Migraine: Diagnosis and current management options

Smuts JA, MBChB, MMed(Neur)
Private Neurologist, The Willows Hospital, Pretoria-East

Highlights / Hoogtepunte

- How to make a better diagnosis of migraine.
- Which patients should be scanned?
- What treatment should be prescribed to prevent or treat migraine?

- Hoe om 'n beter diagnose van migraine te maak?
- Watter pasiënte moet geskandeer word?
- Watter behandeling moet voorgeskryf word om migraine te voorkom of te behandel?

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INTRODUCTION

Half of the population experiences headaches at least once a month, 15% once a week and 5% of patients have headaches every day of their lives.[1] The lifetime prevalence of migraine is approximately 19% for women and 6% for men, thus accounting for a large proportion of patients suffering from headache[2]. Females around the age of 40 have the highest prevalence (24%) of migraine.[3] The mean frequency of migraine attacks is 1.5 attacks per month, but it is important to stress that at least 10% of patients suffering from migraine will have one attack per week. Migraine is therefore a major cause of time lost from work and resulting medical expenses due to headaches.

DIAGNOSIS OF MIGRAINE

The International Headache Society's classification of headache disorders[4] has made the diagnosis of migraine and other headache syndromes considerably easier. The essential diagnostic elements of migraine according to this classification are summarised in **table 1**.

Migraine diagnosis starts with a carefully taken history. This is important because the headaches are classified according to their clinical presentation. It is possible that a patient can have concurrent headache types, for instance migraine, as well as tension type headaches. The headache history should then be analysed for the characteristic elements of migraine, which can be differentiated in four separate stages:

The prodrome

This occurs hours to days before the onset of headache in approximately 60% of migraineurs. This usually consists of non-specific symptoms, including depression, euphoria, irritability, photophobia, phonophobia and hypersomnia.

The migraine aura

Only 30% of migraine headaches are associated with aura[5]. These are focal neurological phenomena that precede or accompany the headache attack, always clearing up fully during the course of a migraine episode. Visual symptoms are by far the most common (99% of all auras). Other sensory changes including aphasia and, rarely, paralysis can however, be part of an aura phenomenon. The same patient may have migraine headache with and without aura and also auras without headache.[6]

Headache

Migraine headache is typically a unilateral throbbing headache with moderate to incapacitating pain-severity aggravated by routine physical activity. In clinical practice patients often present with either a bilateral or a severe, but not throbbing headache, which still is migraine. Migraine can occur anytime of day or night, frequently upon rising

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Table 1: The simplified diagnostic criteria of migraine[4]

Simplified diagnostic criteria for migraine with and without aura adapted from the International Headache Society's Classification – 1998.
• Attacks lasting 4 to 72 hours. • At least two of the following four headache characteristics – unilateral, pulsating, moderate to severe, aggravated by movement. • At least one of the associated symptoms – nausea or vomiting, photophobia, phonophobia.
Migraine with aura:
• One or more transient focal neurological aura symptom. • Gradual development of aura symptoms over more than four minutes, *or* several symptoms in succession. • All the symptoms last 4 to 60 minutes. • Headache follows or accompanies aura within 60 minutes.

in the morning. Onset is usually gradual; the pain then peaks and subsides, usually within less than 24 hours, but can last up to 72 hours. During an attack, pain may also move from one area in the head to another. Patients often prefer lying down in a dark quiet area. Nausea and/or vomiting, photophobia and phonophobia often accompany migraine. Up to 40% of migraineurs may also experience short jabs of sharp focal pain, lasting for seconds between migraine attacks, so called ice pick or idiopathic stabbing headaches.[7]

Post-drome

Following the headache, patients can experience a period where they feel extremely irritable, restless, associated with muscle aching and change in their eating pattern.[8]

DIFFERENTIAL DIAGNOSIS OF MIGRAINE

The first clinical decision that needs to be reached when making a headache diagnosis in a patient is whether the headache is *primary* or *secondary*. **Table 2** contains a list of the most commonly occurring primary and secondary headache disorders.

Table 2: Clinical classification of headache and prevalence of different types in the population (modified from Rasmussen 1995)[9]

Secondary headache	
Type	**Prevalence %**
Systemic infection	63%
Head injury	4%
Drug induced	3%
Sub-arachnoidal haemorrhage	<1%
Vascular disorder	1%
Brain tumor	0.1%

The history can be helpful, a long history, especially of an episodic nature, is most likely associated with a primary headache disorder, while a short progressive headache disorder might suggest a secondary reason.

Indicators of possible secondary headache include:

- Associated clinical findings, such as fever or neurological symptoms (weakness, balance disturbance and altered levels of consciousness).
- Findings on clinical examination such as: papiloedema, dyplopia, weakness, co-ordination and gait disturbances, fever, neck stiffness and signs of systemic illness.
- Laboratory findings such as a raised white cell count with much raised ESR, (indicative of an underlying infection) or only a raised ESR (possible giant cell arthritis).
- Brain scans are usually unnecessary in primary headache disorders; situations where it might be indicated are listed in **table 3**.

Table 3:

The following red flag symptoms may warrant urgent brain scans:

- Aura symptoms always on the same side or with acute onset without spread, or either very brief, or unusually long in duration.
- Substantial increase in attack frequency.
- Onset after the age of 50.
- Aura without headache.
- High fever.
- Abnormal neurological examination.

If secondary headaches are excluded there are primary headache disorders that need to be differentiated from migraine:

- Tension type headache: This headache tends to be mild to moderate and not aggravated by movement and is usually bilateral and often more pressing than throbbing in nature. The typical migrainous features are absent but it can be difficult to differentiate from migraine. Many patients can have both headache types.
- Analgesic rebound headache: The overuse of pain medication of analgesic drugs can frequently complicate migraine.[10] The history is that of gradual increase of headache frequency and drug intake, associated with a change in headache characteristics. Precise information with regard to analgesic use is essential in patients suffering from headache. If excessive analgesic use is present, this must be stopped abruptly. After withdrawal symptoms have subsided, often patients revert to a typical episodic migrainous pattern.[11]

TREATMENT OF MIGRAINE

All headache therapy can be divided into *non-pharmacological* and *pharmacological* therapy.

Non-pharmacological treatment of migraine

This is a first-line approach in all patients suffering from headache disorders. Establish and avoid any triggers such as certain food and excessive caffeine intake. Lifestyle problems including lack of sleep, excessive stress and lack of exercise can also cause headache. Unfortunately it is often not possible to identify a single reproducible trigger in patients.

Pharmacological treatment

This could be roughly divided into treatment of the acute episode and preventative treatment

Treatment of the acute attack

There are ***specific*** and **non-specific** drugs that can be used to treat the headache and associated symptoms.

Non-specific treatment

Simple analgesics, such as aspirin and paracetamol combined with metoclopramide to aid absorption and reduce nausea are still a useful way of treating mild migraine attacks.[12] These drugs have a proven track record and are simple and safe. Efficacy is best if taken as early as possible in the attack in adequate dosages. Anti-inflammatory medication such as Naproxyn is effective in moderate migraine episodes. Narcotics, such as codeine, pethidine and morphine should best be avoided in the treatment of migraine, particularly if the headache attacks occur frequently. These drugs are relatively short acting,

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which can cause a return of the headache after treatment. They can aggravate nausea and vomiting and carry the risk of causing dependency if used frequently. The frequent use of drugs containing codeine also has the risk of causing rebound headaches. [11]

Specific anti-migraine treatment

These drugs are aimed specifically at stopping the acute attack of migraine, but do not have any analgesic properties themselves. There are two broad classes: ergotamine and its related compounds, and the triptans (5HT1B and D receptor agonists).

The discovery of the triptans gave an effective alternative therapeutic approach to the management of acute migraine and has become the drug of choice for moderate to severe attacks.

Sumatriptan was the first of this class to be developed and is also the most extensively studied medication. Unfavourable oral bio-availability and the relatively short half-life of Sumatriptan inspired the search for compounds that possess superior pharmocokinetic characteristics.[13] A number of second generation agents, including Zolmitriptan, Naratriptan, Rizatriptan and Elitriptan have subsequently come to the market, all possessing certain advantages over Sumatriptan. Sumatriptan remains the only triptan available in an injectable formulation, as well as a nasal spray, but both Rizatriptan and Zolmitriptan are available in a rapidly dissolving formulation, which can be taken without water. These drugs are highly effective; in all the triptan studies where these drugs were compared to placebo, the headache-free data at 2 hours, were statistically far superior when compared to placebo treated patients. The most frequently reported adverse events with this class of medication include dizziness, nausea, asthenia, chest symptoms and paresthesias. These side effects are, however, usually relatively mild and do not occur very frequently. Triptans do possess the ability to constrict human coronary arteries at therapeutic doses. Because of this potential risk and due to rare reports of serious cardiac events, all triptans are contra-indicated in patients with coronary artery disease and uncontrolled hypertension.[14]

Triptans can, however, be safely used by the great majority of migraine patients.

It can also be said that if the diagnosis of migraine were made in a patient it would be an unacceptable medical practice not to prescribe a triptan as part of the acute management of the attacks unless specifically contra-indicated.

Preventative treatment

The goal of preventative treatment should be to prevent or reduce the frequency of migraine attacks and to improve response to acute medications when an acute attack does occur.

Preventative treatment should be instituted when:

- Migraine has a substantial impact on a patient's life, despite the use of acute medications.
- If acute medication fails to provide relief.
- High attack frequency.
- Where there are contra-indications, negatively affecting the use of successful acute medication.
- Where there is overuse of acute medication.

Many drugs have been reported to be effective in migraine prophylaxis. The mechanism of action of these drugs is varied and no single medication has emerged as a clearly dominant treatment. Prophylactic drugs can be divided into different classes. **(Table 4)**

The choice of a prophylactic agent is often difficult and should be tailored to the needs of a specific patient. For instance, if there is hypertension or a cardiovascular disorder, a beta-blocker may be a good choice, but in the instance of asthma, a beta-blocker would be contra-indicated. When there is depression or bipolar dysfunction, the use of antidepressants or anticonvulsants may be a reasonable choice. In an obese patient the use of Valproaic acid and Tricyclic antidepressants may be a poor choice, while Topiramate, which may induce weight loss can be helpful.

The general principal would be that, whatever prophylactic agent is selected, the drug should be started at a low dose and increased slowly until therapeutic effects develop, the ceiling dose for the chosen drug is reached, or if side effects become intolerable. Migraine prevention often requires a lower dose of medication than that needed for other indications. A specific treatment regimen should be given an adequate therapeutic trial of 2 to 6 months and then re-evaluated. If ineffective, alternative treatment options should be tried, but if the patient re-sponds very well, it may be reasonable to slowly taper and discontinue therapy. It is advisable to avoid prophylactic agents during pregnancy due to risks to mother and unborn child. Patients should be involved in the decision-making with regard to the preferred drug for the management of the headaches.

Table 4: Classes of preventative migraine drugs
Anti-convulsants: Valproate, Topiramate
Anti-depressants: Tricyclic anti-depressants, SSRI's
Beta-blockers: Propranolol and Atenolol
Calcium channel antagonists: Virapimil
Serotonin antagonists: Methysergide
Others: NSAID's, Clonidine, Botulinum toxin, Riboflavin, Magnesium, Neuroleptics

CONCLUSION

Migraine management with Triptans and prophylactic medication, when indicated, offer greatly improved quality of life to the majority of migraine sufferers. Treatment, however, starts with an accurate diagnosis.❐

Please refer to the CPD Questionnaire on page 51.

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