Current recommended diagnosis and management of headache

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Headache is a common presentation and patients need careful and detailed assessment and examination. Our Drug review focuses on key points and recent guidelines on the diagnosis and management of headache, followed by sources of further information and a review of the prescription data.

Headache is a common symptom seen in primary care and represents up to 30 per cent of neurology referrals.\(^1\)\(^-\)\(^3\) Primary and secondary headache disorders have been classified by the International Headache Society (IHS) and can be used as a basis for headache diagnosis (see Table 1).\(^4\)\(^,\)\(^5\) The IHS classification is an expansive document, the latest version having been published in July 2013, and can be modified for use in primary care.\(^6\)

Using the new classification criteria a primary headache is one in which the characteristics of the headache cannot be attributed to another cause or disorder. A secondary headache is one in which the characteristics of the headache have another cause. Using this definition migraine with or without aura is a primary headache disorder, but medication-overuse headache is a secondary disorder.

In September 2012 NICE published a guideline for the Diagnosis and Management of Headache in Young People and Adults.\(^1\) They have focused on the most common primary headache disorders, which include tension type headache, migraine and cluster headache, and medication-overuse headache. The document stresses the importance of patient-centred care, that referral for neuroimaging for reassurance is inappropriate, acute treatment needs to reflect the patients’ goals and preferences, and prophylaxis needs to reflect patient preference and co-morbidities.\(^3\)

Diagnosis
Pattern recognition

It is important to recognise relevant symptom combinations that suggest common primary headaches or medication-overuse headache (see Table 1),\(^4\)\(^,\)\(^5\)\(^,\)\(^6\) as well as recognising red-flag symptoms suggesting a possible secondary cause for the headache that requires further investigation (see Table 2).\(^7\)

It must be remembered that when diagnosing migraine the classification asks for at least two features relating to laterality, quality of pain, severity or change with movement, and one of nausea/vomiting or photo/phonophobia, with a similar level of awareness for flexibility with regards to the features of the other headaches and the need to understand the headache phenotype.

Making a diagnosis in a 10-minute GP consultation

It is possible to make a rapid assessment by asking a series of questions that will help you separate a headache associated with features from one that is not (see Figure 1). It is useful to understand whether this is a new headache to the patient or whether they have had a similar headache in the past. The next step is to exclude any possible red-flag symptoms (see Table 2).\(^7\)

A more detailed assessment will enable a diagnosis to be made, when treatment options can be discussed with the patient.
**NICE guidance on migraine**

**Acute treatment**

Decision-making with regards to treatment options in migraine is complex as the patient needs to understand how each drug or drug combination works as well as what different delivery systems are available to meet the goals they set for a successful treatment outcome. Patients often make choices about treatment that relate to what their needs are at any one time, and so the options they have available need to reflect the flexibility that they need.

There is no reason why you should not start with the triptan with the lowest unit cost, but if this is not effective then each alternate should be tried to optimise treatment and minimise the disability to the patient.\(^1\)\(^,\)\(^8\)

A simple analgesic and prokinetic antiemetic can be taken at the start of the aura, or within one hour of the headache starting, and for some this will be sufficient.\(^1\)\(^,\)\(^2\) If this is not effective then a triptan can be taken at the start of the headache. The different triptan delivery options, be it oral, orodispersible, nasal spray or injection, should be discussed with the patient.

Patients often opt to use different approaches at different times, and being able to utilise this flexibility tends to improve

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**Table 1. Important headache types and their diagnostic features (adapted from IHS classification)**\(^4\)\(^–\)\(^6\)

<table>
<thead>
<tr>
<th></th>
<th>Migraine with or without aura</th>
<th>Tension-type headache</th>
<th>Cluster headache</th>
<th>Medication-overuse headache</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aura</strong></td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td><strong>Headache duration</strong></td>
<td>4–72 hours</td>
<td>30 minutes to 7 days</td>
<td>15–180 minutes</td>
<td>some or all of the day</td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td>episodic, variable</td>
<td>1–15 days per month, variable</td>
<td>1 on alternate days to 8 per day, often for 7 days to 1 year when episodic</td>
<td>daily &gt;15 days each month, for more than 3 months</td>
</tr>
<tr>
<td><strong>Laterality</strong></td>
<td>unilateral</td>
<td>bilateral</td>
<td>unilateral</td>
<td>unilateral/bilateral</td>
</tr>
<tr>
<td><strong>Character of pain</strong></td>
<td>pulsating</td>
<td>pressing/tightening</td>
<td>knife-like, severe, excruciating</td>
<td>pressing/tightening/pulsating</td>
</tr>
<tr>
<td><strong>Severity of pain</strong></td>
<td>moderate/severe</td>
<td>mild/moderate</td>
<td>severe/very severe</td>
<td>mild/moderate/severe</td>
</tr>
<tr>
<td><strong>Aggravated by movement</strong></td>
<td>yes, need to be still</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td><strong>Eased by movement</strong></td>
<td>no</td>
<td>no</td>
<td>yes, tend to be restless</td>
<td>no</td>
</tr>
<tr>
<td><strong>Nausea +/- vomiting</strong></td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td><strong>Photophobia/phonophobia</strong></td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td><strong>Red watery eye</strong></td>
<td>no</td>
<td>no</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td><strong>Watery or blocked nose</strong></td>
<td>no</td>
<td>no</td>
<td>yes</td>
<td>no</td>
</tr>
</tbody>
</table>

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**Letters**

If you have any issues you would like to air with your colleagues or comments on articles published in *Prescriber*, the Editor would be pleased to receive them and, if appropriate, publish them on our Letters page. Please send your comments to:

The Editor, *Prescriber*, The Atrium, Southern Gate, Chichester, West Sussex PO19 8SQ, or e-mail to prescriber@wiley.com
treatment outcomes. NICE guidance is also quite clear that ergots and opioids should not be used in the acute treatment of migraine.\textsuperscript{1}

**Prophylactic treatment**

While the guidance recommends the use of topiramate or propranolol, patient preference must be considered and this will require a detailed conversation about efficacy, expectation and side-effects. The harder decision is when to introduce prophylaxis as it will not stop all attacks – it will reduce the frequency only, and may make some attacks more responsive to treatment.\textsuperscript{1,2}

British Association for the Study of Headache (BASH) guidance makes it clear that prophylaxis is used as well as but not instead of acute treatment. They recommend that propranolol be used first line, with topiramate second line.\textsuperscript{2}

Interestingly, if topiramate or propranolol is not effective or suitable then the NICE guidance recommends considering up to 10 sessions of acupuncture over five to eight weeks.\textsuperscript{1} Alternatively gabapentin (unlicensed indication) could be considered after discussion with the patient about efficacy and side-effects.

### NICE guidance on cluster headache

**Acute treatment**

The recommendation is to offer oxygen or a triptan for the treatment of the individual episode of cluster headache pain, recognising the challenge of treating a headache that can last as little as 15 minutes or as long as three hours. The evidence shows that a subcutaneous triptan will give the swiftest response but a nasal triptan could be considered.\textsuperscript{1}

NICE recommends the use of oxygen at 100 per cent at a flow rate of at least 12 litres per minute using a nonrebreathing mask and a reservoir bag. When arranging the provision of home oxygen this needs to be made explicit on the request form as well as indicating how often the oxygen will be needed in any one day and the duration of use to ensure an adequate provision of oxygen for the patient.\textsuperscript{1}

The same principles apply when issuing a prescription for triptans for use during an episode of cluster headache, as up to eight attacks can occur in any one day.\textsuperscript{1}

**Prophylactic treatment**

The guidance recommends the use of verapamil, highlighting the importance of ECG monitoring with higher doses. If there

<table>
<thead>
<tr>
<th>Red flag symptom</th>
<th>Is this a primary headache?</th>
<th>Is this a secondary headache?</th>
</tr>
</thead>
<tbody>
<tr>
<td>First severe headache over the age of 50 years</td>
<td>tension-type headache migraine</td>
<td>temporal arteritis</td>
</tr>
<tr>
<td></td>
<td>migraine</td>
<td>mass lesion</td>
</tr>
<tr>
<td>A sudden onset that reaches maximum intensity within 5 minutes associated with any Valsalva manoeuvre:</td>
<td>primary cough headache primary exertional headache primary coital headache</td>
<td>subarachnoid haemorrhage pituitary apoplexy bleed into a mass lesion</td>
</tr>
<tr>
<td>• cough</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• sneeze</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• straining</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• exercise</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• intercourse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accelerating pattern of headache check for recent head injury in last 3 months</td>
<td>systemic infection</td>
<td>meningitis encephalitis abscess</td>
</tr>
<tr>
<td>Headache associated with fever check for compromised immunity:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• HIV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• immunosuppressive drugs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focal neurological signs or symptoms check for:</td>
<td>migraine with aura</td>
<td>stroke mass lesion vascular malformation</td>
</tr>
<tr>
<td>• cognitive dysfunction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• change in personality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• history of malignancy that can metastasise to brain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Headache with papilloedema on examination</td>
<td>idiopathic intracranial hypertension</td>
<td>mass lesion</td>
</tr>
<tr>
<td>Headache associated with a red eye</td>
<td>acute glaucoma</td>
<td>trigeminal autonomic cephalalgia</td>
</tr>
</tbody>
</table>

Table 2. Investigation of red flag symptoms and their primary and secondary causes
are any concerns about using verapamil or the patient does not respond, then a specialist opinion is recommended.¹

**Supporting the patient with daily headache**

Patients who present with a headache most if not every day require careful assessment in order to clarify the diagnosis. Patients with tension-type headache or cluster headache will often experience headache on a daily or near-daily basis. The headache history will allow you to separate one from the other – tension-type headache is a headache not associated with any features, whereas cluster headache has clear associated symptoms.

Patients often present with increasingly frequent headache or a headache that becomes less and less responsive to the usual acute treatment. In this case it can be quite difficult to identify the headache profile (see Figure 2).

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**Figure 1. Questions for making a headache diagnosis in a 10-minute consultation**
Supporting the patient with a medication-overuse headache

When a patient presents with daily headache and they are taking regular analgesia to treat the headache, it takes a careful discussion to explain to the patient that the tablets they are taking are contributing to the problem. The evidence suggests that all analgesia should be stopped.\(^1\)

My clinical experience supports this process, but I often suggest the use of a supportive pain-modulating agent such as a suitable tricyclic antidepressant or antiepileptic drug, which can help break the current cycle and reduce the frequency of headache symptoms.

Diary cards can be an invaluable tool as they can demonstrate the change in headache frequency and severity. There are several different diaries that are available for use and can be downloaded from a variety of migraine websites.

Does botulinum toxin have a role in the treatment of migraine?

NICE recommends botulinum toxin type A (Botox) in adults with chronic migraine in the absence of medication overuse.\(^10\) Chronic migraine is defined as having 15 headache days or more in a month and at least eight of those must be consistent with migraine.

Botulinum toxin type A can only be used if the patient has failed to respond to at least three prior pharmacological therapies and should be stopped if they do not experience at least a 30 per cent reduction in headache days after two treatment cycles or they have reverted to episodic migraine for three consecutive months.

In my own clinical experience there is a cohort of patients who do not respond to standard regimens with regards to prophylaxis, and when those patients have been referred for botulinum toxin a proportion have received benefit from a course of treatment. It is important that the correct patient is selected with clear goals set, as with any treatment regimen.

An evolving clinical entity: migraine-associated vertigo or vestibular migraine

Balance symptoms often described as ‘dizziness’ are commonly experienced during a migraine attack,\(^6,11\) and patients who have migraine are three times more likely to experience vertigo than those with tension-type headache. In a population-based study vertigo was found to occur in 3.2 per cent of migraine patients, which is three times that expected by chance.

The sensation is variously described as:

• spinning
• to and fro motion
• rocking
• floating
• motion sickness with nausea.

The symptoms can occur with or without a headache. Their duration can vary from seconds to minutes, hours or days, but the intensity of symptoms can vary during that time.
Do you have a headache for some part of some days, most days or every day?

Some days  Most days  Every day

On the day (or part of the day) that you do not have a headache do you feel completely crystal clear and your normal self?

Yes  No

How many days in the week or month do you have a bad headache?

Are the bad headaches associated with nausea/vomiting or a desire to be in the dark or quiet?

Yes  No

Does the headache vary in severity from day to day and through the course of the day?

Yes  No

How many days in the week or month do you take a painkiller to treat your headache?

Less than 50% of the days  More than 50% of the days

What is the most number of consecutive days in the past month/few months that you have NOT taken any painkillers?

A week or so  A day or 2

Is this frequent but episodic migraine?  Is this medication-overuse headache?

Figure 2. Questions to build a profile for patients with daily headache
do you get travel sick?
can you read or sit in the back of a car without feeling sick?
did you get travel sick as a child?
do you feel dizzy or sick when watching or observing a moving object?
do you find that you start to feel nauseous or are you unable to tolerate repeated head movements?
do you currently suffer from or have you suffered from migraine headaches?
do you experience migraine visual aura?
is there a family history of travel sickness?
is there a family history of migraine?
do you experience other migrainous symptoms such as sensitivity to light, noise or smells?
do your symptoms of vertigo get worse or vary with your period?
have you noticed a worsening of your vertigo when the weather pressure drops?

Table 3. Questions to ask of patients presenting with ‘dizziness’

There are a variety of features of the patient history that may increase the probability of a diagnosis of migraine-associated vertigo (see Table 3).

The following conditions need to be excluded by appropriate assessment and investigation:
- Meniere’s disease
- benign paroxysmal positional vertigo
- vestibular neuritis
- transient ischaemic attacks or stroke
- panic disorder and anxiety-related dizziness.

Treating this condition is challenging. Propranolol and metoprolol are first-line agents in the absence of contraindications, and acetazolamide, lamotrigine and topiramate have been used in small studies and shown some benefit. Some patients have shown improvement with vestibular rehabilitative physical therapy, assuming they can tolerate it.

Conclusion
Patients with headache need careful and detailed assessment and examination, a clear diagnosis, involvement in decision-making with regards to treatment, and regular support and review. Treatment response needs to be reviewed and modified according to patient need and expectation.

References
1. NICE. Diagnosis and management of headaches in young people and adults. CG150. September 2012.
2. TJ Steiner, et al. Guidelines for all healthcare professionals in the diagnosis and management of migraine, tension-type, cluster and medication-overuse headache. Available at: www.bash.org.uk.

Declaration of interests
Dr Fontebasso has attended advisory boards recently for Allergan, facilitated educational sessions for GPs that have been funded by them and has received educational grants that enabled attending international headache meetings. In the past she has attended advisory boards for Pfizer, MSD, AstraZeneca and GSK, and has received unrestricted educational grants from Pfizer, MSD, AstraZeneca and GSK to attend international headache meetings.

Dr Fontebasso is a part-time GP in York, a GP with a special interest in headache at the Headache Clinic, York Hospital, and an honorary senior clinical tutor at Hull York Medical School.

Resources

Guidelines
Botulinum toxin type A for the prevention of headaches in adults with chronic migraine. TA260. NICE, June 2012.

Diagnosis and management of headaches in young people and adults. CG150. NICE, September 2012.

Guidelines for all healthcare professionals in the diagnosis and management of migraine, tension-type, cluster and medication-overuse headache. British Association for the Study of Headache, September 2010.

Prescriber articles


Prescription review

In 2012/13, GPs in England wrote 2.4 million prescriptions for products to treat acute migraine at a total cost of £42.4 million. This was a slight increase in prescribing volume over 2011 (2.3 million scrips) but a decrease in costs (£46 million). Triptans still accounted for most scrips (86 per cent of volume and 77 per cent of costs).

Over half of triptan prescriptions were for sumatriptan, accounting for 42 per cent of spending. Plain tablets made up 90 per cent of sumatriptan prescribing but only one-third of spending. By contrast, the injection (Imigran Subject) accounted for 5 per cent of scrips and 49 per cent of spending.

Rizatriptan (Maxalt) and zolmitriptan made up the bulk of the remaining triptans, with high prescribing of the inexpensive zolmitriptan 2.5mg tablets making it less costly overall. Rizatriptan was mostly (76 per cent) prescribed as the melt formulation.

Prescribing of combined analgesics and antiemetics was slightly lower than in 2011. Migraleve (paracetamol plus buclizine) tablets, though ‘less suitable for prescribing’, accounted for almost two-thirds of this category by volume (about half of which were scrips for the pink tablets containing buclizine) but 44 per cent of costs. By contrast, about half as many scrips for Paramax (paracetamol plus metoclopramide) tablets and powders accounted for 50 per cent of costs.

Powder formulations of paracetamol/metoclopramide and aspirin/metoclopramide (MigraMax) had the highest NIC per item, at £13–£14.

The use of ergotamine continued to decrease – it is now about one-third of levels 10 years ago. The number of scrips for tolfenamic acid (Clotam) was unchanged but costs were 10 per cent lower.

<table>
<thead>
<tr>
<th>Medication</th>
<th>No. scrips (000s)</th>
<th>Cost (£000s)</th>
<th>Mean cost per scrip (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>almotriptan</td>
<td>54</td>
<td>1 400</td>
<td>25.93</td>
</tr>
<tr>
<td>eleetroptan</td>
<td>13</td>
<td>518</td>
<td>39.85</td>
</tr>
<tr>
<td>frovatriptan</td>
<td>55</td>
<td>1 336</td>
<td>24.29</td>
</tr>
<tr>
<td>naratriptan</td>
<td>175</td>
<td>5 488</td>
<td>31.36</td>
</tr>
<tr>
<td>rizatriptan</td>
<td>295</td>
<td>10 212</td>
<td>34.62</td>
</tr>
<tr>
<td>sumatriptan</td>
<td>1 157</td>
<td>13 511</td>
<td>11.68</td>
</tr>
<tr>
<td>zolmitriptan</td>
<td>296</td>
<td>7 082</td>
<td>23.93</td>
</tr>
<tr>
<td>analgesics/</td>
<td>311</td>
<td>2 375</td>
<td>7.64</td>
</tr>
<tr>
<td>antiemetics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ergotamine</td>
<td>19</td>
<td>310</td>
<td>16.32</td>
</tr>
<tr>
<td>tolfenamic acid</td>
<td>9</td>
<td>181</td>
<td>20.11</td>
</tr>
</tbody>
</table>

Table 4. Number and cost of prescriptions for medicines to treat acute migraine in England, 2012/13