Addendum

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Headache
Headache Addendum
Levittown Health Center Headache Working Group

Introduction

Headache is a common complaint in primary care practice, and is the third most common patient complaint reported in chiropractic practice (1). Though frequently episodic in nature and not associated with mortality, headache is also one of the most common human health experiences. The lifetime prevalence of headache, including anybody with any form of headache, and migraine and tension type headache (TTH) has been reported as, respectively, 93%, 8% and 69% in men, and 99,25 and 88% in women (2). Overall, headache point prevalence is reported at about 16% in the general population making it one of the most common human ailments (3).

Headache imposes a large socio-economic burden on the population. Despite its relatively high point prevalence, a large proportion of headache sufferers are never diagnosed or treated (4). For instance, about half of migraineurs and 80% of tension headache sufferers do not consult with a health care provider. In one large population based study, 51% of migraineurs and 13% of tension headache sufferers reported that they managed without medication (over the counter and/or prescription) during a given year (5,6). Yet, nearly all persons with migraine, and up to 60% of those with tension type headache report impaired or abolished work capacity as well as social activities (4). Further, another large population based study found that in the U.S., individuals lose the equivalent of 4.2 days per year, (more associated with migraine than tension headache) and that 70% of all work loss (from headache) takes the form of reduced work effectiveness due to headache (7).

For the health care provider to appropriately diagnose and treat patients with a headache complaint, several important considerations must be kept in the forefront:

• Headaches are comprised of two distinct categories, primary and secondary.

The overwhelming majority of headaches are primary and benign. That is, the experience is related to the local condition of the head and or neck, and does not represent the result of a life threatening pathology. Within this category are the common headaches of vascular origin (including migraine with and without aura, and cluster headaches), headaches of a mechanical origin (including episodic and chronic tension type headaches and cervicogenic headache), and headaches resulting from trauma or other conditions of the head and neck. While a tremendous source of morbidity, they do not represent a likely source of mortality. In contrast, secondary headaches are the result of some other pathology, often in the head, and may represent a significant and possibly life threatening problem for the patient. Secondary headache accounts for about 1-2% of headache in-patients less than 65 and about 15% of headache patients over 65 (8). Causes of secondary headache include such conditions as intra-cranial masses, meningitis, subdural hematoma, subarachnoid hemorrhage, temporal arteritis and glaucoma. Headache may also be secondary to more common conditions including systemic and local infectious processes that are self-limiting and benign.

• Most all the health data that will be known about a headache patient will be generated from the history.
Compared to many other health complaints, the overwhelming majority of headache cases present with a paucity of objective signs to assist in the development of the diagnosis of headache. Although abnormal neurological examination findings may be detected with slowly developing space-occupying lesions such as subdural hematoma and intracranial tumor, these are uncommon causes of headache. In such patients the abnormal findings are dependent on the nature, location and size of the lesion, and may include signs of increased intracranial pressure, seizure, cranial nerve disturbances and mental changes such as alteration of consciousness, orientation, memory, mood, behavior, language or intellectual capacity. It is important to note that these abnormalities may occur before a complaint of headache actually manifests. For a more complete discussion of secondary headaches we refer the reader to the recommended text by Reilly and chapter by Nelson.

Further, special diagnostic tests provide helpful information beyond the history and physical examination in only a small percentage of headache cases. Advanced testing should be used judiciously. Table I provides a list of physical and historical red flags that may suggest the possible need for neuroimaging procedures in the evaluation of a headache patient (9).

**Table I: Red Flags for Secondary Headache Disorders**

1. Fundamental change or progression in headache pattern
2. First and/or worst headache
3. Abrupt onset attacks including those awakening one from sleep
4. Abnormal physical examination results (general or neurological)
5. Neurological symptoms lasting more than 1 hour
6. New headache in individuals aged < 5 and > 50 years
7. New headache in patients with cancer, immunosupression, pregnancy
8. Headache associated with alteration or loss of consciousness
9. Headache trigged by exertion, sexual activity or Valsalva maneuver

Definitions and descriptions of headache are well described in the literature, particularly by the explicit diagnostic criteria provided by the 1988 International Headache Society Classification (I.H.S.) system. However, the I.H.S. classifications were primarily intended for use in headache research. A number of large population based epidemiological studies have examined the "real time" correlation between these classifications, and the populations actual experience with headache. As has been learned, there is frequent overlap and variability between the classification or classical definition, and actual clinical presentation. This is perhaps best demonstrated by the often discussed "tension - migraine continuum" (10). We present both the I.H.S. classification as well as a brief summary of the clinical epidemiological findings for the more common primary headaches below. Familiarity with these resources will provide clinical educators, interns and practitioners with the basic knowledge and skills to address the headache patient and an appreciation of the need for flexibility in applying the "definitions" and the diagnostic pathways suggested in the seed algorithm.
Educational and Patient Care Protocols

Addendum 1

This seed algorithm and supportive information are designed to accomplish two objectives. First, to represent an up-to-date educational resource for the chiropractic intern. Second, to function as a flexible guide to the clinician and the intern in the diagnosis and management of the headache patient. As a seed instrument, retrospective review of managed headache cases will be needed to modify the algorithm, and establish its validity and reliability.

I. Migraine with and without aura

Migraine and tension headaches are the two most common forms of primary headache. The 1-year period prevalence of migraine in adults has been reported as 10-12% (6% among men, 15-18% among females). The overall male to female ratio is 1:2-3, (1:2 for migraine with aura (MA), 1:7 for migraine without aura (MO) and is also fairly consistent across studies. The over representation in females is believed to be due to the influence of female hormone. For MO, 1-year prevalence is about 6%, about 4% for MA, with about 20% of migraineurs in the general population experiencing at least one attack per month (11). A large population based study of migraine in the US reported that 17.6% of females (8.7 million) and 5.7% (2.6 million) of males have one or more migraine headaches per year. Prevalence for both men and women peaked at 35-45 years, and was 60% higher in the lowest income group (< $10,000). The frequency was lowest in higher income groups and disability was inversely related to income (12). Note again the concern and associated health care implications that migraine may be commonly undiagnosed and under reported in clinical practice (9).

Migraine without Aura (MO) I.H.S. Classification (13).

A. At least five attacks fulfilling B-D
B. Headache attacks lasting 4-72 hrs (untreated or unsuccessfully treated)
C. Headache has at least two of the following:
   1. Unilateral location
   2. Pulsating quality
   3. Moderate or severe intensity (inhibits or prohibits daily activities)
   4. Aggravation by walking stairs or similar routine physical activity
D. During headache at least one of the following:
   1. Nausea and/or vomiting
   2. Photo- and/or phonophobia
E. At least one of the following:
   1. History and physical do not suggest headache secondary to organic or systemic metabolic disease
   2. History and/or physical and/or neurologic examinations do suggest such disorder, but is ruled out by appropriate investigations.
   3. Such disorder is present, but migraine attacks do not occur for the first time in close temporal relation to the disorder.
Migraine with aura (MA) (13).

A. At least two attacks fulfilling B.
B. At least three of the following four characteristics:
   1. One or more fully reversible aura symptoms indicating focal cerebral cortical and or brain stem dysfunction.
   2. At least one aura symptom develops gradually over more than four minutes or two or more symptoms occur in succession.
   3. No aura symptom lasts more than 60 minutes. If more than one aura symptom is present, accepted duration is proportionately increased.
   4. Headache follows aura with a free interval of less than 60 minutes. (It may also begin before or simultaneously with the aura).
C. At least one of the following:
   1. History and physical and neurologic examinations do not suggest headaches secondary to organic or systemic metabolic disease.
   2. History and/or physical and/or neurologic examinations do suggest such disorder, but it is ruled out by appropriate investigations.
   3. Such disorder is present, but migraine attacks do not occur for the first time in close temporal relation to the disorder.

Commonly reported clinical symptoms are as follows: 16% of MA and 12% of MO patients report premonitory symptoms, most frequently low spirits and tiredness. Stress and mental tension are the most common reported precipitating factors for both MA and MO. Approximately 60% of MA classified patients report a unilateral headache, about 40% bilateral or variable. The most common aura symptoms in MA are visual - angulated scintillating visual disturbance (77%), blind spots in the visual field (81%). 80% of MA patients report accompanying nausea and/or vomiting. The headache of MA is typically shorter than MO. A family history of migraine among first degree relatives is reported by many (56%) of all migraineurs (40% MA, 64% MO) (14).

II. Tensions Headaches

Tension type headache (TTH), including both chronic (CTTH) and episodic (ETTH) forms, has an estimated overall prevalence that varies from 1.3 to 65% in men, 2.7-86% in women, making it the most common headache. The male to female prevalence ratio is 1:1.5 and is fairly consistent across studies. Recent studies have found a yearly prevalence of ETTH at 38.3%, greater in females than males, peaking in 30-39 year olds in both men (42.3%) and women (46.9%), then declining with age. The one-year prevalence of CTTH was 2.2% (15).

Episodic Tension type HA (ETTH) (13)

A. At least 10 previous h/a episodes fulfilling b-d below. Number of days with such a headache < 180/year
B. Headache lasting from 30 min to 7 days
C. At least two of the following:
   1. Pressing/tightening (non pulsating) quality
   2. Mild or moderate intensity
   3. Bilateral location
   4. No aggravation by walking stairs or similar physical activity
D. Both of the following:
   1. No nausea or vomiting (anorexia may occur)
   2. Photophobia and phonophobia are absent, or one but not the other is present

**Chronic Tension type HA (CTTH)**

Same as ETTH with the exception of:

A. Frequency is 15 or more attacks per month for at least 6 months
B. At least one of the following:
   1. Nausea
   2. Photophobia
   3. Phonophobia

**III. Cervicogenic HA (CEH)**

Cervicogenic headache (CEH), or headache arising from the neck, compared to migraine and tension headache, is a newer classification of headache. Its neuroanatomical basis was described by Bogduk in 1992 (16). Sjaastad and his co-workers offered diagnostic criteria for CEH in the late 80s, which have been refined and employed in a number of population and clinic based studies. This is presented below.

I. Main symptoms and signs (17)

Both of the following:

A. Unilaterality of headache w/o side shift
B. Symptoms and signs of neck involvement:

At least one of the following:

1. Provocation of attacks
   a. Pain, seemingly of a similar nature, triggered by neck movement and or sustained awkward head positioning
   b. Pain similar in distribution and character to the spontaneously occurring pain elicited by external pressure over the ipsilateral upper, posterior neck region or occipital region
2. Ipsilateral neck, shoulder and arm pain of rather vague, non-radicular nature
3. Reduced range of motion in the cervical spine

II. Pain Characteristics

A. Non clustering pain episodes
B. Pain episodes of varying duration or fluctuating continuous pain
C. Moderate, non excruciating pain, usually of a non - throbbing nature
D. Pain starting in the neck, eventually spreading to the oculo-fronto-temporal areas, where the maximum pain often is located
III. Other important criteria

A. Anaesthetic blockades or the major occipital nerves and or the C2 root on the symptomatic side abolish the pain transiently, provided complete anesthesia is obtained.
B. Female sex

IV. Minor, more rarely occurring, non obligatory symptoms and signs

A. Autonomic symptoms and signs
   1. Nausea
   2. Vomiting
   3. Ipsilateral edema and less frequently flushing, mostly in the periocular area
B. Dizziness
C. Phono- and photo phobia
D. Blurred vision on the eye ipsilateral to the pain
E. Difficulty swallowing

CEH was addressed by the I.H.S. classification system in 1990 (13) as follows:

I.H.S. Classification:

A. Pain localized to the neck and occipital region. May project to the forehead, orbital region, temples, vertex or ears.
B. Pain is precipitated or aggravated by special neck movements or sustained neck posture
C. At least one of the following occurs:
   1. Resistance to or limitation of passive neck movements
   2. Changes in neck muscle contour, texture, tone or response to active and passive stretching and contraction
   3. Abnormal tenderness of neck muscles
D. Radiologic examination reveals at least one of the following
   1. Movement abnormalities in flexion/extension
   2. Abnormal posture
   3. Fractures, congenital abnormalities, bone tumors, rheumatoid arthritis, or other distinct pathology (not spondylosis or osteochondrosis).
Using this definition, a small population based study found cervicogenic headache to have an estimated prevalence of 17.8%. This is reportedly in the range found by other population based studies using the same criteria (3).

In the classification offered by Sjaastad et al, unilaterally without side shift is a mandatory requirement. The I.H.S. classification does not consider this criteria. At issue is the differentiation between cervicogenic and migraine headaches based on these different diagnostic criteria, and whether CEH may actually represent a migraine stemming from the neck. Several recent studies have looked at the ability of these systems to separate cases of cervicogenic from migraine headache. Important findings experienced by CEH patients included; moderate, non-excruciating, non-throbbing pain (73%), ipsilateral non radicular shoulder-arm pain (52%), reduced cervical range of motion (84%), pain radiation from the neck to the forehead (70%), nausea (20-45%), vomiting (21%), photo-and phonophobia (6-57%). Two studies found that the I.H.S. criteria would miss classify 24-30% of cases as migraine and leave 60-66% unclassified. Further, both suggested that the CEH criteria, including unilateral with out side shift adequately distinguish CEH from migraine and tension headache. One also suggests that the I.H.S. criteria for CEH need improvement (18,19).

Our working group considered this emerging data, as well as the previously sited data on non-unilaterality in migraine, and concluded that the current literature is not yet decisive on this issue with respect to CEH. Hence the suggested seed algorithm allows for unilateral or bilateral presentations to proceed through the pathway, and the definitive diagnostic choices to be made based on the presence or absence of other, more reliable predictors. In the case of CEH, this would include infrequent to no aura-like symptoms, much less frequent nausea, vomiting, photo-and phonophobia, and much more frequent symptoms and signs of neck involvement and greater likelihood of radiation to the forehead. We reserved mandated unilaterality without side shift only for cluster headaches.

IV. Cluster Headache

This is the least common of primary headaches, with a reported prevalence of 1 in 1000 persons. In contrast to other primary headaches, they are more common in males (male to female ratio is 5:1). These often begin during the second through forth decades. Most attacks are nocturnal and severe, and unlike the hibernation characteristics associated with migraine, the patient may be aroused and restless.

I.H.S. Classification (13)

1. At least 5 attacks
2. Severe unilateral, orbital, supraorbital, or temporal pain lasting 15-180 minutes, untreated.
3. Headache has one or more of the following pain side signs:
   a. Conjunctival injection
   b. Lacrimation
   c. Nasal congestion
   d. Rhinorrhea
   e. Forehead and facial swelling
   f. Miosis
g. Ptosis  
h. Eyelid edema  
4. Attack frequency ranging from one every other day to eight per day  
5. At least one of the following:  
a. History and physical examination do not suggest a structural or metabolic cause  
b. History and physical examination do suggest cause but appropriate investigations rule it out  
c. Secondary disorder present but cluster attacks are not temporally related.
References

7. Schwartz B, Stewart W, Lipton R. Lost workdays and decreased work effectiveness associated with headache in the workplace. JOEM 1997;39:320-7
12. Stewart W, Lipton R, Celentano D, Reed M. Prevalence of Migraine in the US, Relationship to age, income, race and other socio-demographic factors. JAMA 1992;267:64-69

Recommended Readings

1. Reilly B. Practical Strategies in Outpatient Medicine, 2nd Ed. WB Saunders