent (n=217)	89.4%	82.9%
Allodynia present (n=164)	7.3%	4.9%

Patients treated attacks at the onset of neck pain.

RESOLUTION OF MIGRAINE WITH TRIPTANS

The efficacy of triptans in acute migraine is well documented. Recent research has clarified the locus of action at the level of the peripheral trigeminovascular neuron. In a rat model using cutaneous allodynia induced by intracranial pain, triptans were shown to prevent, but not reverse, the development of central sensitization. Triptans appear

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to block migraine at the connection between first- and second-order neurons in the trigeminal nucleus caudalis. In essence, the migraine process is "contained" in the periphery, before full activation of central trigeminal structures. However, if the central neurons in the trigeminal pathway were already at the sensitized stage (allodynia already present), triptans were ineffective in reversing such sensitization. Thus, animal studies also emphasize the importance of capturing migraine in its earliest stages.[3]

SUMMARY

The clinical implications of these data are clear and undeniable: treat migraine headache early, prior to the development of cutaneous allodynia and central sensitization. Although some patients are fortunate to experience pain-free results with triptans regardless of treatment timing, the majority are not so lucky. As long as treatment is not excessively frequent—more than an average of 2 days per week—it should be applied in the earliest stages of migraine. It is crucial to capture migraine early, when pain is mild, prior to the point of migraine when the brain is hyperexcitable. To paraphrase an old adage, "He who hesitates may be lost."

Suggested Reading

1. Burstein R, Yarnitsky D, Goor-Aryeh I, et al. An association between migraine and cutaneous allodynia. Ann Neurol 2000;47:614-624.
2. Burstein R, Collins B, Jakubowski M. Defeating migraine pain with triptans: A race against the development of cutaneous allodynia. Ann Neurol 2004;55: 19-26.
3. Burstein R, Jakubowski M. Analgesic triptan action in an animal model of intracranial pain: A race against the development of central sensitization. Ann Neurol 2004;55: 27-36.
4. Burstein R. Deconstructing migraine headache into peripheral and central sensitization. Pain 2001;89:107-110.
5. Kaniecki R. Migraine and tension-type headache: an assessment of challenges in diagnosis. Neurology 2002;58:S15-S20.

Sponsored by an unrestricted educational grant from:

GlaxoSmithKline

EARLY INTERVENTION STRATEGIES FOR MIGRAINE

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Clinical trial protocols investigating the efficacy of migraine-specific medications such as the triptans have usually stipulated that patients treat attacks only when the pain is moderate to severe in order for study investigators to have reasonable certainty that subjects are treating migraine rather than tension-type headaches. This study protocol has in turn influenced the treatment paradigm for many clinicians, particularly in an era of managed care and limited pharmacy benefits. Patients with migraine are often instructed to delay use of migraine-specific medication (usually a triptan) until pain reaches moderate to severe levels.

However, recent pathophysiology studies (see accompanying article on central sensitization) as well as anecdotal experience suggest this may not be the most appropriate management strategy for all patients. Burstein and colleagues have shown that untreated migraine pain progressively worsens through a process of peripheral nociceptor activation and sensitization, followed by central nociceptor sensitization.[1] Progression to central sensitization brings more severe pain and development of associated symptoms such as allodynia. The predominantly peripheral activity of the triptans suggests the possibility that early treatment, before progression to central sensitization, might yield more complete and durable pain control.

Retrospective analyses of data from patients who violated study protocols have provided some preliminary support for the hypothesis that early treatment of mild pain may offer superior pain control rates. In the Spectrum Study, a subanalysis was performed of 24 patients who violated protocol and treated 46 headaches while the pain was still mild.[2] When the same patients followed protocol and treated their headaches when pain was moderate or severe, pain-free rates were lower than reported for treatment during mild pain. In an analysis of protocol violations in three sumatriptan trials, for all headaches treated while pain was mild, pain-free responses were higher for sumatriptan than placebo at 2 hours (51% for 50 mg and 67% for 100 mg versus 28% for placebo), and more patients treating early with sumatriptan reported normal functioning 4 hours post-treatment (70% for 50 mg and 93% for 100 mg versus 46% for placebo).[3]

To investigate the potential benefit of early treatment as a clinical strategy, two multi-center randomized, double-blind, double-dummy parallel group studies were undertaken comparing 50-mg and 100-mg oral sumatriptan to placebo in treating migraine at the first onset of pain.[4] Two separate protocols were used to determine if results could be replicated. Study participants were instructed to take the study medication at the first onset of head pain (or no later than 2 hours after onset of mild pain), to keep a headache diary using a 4-point scale for pain, and to complete a headache disability instrument 24 hours after medication use. Enrollment was restricted to patients who had a mild pain phase followed by more severe pain as their migraine attack pattern.

In both studies, the numbers of patients reporting pain-free response and sustained pain-free response 2 to 24 hours after treatment were significantly greater for both doses of triptan compared to placebo. Sustained pain-free response rates were: 26% and 27% with 50 mg; 33% and 36% with 100 mg; and 14% (both studies) for placebo. By comparison, a meta-analysis of 53 clinical trials of triptans, in which patients treated at the moderate-to-severe pain level, found a mean sustained pain free response of 20% in the 19 trials with a 100 mg sumatriptan arm.[5-6]

A common criticism of "early treatment" is that not all migraine headaches with mild pain would have progressed to moderate to severe pain requiring use of a triptan. However, in these two early treatment studies, significantly more patients who treated with placebo reported worsening of headache pain 4 hours after treatment (55% and 56% in the two studies) compared to those treating with sumatriptan at doses of 50 mg (25% and 30%) and 100 mg (15% and 17%).[4] Significantly more placebo-treated patients also made use of a second dose or rescue medication (68% and 71%) compared to the two active treatment groups (48% and 59% for the 50-mg dose and 44% and 40% for the 100-mg dose). These findings indicate early intervention successfully prevented progression to more intense pain in this group of patients, and by implication suggest that the use of a triptan early in the attack interrupted the process of central sensitization.

These two studies confirmed the retrospective analyses in showing that most patients with migraine will achieve pain-free relief by 4 hours if medication is used at the first sign of pain, with pain-free response rates ranging from 55% to 66% with 50-mg sumatriptan and 65% to 71% with 100-mg sumatriptan. By comparison, a large trial using the standard protocol of delaying treatment until pain became moderate to severe reported pain-free rates at 4 hours of 55% for 50-mg and 58% with 100-mg sumatriptan.[7] While the difference in response rates is

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variable and modest, it may be meaningful for individual patients. Early treatment is more likely to have a favorable cost/benefit profile for patients like Terri who report severe or long-lasting migraine attacks that have readily distinguished initial symptoms. Medication use should be carefully tracked to avoid overuse and triptan rebound headache, with a clear limit set, for example, stipulating that acute medications should be taken not more than once every 2-3 days.

References

1. Burstein R, Cutrer, MF, Yarnitsky D. The development of cutaneous allodynia during a migraine attack: clinical evidence for the sequential recruitment of spinal and supraspinal nociceptive neurons in migraine. Brain 2000;123:1703-09.
2. Cady RK, Lipton RB, Hall C, et al. Treatment of mild headache in disabled migraine sufferers: results of the Spectrum Study. Headache 2000; 40:792-97.
3. Cady RK, Sheftell F, Lipton RB, et al. Effect of early intervention with sumatriptan on migraine pain: retrospective analyses of data from three clinical trials. Clin Ther 2000; 22:1035-48.
4. Winner, P, Mannix LK, Putnam DG, et al. Pain-free results with sumatriptan taken at the first sign of migraine pain: 2 randomized, double-blind, placebo-controlled studies. Mayo Clin Proc 2003;78:1214-22.
5. Ferrari MD, Goadsby PJ, Roon KI, Lipton RB. Triptans (serotonin, 5-HT1B/1D agonists) in migraine: detailed results and methods of a meta-analysis of 53 trials. Cephalalgia 2002; 22: 633-58.
6. Ferrari MD, Roon KI, Lipton RB, Goadsby PJ. Oral triptans (serotonin, 5-HT1B/1D agonists) in migraine treatment: a meta-analysis of 53 trials. Lancet 2001;358:1668-75.
7. Pfaffenrath V, Cunin G, Sjonell G, Prendergast S. Efficacy and safety of sumatriptan tablets (25 mg, 50 mg, and 100 mg) in the acute treatment of migraine: defining the optimum doses of oral sumatriptan. Headache 1998;38:184-90.

BEHAVIORAL MANAGEMENT OF MIGRAINE PREEMPTIVE TREATMENT

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WHY BEHAVIORAL MANAGEMENT?

Despite our patients' hopes to the contrary, there is no cure for migraine. No abortive medication, including triptans, is universally effective. Overuse of certain abortive and analgesic medications can lower the threshold for future headaches and lead to drug rebound (medication overuse headache). Comorbid anxiety or fear of pain may facilitate central sensitization, or lead some patients to overuse analgesics preemptively to medicate their anxiety about a possible headache. For patients with frequent headaches, prophylactic medication often reduces but does not eliminate headaches. Adherence to prophylactic medication regimens requiring more than once a day dosing is often less than ideal. Lifestyle factors and stressors can trigger or exacerbate headaches. Major stressors can also be a factor in the transformation of episodic migraine to chronic daily headache, including chronic migraine. Finally, some patients cannot tolerate adverse effects of medication, and others may prefer to minimize their drug use.

ASSESSING BEHAVIORAL FACTORS AFFECTING MIGRAINE

The more frequent or debilitating the headaches, then the more important behavioral assessment can be to developing an effective treatment plan. Patients often respond well to straightforward questions that are incorporated into a standard assessment for frequent headaches, rather than as a response to drug treatment failure or in a context that might suggest the patient is somehow causing the headache. Preceding these questions with a brief comment on the biological basis of migraine, coupled with the importance of understanding the patient as an individual, can help reduce any likelihood of a negative response to the inquiry. In Terri's case, we know that stress is a frequent trigger, but nothing about the nature of stress or what she does to cope with it, other than take drugs.

Examples of key questions, with follow-up to affirmative answers:

- Is stress a frequent trigger or aggravator of your headaches?
- Do your headaches frequently occur during the "let down" after a stressor has passed?
  - Can you give a typical example?
  - What do you see as the current stressors in your life?
  - Do you think these situations have an effect on your headaches?
  - How do you attempt to manage stress?
- Does the onset of headache cause you emotional distress?
  - Do you worry about the pain, feel anxious, angry, or depressed?
  - Do you ever take medication when you are worried about getting a headache, in order to feel calmer?
  - Is there anything other than taking medication that you do to calm yourself at those times?
  - How successful are you at calming yourself?
- Are you prone to worry?
  - Do you have trouble stopping yourself from dwelling on negative thoughts?
  - Do you have any history of anxiety or panic?
- Do you feel excessively sad, or have you lost interest in most things?
  - Do you think you might be depressed?
  - Do you have any history of depression for more than a day or two at a time?
- Are you interested in learning more about non-drug methods of controlling your migraines?

Patients with relevant behavioral factors or an interest in non-pharmacological treatment will be most responsive to further behavioral suggestions, or a referral for more in-depth behavioral management.

BEHAVIORAL ASSESSMENT OF CHANGES IN HEADACHE PATTERN

Terri's headaches gradually escalated over the last 5 years to their current frequency and severity. However, some patients experience much more rapid transformation to chronic daily headache from a previously stable episodic pattern, sometimes over the course of a few weeks. When this is the case, it is important to inquire about events that may have been associated with the transformation.

- Were there any significant events or changes in your life, or the lives of people you care about, in the months preceding this change in your headache pattern?
  - How do you feel you are coping with those situations now?
  - Do you think they have any continuing impact on your headaches?

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Some patients may deny awareness of any such change at first, failing to recognize the obvious. For example, a 17-year-old girl experienced a rapid increase in the frequency and severity of migraines toward the end of the first semester of her junior year in high school. Although she and her parents initially denied awareness of any unusual events that might have preceded this change, on asking the question a second time they noted that her best friend since age 7 had been diagnosed in late September with uterine cancer, and that they had participated in a major fundraiser to help with medical expenses. Attention to these possible transformative factors can help make the change in headache pattern more understandable and provide an empathic opportunity.

A 30-year-old young mother of 3 experienced an intensification of headache 4 months after delivering her last child when she returned to work on the B shift. The headaches became so severe that her physician placed her on medical leave. On inquiry, she tearfully stated that the return to work coincided with her 2 oldest children starting school, so she was only able to see them in the morning before the school day and on weekends. Her husband minimized this issue and wanted her to keep working at least a couple more years. She needed to work for the benefits, since her husband was self-employed and had none. She was depressed, and admitted to a previous major depression when her mother died 5 years earlier. Failure to attend to the work issue and comorbid depression can render migraine-specific treatment ineffective.

COGNITIVE-BEHAVIOR THERAPY—TRANSFER SKILLS, SET GOALS, SELF-TALK

Behavioral assessment and question-asking alone can help alert the patient to take action that helps manage migraine. For example, the following questions may help patients transfer skills to the migraine-relevant situation that they already use (or have used) successfully in other areas of their lives.

POSTTEST

1. What is the clinical significance of a prodrome, such as appetite or mood changes, occurring 1-2 days in advance of a migraine?
2. What is the clinical significance of skin or scalp sensitivity occurring during a migraine attack?
3. If the patient's complaint is of severe headaches, why should the clinician also inquire about other headache patterns that may also be present?
4. In advising patients to treat early, while the head pain is still mild, what precautions or safeguards should be observed?

- Are there any situations where you have successfully managed stress in the past?
- Do you see any way you could apply that approach to your migraine-related stressors?

People often make little effort to behaviorally manage stress or headache until it reaches a critical threshold, and then find themselves only becoming more frustrated when their later efforts fail. The key concept here is simply stated:

- Get stress before it gets you.
- Get the headache before it gets you.

Many patients experience a prodrome before their migraine, as in Terri's case when she feels hunger with a craving for sweets the day before a migraine. In other cases, the headache sufferer may feel agitated, or feel a rush of energy that may encourage a frenzy of activity and reduced sleep. These warning signs can provide an opportunity for patients to make a special effort to remain calm during the prodrome – get adequate sleep, minimize or avoid caffeine, avoid rushing. In many cases the key is to think about slowing down rather than to apply a specific stress-management technique. Conscious productive self-talk can facilitate follow-through over time, including questions that patients can ask themselves to set their plans in motion, self-instructions, self-reinforcement, and keeping on task:

- What can I do to remain calm?
- Slow down your breathing, stay calm, one step at a time
- Focus on the next few minutes – don't look so far ahead
- You can do it, you are succeeding
- Good job – stay with the plan

These techniques may help not only during the prodrome but during the headache phase of migraine.

It is helpful to set 1 or 2 behavioral goals (e.g., an exercise program at least 3 days/week or rising from bed at a consistent time every day) before the next medical appointment, document them, inquire about them at the next visit, and reinforce the patient for any success:

- Can you identify 1 or 2 behavioral goals you would like to accomplish before the next visit?
  - Is that realistic?
  - Can you see any obstacles that would prevent you from doing that?
  - How will you make that happen?
- Can I count on you to follow-through with that?

While appropriate patients may benefit from referral to a behavioral practitioner for more intensive therapy, physicians can often improve patients' quality of life and treatment outcomes by combining attention to behavioral factors with the medical management of migraine.

Suggested Reading

Caudill MA. Managing pain before it manages you. New York, Guilford, 1995.

Lake AE III. Behavioral and nonpharmacologic treatment of headache. Med Clin North Am 2001;85:55-75.

Penzien DB, Holroyd KA. Psychosocial interventions in the management of recurrent headache disorders. II. Description of treatment techniques. Behavioral Med 1994;20:64-73.

Scher AI, Stewart WF, Ricci JA, Lipton RB. Factors associated with the onset and remission of chronic daily headache in a population-based study. Pain 2003;106:81-9.

Answers—Pretest

1. Episodic migraine without aura evolving to chronic migraine.
2. Advise the patient to take sumatriptan earlier in the attack, at the onset of maxillary sensitivity or while pain is mild.
3. Either restart the propranolol, with careful instructions and follow-up for compliance; or try another first-line preventive agent, such as amitriptyline or verapamil, again with education regarding the goals and timeframe of preventive therapy.
4. A headache calendar should be used to track efficacy as well as her success and compliance in stopping use of analgesics and butalbital.

Answers—Posttest

1. Stress reduction and lifestyle management approaches can be instituted at this point to prevent or reduce the severity of the impending migraine attack.
2. The patient is experiencing central sensitization; treatment will be more effective administered prior to the onset of cutaneous allodynia.
3. To be certain of the diagnosis and appropriate management, as patients may discount the significance of near-daily mild headaches, which might change the diagnosis from acute to chronic and indicate a need for preventive medications.
4. Patients should be given clear instructions not to exceed a specific number of doses per week or per month. Patients with a past or suspected tendency to overuse medication should be monitored more closely, including the use of a headache calendar, and should be considered for referral for behavioral interventions.