Migraine
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DEFINITION
Migraine is defined as a common, chronic, neurovascular disorder, generally characterised by attacks of severe headache and autonomic system dysfunction. It is a type of vascular headache. The peak onset for a person to have their first migraine attack is often in adolescence or as a young adult. The median frequency of attacks among migraineurs is 1.5 attacks per month and the median duration of an attack is 24 hours. Patients are free from symptoms between attacks.

Migraine is classified according to the International Classification of Headache Disorders, second edition (ICHD-II) of the International Headache Society (IHS) as a primary headache, and includes:
• Migraine without aura.
• Migraine with aura.

Migraine without aura
Migraine without aura (common migraine) is the most prevalent (approximately 75% to 80% of patients). The IHS diagnostic criteria for migraine without aura is given in Table 1. Although these diagnostic criteria are useful, it must always be remembered that they focus on symptoms and not on patients, and do not describe the patterns of occurrence of attacks which is also of importance when making a diagnosis.

Migraine with aura
Migraine with aura (classic migraine) is less common and affects 20% to a third of migraine sufferers. It is similar to migraine without aura but visual, sensory, motor disturbances or aphasia precede the headache by up to 60 minutes. It is diagnosed relatively easily, although it must be remembered that visual blurring and “spots” are not diagnostic.

Symptoms of typical aura are progressive, last five to 60 minutes and are visual, consisting of transient hemianopic disturbance or a spreading scintillating scotoma (patients may draw a jagged crescent if asked). In some cases, visual symptoms occur together or in sequence with other reversible focal neurological disturbances such as unilateral paraesthesia of the hand, arm or face (the leg is rarely affected) and/or dysphagia. These are all manifestations of functional cortical disturbance of one cerebral hemisphere.

In older patients particularly, the typical visual migrainous aura may occur without any further development of a migraine attack. When there is a clear history of earlier migraine with aura, and the description of aura remains similar, this is not alarming. Otherwise it should be remembered

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Table 1: IHS diagnostic criteria for migraine without aura

| A | At least 5 attacks fulfilling criteria B to D. |
| B | Headache attacks lasting 4 to 72 hours (untreated or successfully treated). |
| C | Headache has at least two of the following characteristics: 1. Unilateral location.* 2. Pulsating quality (that is, varying with the heartbeat). 3. Moderate or severe pain intensity. 4. Aggravation by or causing avoidance of routine physical activity (for example, walking or climbing stairs). |
| D | During headache at least one of the following: 1. Nausea and/or vomiting.* 2. Photophobia and phonophobia. |
| E | Not attributed to another disorder (history and examination do not suggest a secondary headache disorder or, if they do, it is ruled out by appropriate investigations or headache attacks do not occur for the first time in close temporal relation to the other disorder). |

* In children, attacks may be shorter-lasting, headache is more commonly bilateral, and gastrointestinal disturbance is more prominent.
that transient ischaemic attack is in the differential diagnosis for older patients.

Patients may at different times, have attacks of migraine with and migraine without aura. They may, over a lifetime, change from a predominance of one subtype to the other.

**EPIDEMIOLOGY**

Migraine is a prevalent condition in Western countries, affecting 8% to 14% of the population. In the United Kingdom, it occurs in 15% of the adult population. The prevalence of migraine is 6% among men, and 15% to 17% among women.

Migraine is a common disorder treated in primary care. It affects the young adult population and is responsible for many lost working days each year. At least 50% of people with migraine remain undiagnosed. Many successfully treat their own headaches using over-the-counter (OTC) medication such as ibuprofen and paracetamol.

The “average migraineur” will have approximately one or two attacks per month, will be between the ages of 25 years and 55 years and will rarely experience more than 40 attacks per year. Untreated, an average attack will last approximately one day.

**AETIOLOGY/PATHOPHYSIOLOGY**

The trigemino-vascular system is activated during a migraine attack. The trigeminal nerve communicates with blood vessels causing vasodilation and pain. The important receptors are serotonergic, since blood vessels are driven by the 5-HT1B and the trigeminal nerve by the 5-HT2B subtypes at both ends. Migraine is reported to be 50% more likely to occur in patients with a family history of the condition.

Possible questions to ask the patient with migraine are given in Table 2. The patient must be included in all decisions regarding migraine management because the patient needs to develop a specific strategy that works for him or her. This strategy will usually include the avoidance of predisposing and trigger (or precipitating) factors (see Table 2) where possible, acute intervention for breakthrough attacks and the use of prophylactic agents in “high frequency” patients (more than four attacks per month).

Patients with less frequent but more prolonged attacks may warrant prophylactic treatment if their migraine is unresponsive to the full range of acute therapies.

The four elements to good migraine management in adults are:
- Correct and timely diagnosis.
- Explanation and reassurance.
- Predisposing/trigger identification and avoidance.
- Intervention (pharmacological and/or non-pharmacological).

A distinction is made between predisposing and trigger factors for migraine. Predisposing factors are not always avoidable, but may be treatable. Examples of predisposing factors and possible management strategies include:
- Stress: Lifestyle changes, and stress reduction and/or coping strategies.
- Depression/anxiety: Antidepressant or anxiolytic therapy.
- Menopause: Hormone replacement therapy.
- Head or neck trauma: Physiotherapy.

Trigger factors (see Table 3) are important in occasional patients, but are generally of less importance than commonly thought. Dietary sensitivities affect, for example, only approximately 10% to 20% of migraine sufferers. Many attacks have no obvious trigger, and those trigger factors that are identifiable are also not always avoidable.

Similar to a headache diary, a comprehensive migraine diary may be useful in detecting predisposing and trigger factors. The process is, however, complicated, since triggers appear to “combine”, jointly contributing to a “threshold” above which attacks are initiated. Enforced lifestyle change is considered to be inappropriate management if it adversely affects the quality of life of a patient. Basic advice to patients is to just minimise potential trigger factors.

When migraine attacks are frequent, patients may be given a trigger diary (a list of common trigger factors that patients can use to record those trigger factors present each day whether they have a migraine attack or not). Both the migraine and trigger diaries are best evaluated after at least five attacks, and must be compared for coincidence of multiple triggers with attacks.

**WHEN TO REFER**

Trigger points indicative of referral for migraine are:
- Prolonged aura, especially aura persisting after resolution of the headache, and aura involving motor weakness, require referral a specialist for exclusion of other disease.
- Migrainous headache occurring every day (chronic migraine) is classified as a complication of migraine. It requires specialist referral because diagnosis and management are difficult.

<table>
<thead>
<tr>
<th>Table 2: Specific questions to ask the patient with migraine*</th>
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<tbody>
<tr>
<td><strong>Question</strong></td>
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<tr>
<td>Frequency and timing</td>
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<tr>
<td>Location of pain</td>
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<tr>
<td>Severity of pain</td>
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<tr>
<td>Triggers</td>
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<td>Attack duration</td>
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AVAILABLE TREATMENT OPTIONS FOR MIGRAINE

Many patients with migraine have discovered from experience that medication is more likely to be successful if used early in an attack. The ideal agent acts rapidly and provides complete rather than partial relief.

**Therapeutic objectives**

For most patients with migraine, the aim is acceptable pain control by avoiding precipitating or exacerbating factors, and using the least treatment necessary to achieve an acceptable quality of life. Patients should be aware that complete cure of migraine is not a realistic aim.1

**"Diagnosis" by treatment**

Migraine is a condition where an empirical approach to management is tempting (“try this and see how it works”).3 Antimigraine medication is therefore used as a diagnostic test for migraine. It must be remembered that even triptans, despite being the most specific and effective drugs currently available, are at best effective in three quarters of attacks. As a diagnostic test they therefore have a low sensitivity and this approach is likely to mislead.

**General measures**

Although no well-designed trials have evaluated non-pharmacological treatment, the following may be recommended4,8:

- Rest in a dark, noise-free room.
- Ice applied to forehead.
- Sleep.
- In patients who are volume depleted, fluids should be tried.
- Reassurance from a concerned health care professional.

The following additional non-pharmacological interventions could be considered3:

- **Physical therapy**
  Improving physical fitness may reduce susceptibility to migraine. Physical therapy may be helpful where a specific indication (for example, a neck dysfunction) exists. Acupuncture is of little benefit. Dental treatment is of unproven benefit unless there is a dental problem.

- **Psychological therapy**
  Relaxation therapy, stress reduction and coping strategies are important where a specific indication exists (for example, if the migraine is caused by excessive stress). Yoga and meditation are said to enhance stress management and may appeal to some people. Biofeedback has some support from clinical trails, but hypnotherapy is yet of unproven value.

- **Homoeopathy and other alternative therapies**
  Homoeopathy appears to be of no value, and reflexology may have a placebo effect. There are also many devices on the market that are promoted with specific claims for migraine, but efficacy is not scientifically supported.

**PHARMACOLOGICAL TREATMENT**

The treatment of migraine can be classified into treatment during the acute phase and prophylactic therapy, as well as according to the severity of the migraine attack. This section is to a large extent based on the guidelines3 published by The British Association for the Study of Headache.

**Table 3: Trigger factors for migraine3,6,7**

<table>
<thead>
<tr>
<th>Trigger factor</th>
<th>Specific examples</th>
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<tbody>
<tr>
<td><strong>Hormonal changes</strong></td>
<td>• Hormone replacement therapy</td>
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<td>• Menstruation</td>
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<td>• Oral contraceptive therapy</td>
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<td>• Pregnancy</td>
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<td><strong>Environmental factors</strong></td>
<td>• Bright/flashing lights</td>
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<td></td>
<td>• Loud noise</td>
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<td></td>
<td>• Emotion (for example, anger)</td>
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<td></td>
<td>• Missed meals (hypoglycaemia)</td>
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<td></td>
<td>• Smoke</td>
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<td>• Strong odour (for example, perfume)</td>
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<td>• Too much/too little sleep</td>
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<td></td>
<td>• Weather changes</td>
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<td>• Long distance travel</td>
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<td><strong>Foods/ingredients</strong></td>
<td>• Alcohol</td>
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<td>• Artificial sweeteners</td>
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<td>• Caffeine</td>
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<td>• Chocolate</td>
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<td>• Cultured dairy products</td>
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<td>• Fermented/pickled foods</td>
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<td>• Fruits</td>
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<td></td>
<td>• Monosodium glutamate (MSG)</td>
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<td>• Nitrates (for example, in cured meats)</td>
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<td></td>
<td>• Sugar</td>
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<td>• Sulphites</td>
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<td>• Vegetables</td>
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<td>• Yeast</td>
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<td><strong>Exercise or exertion</strong></td>
<td>• Eye strain</td>
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<td></td>
<td>• Head injury</td>
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<td></td>
<td>• Irregular/no exercise</td>
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<td>• Strenuous unaccustomed exercise</td>
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<td><strong>Relaxation after stress</strong></td>
<td>• Weekends</td>
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TREATMENT OF ACUTE MIGRAINE HEADACHE

No generally accepted standardised approach exists for the treatment of acute migraine headache. In an acute attack the therapeutic agents can be simple oral analgesics, non-steroidal anti-inflammatory drugs (NSAIDs), triptans and/or antiemetics. The recommended dosages for acute migraine are typically greater than standard doses to achieve rapid therapeutic levels against a background of gastric stasis.

Although paracetamol (acetaminophen) on its own is often used, there are no well-designed placebo controlled trials demonstrating its effectiveness in adults. There is also little evidence from clinical trials across large populations that combination drugs with caffeine and codeine are more effective than simple analgesics. Paracetamol 400 mg in combination with codeine 25 mg has been shown to be as effective as acetylsalicylic acid (ASA) 1000 mg, and paracetamol 500 mg plus metoclopramide 5 mg has been shown to be more effective than placebo.

The British Association for the Study of Headache recommends the following treatment ladder for acute migraine:

**Step one: Simple analgesic ± antiemetic**

For pain, as early in the attack as possible when absorption may be least inhibited by gastric stasis:
- Aspirin 600 to 900 mg; or
- Ibuprofen 400 to 600 mg.
Up to 4 doses can be taken in 24 hours, and should be used without codeine or dihydrocodeine.

For nausea and vomiting (if required):
- Prochlorperazine 3 to 6 mg buccal tablet (up to twice in 24 hours); or
- Domperidone 10 mg (up to four times in 24 hours).

Alternatively, the following regimen can be used for pain:
- Aspirin 600 to 900 mg (up to 4 doses in 24 hours); or
- Ibuprofen 400 mg to 600 mg (up to 4 doses in 24 hours); or
- Tolfenamic acid rapid release 200 mg (repeated once in 24 hours); or
- Naproxen 750 to 825 mg (with a further 250 to 275 mg up to twice in 24 hours); or
- Diclofenac potassium 50 mg to 100 mg (repeated up to a total of 200 mg in 24 hours).

For nausea and vomiting:
- Metoclopramide 10 mg; or
- Domperidone 20 mg.
Domperidone is less sedating than metoclopramide and creates less risk of extrapyramidal side effects.

A number of trials have shown that NSAIDs are effective in treating migraine headaches. NSAIDs that have been studied include ASA, ibuprofen, naproxen and diclofenac. NSAIDs that exist in a form which is rapidly acting offer better efficacy.

Compared with placebo and sumatriptan, diclofenac potassium is an effective fast-acting, and well-tolerated acute oral therapy for migraine attacks, with advantages over oral sumatriptan in terms of onset of analgesic effect, reduction of accompanying symptoms, and tolerability profile.

Although metoclopramide is often used, there is no evidence that it is effective on its own when given orally. In a double-blind cross-over trial, domperidone 40 mg was more effective than 20 mg in preventing onset of headache in patients with migraine with aura when taken at the first sign of prodrome.

Contraindications to step one are patient specific. Furthermore, aspirin should be avoided in children under 16 years of age, metoclopramide is not recommended for children and adolescents, and prochlorperazine is not recommended for children.

**Step two: Rectal analgesic ± antiemetic**

Diclofenac suppositories 100 mg (up to 200 mg in 24 hours) for pain plus domperidone suppositories 30 to 60 mg (up to 120 mg in 24 hours) when needed for nausea and vomiting.

Contraindications to step two are peptic ulcer or lower bowel diseases. The occurrence of diarrhoea during acute migraine may also prevent its use.

**Step three: Specific antimigraine drugs**

Sumatriptan was the first triptan or selective serotonin agonist (5-HT1D receptor agonist) developed to treat migraine. The triptans include sumatriptan, zolmitriptan, rizatriptan, naratriptan, eletriptan, almotriptan and frovatriptan (not all available in South Africa). Triptans are thought to relieve migraine attacks by several mechanisms, including cranial vasoconstriction and peripheral and central neural inhibition.

Oral sumatriptan has been shown to be more effective than placebo at aborting headaches (50% to 80% versus 20% to 40%). Oral doses of 25 mg, 50 mg and 100 mg of sumatriptan are equally effective in the treatment of acute migraine. Clinical trials indicate that the triptans range in comparative efficacy.

There are unpredictable individual variations in response to different triptans. Every patient will have a different experience, and non-responders to one triptan often respond to another. An effective approach is to allow patients to select their own triptan by providing them with two separate triptans, and asking them to treat alternate migraine attacks with either agent. Most will express a preference for one agent. Knowing what triptan to prescribe is important (for example, rizatriptan is very effective, but often has side effects). Naratriptan has fewer side effects and is longer lasting, but is slower in onset. Almotriptan offers a good balance of cost-effectiveness and fewer side effects.

Unlike symptomatic therapy, triptans should not be taken too early. There is increasing evidence of greater efficacy whilst the pain is still mild, but triptans appear to be ineffective if administered during the aura. All triptans are associated with return of symptoms within 48 hours in 20% to 50% of patients who have initially responded (relapse). This is a troublesome limitation.

When triptans are taken orally, concomitant administration of a pro-kinetic antiemetic (metoclopramide or domperidone) is suggested.

The use of ergotamine has been almost completely superseded by the triptans because of its potential to cause acute
side effects, such as nausea, abdominal pains and cramps, and also because of its relatively low relief rate, particularly in the oral formulation. Although several comparative trials including ergotamine exist, they are of poor quality and only a few well-designed clinical trials involving ergotamine are available. Most controlled trials demonstrate little or no benefit with these agents. A meta-analysis was not able to demonstrate a benefit from oral ergotamine. Ergotamine tartrate 1 to 2 mg, in clinical trials in which it has been used as a comparator, has however shown significantly lower relapse rates which may be due to its prolonged duration of action. Ergotamine still has a place if relapse is a problem, but toxicity and misuse potential are greater risks with ergotamine than with the triptans. It has very poor bioavailability and is better taken rectally. The total dose per 24 hours should not exceed 4 mg. Ergotamine should not be taken concomitantly with a triptan. Dihydroergotamine is superior to ergotamine, but inferior to the triptans. Its side effect profile is reduced in comparison to ergotamine.

Contraindications to step three are uncontrolled hypertension, risk factors for coronary heart disease or cerebrovascular disease, and children under 12 years of age. There are additional specific contraindications to some triptans.

If step three fails, the diagnosis should be reviewed, as well as compliance and the manner of use of the medication. Step four can be tried, as well as prophylactic therapy.

**Step four: Combinations**

The efficacy of a triptan can be enhanced by combining it with a NSAID. There is some evidence that the combination of sumatriptan 50 mg and naproxen 500 mg is superior to either active ingredient alone. Other combinations of steps one and three, followed by steps two and three, can be tried.

**Further aspects to consider in acute migraine management**

Few well-designed trials of oral narcotics as single agents have been published, making it difficult to assess the effect of these agents in acute migraine attacks. A combination product containing dextropropoxyphene (65 mg, ASA 500 mg and phenazone (a salicylate)) was superior to ASA 500 mg alone, and similar to ergotamine 1 mg in preventing progression of headaches. Codeine plus paracetamol has been shown to be as effective as ASA. There are no well-concluded trials evaluating barbiturates.

Many patients with infrequent attacks can be managed with abortive treatment alone. There are, however, limits to the use of acute therapy. Over-frequent use of medication for acute intervention may benefit from daily preventative therapy. Another group of patients for whom serious consideration should be given to prophylactic treatment, are those who notice an increase in the frequency of their migraine attacks. Many of these patients eventually develop a chronic daily headache in which a mild pain is present on most days. A major contributing factor to this is the overuse of codeine-based analgesics. If a patient uses acute therapy on more than two days per week, there is a clear risk of medication-overuse headache. If used on more than one day per week, it calls for close scrutiny of how the medication is used, and a review of the diagnosis.

**Dose-titration**

Most prophylactic agents are used within a dose range, and are up-titrated slowly to an effective dose (or to the maximum dose) in order to avoid side effects that can cause premature discontinuation. This can lead to a delay in efficacy, which in itself, can unfortunately also trigger discontinuation. Careful counseling of the patient is therefore necessary. The general rule with regard to dosing for prophylactic treatment of migraine is “start low and go slow”. At least six weeks must be allowed for any benefit to start to show. A realistic expectation is a 50% improvement in attack frequency and a possible reduction in pain severity.

**Duration of use**

Migraine is cyclical. Treatment is required for periods of exacerbation, but uninterrupted prophylaxis over very long periods is rarely appropriate. Generally, prophylactic medication that is effective should be continued for 4 to 6 months, and then withdrawal should be considered to establish the need for continuation. Withdrawal is best achieved by tapering the dose over two to three weeks.

Prophylactic agents that are apparently not effective should not be discontinued too soon since efficacy may be slow to develop, especially when dose-titration is necessary. There is no definite guideline but, in the absence of unacceptable side effects, 6 to 8 weeks is a reasonable trial period following dose-titration, and three cycles in the case of specific therapy for hormone-related migraine.

**Treatment according to severity of migraine**

Treatment for migraine is also often separated into the treatment of mild, moderate and severe symptoms, yet clinical trials have not evaluated different drugs on this basis. Effectiveness is defined in most trials as a decrease in pain of 2 points on a scale of 0 to 3, measured one or two hours after drug administration.

**First-line prophylactic agents**

The criteria for preferring one prophylactic agent to another are based on:

- Evidence of efficacy.
- Co-morbidity and the anticipated effect of the drug upon it.
- Contraindications, including risks in pregnancy.
Evidence that poor compliance is a major factor impairing efficacy of migraine prophylactics and that once-daily dosing is preferable.

**Beta-adrenergic blockers, without partial agonism** are first-line if not contraindicated by asthma, heart failure, peripheral vascular disease or depression. These agents are the most commonly used prophylactic agents. Propranolol, atenolol, metoprolol and timolol are all used, although propranolol is the most commonly prescribed. Atenolol 25 to 100 mg bd is preferred over metoprolol 50 to 100 mg bd, and this over propranolol LA 80 mg once daily to 160 mg bd.

**Amitriptyline** 10 to 150 mg daily, at/or 1 to 2 hours before bedtime, is first-line when migraine coexists with troublesome tension-type headache, another chronic pain condition, disturbed sleep or depression. Desipramine, nortriptyline and protriptyline are less sedative alternatives with no formal evidence of efficacy.

**Second-line prophylactic drugs**

The two neuromodulators, sodium valproate (300 mg to 1000 mg bd) and topiramate (25 mg od to 50 mg bd), are used increasingly for the prophylaxis of migraine, but in lower doses than when used for epilepsy. Clinical trials suggest equivalent efficacy of topiramate with sodium valproate (it is used off-label). Side effects can be minimised by slow titration. Topiramate induces weight loss, whereas most other prophylactics are associated with weight gain. Neither drug is recommended for migraine prophylaxis in children.

**Third-line prophylactic drugs**

There is some clinical justification for using other antiepileptics such as gabapentin 300 mg od to 800 mg tds, although evidence of efficacy is far from robust. Methysergide 1 to 2 mg tds is generally regarded to be an effective prophylactic agent, but carries serious side effects such as retroperitoneal, pulmonary and endocardial fibrosis and is usually reserved for patients who have failed to respond to alternative prophylaxis.

**Beta-blockers and amitriptyline** can be used together, and a synergistic effect is claimed for this combination without formal evidence.

Other drugs used in prophylaxis but with limited or uncertain efficacy

Pizotifen and clonidine have been widely used for many years but with little clinical trial evidence of efficacy. They should be superseded by more effective agents. Pizotifen has antihistaminic and 5-HT₄ receptor blocking activity and, in adults, the reduction in frequency of attacks is less than that of beta-blockers.

Verapamil 120 to 240 mg bd has limited clinical trial evidence of efficacy, and headache is sometimes a side effect. Fluoxamine is also sometimes used for prophylaxis. Fluoxetine is the best studied SSRI but with inconclusive evidence of efficacy against migraine.

Despite promising initial results, there is no evidence to support the use of botulinum toxin. Other drugs, such as lisinopril and montelukast, show potential benefit but further research is needed.

**Non-prescription prophylactic agents**

Non-prescription products, such as vitamin B₆ (400 mg), magnesium (200 mg) and even aspirin (75 mg) are other options for prophylaxis. The active ingredient of feverfew is sometimes claimed to be effective, but there is insufficient evidence to conclude that feverfew is better than placebo for preventing attacks of migraine. Feverfew is furthermore particularly unsuitable for children.

**Evidence-based medicine principles**

In evidence-based medicine, different levels are used to stratify the available evidence by quality. There are several different systems to indicate “Levels of Evidence”. One such system in use is the Oxford Centre for Evidence-based Medicine Levels of Evidence:

- **Level A**: This is the level with the best scientific evidence. Evidence includes consistent Randomised Controlled Clinical Trials, Cohort Studies, All or None, or Clinical Decision Rules validated in different populations.
- **Level B**: This level is slightly lower in quality compared to Level A and includes consistent Retrospective Cohorts, Exploratory Cohorts, Ecological Studies, Outcomes Research, Case-control Studies, or extrapolations of Level A studies. This level indicates fair scientific evidence, with the benefits outweighing the risks.
- **Level C**: Evidence in this level includes case-series studies or extrapolations from Level B studies. Level C indicates fair scientific evidence, but the benefits and the risks are nearly equal.
- **Level D**: This level refers to expert opinion without explicit critical appraisal, or studies based on physiology, bench research or first principles.

The effectiveness (based on strength of recommendations using the levels of evidence given above) of the different agents used in the treatment of acute migraine in adults can be summarised as follows:

- The triptans (for example, sumatriptan, naratriptan, eletriptan and rizatriptan) have been shown to be effective for acute migraine. Strength of recommendation: A.
- NSAIDs (including aspirin, ibuprofen, naproxen sodium, diclofenac potassium, ketoprofen, tolfenamic acid and ketorolac) are also effective. Strength of recommendation: A.
- The combination of paracetamol/aspirin/caffeine is effective. Strength of recommendation: B.
- Parenteral dihydroergotamine, when administered with an antiemetic, is as effective as, or more effective than meperidine, valproate or ketorolac. Strength of recommendation: B.
- Prochlorperazine is more effective than metoclopramide in headache pain reduction. Strength of recommendation: A.
- Isometheptene mucate/dichloralphenazone/paracetamol is as effective as low-dose oral sumatriptan. Strength of recommendation: B.

The findings of numerous studies can be listed, for example systematic reviews of randomised controlled trials (RCTs) summarised that oral sumatriptan, eletriptan and rizatriptan reduced migraine headache pain and increased the pain-free response rate for adults when compared with placebo. RCTs reported superior efficacy of oral almotriptan, frovatriptan and zolmitriptan, as well as intranasal sumatriptan and zolmitriptan when compared with placebo.
showed that the following NSAIDs reduced headache severity more than placebo 2 hours after treatment: aspirin (1 000 mg; NNT = 2.4), ibuprofen (1 200 mg; NNT = 1.8), naproxen (750 mg; NNT = 2.0), tolfenamic acid (NNT = 1.2) and the combination product of paracetamol/aspirin/caffeine (NNT = 1.7).12 Paracetamol 1 000 mg orally has been reported to be superior to placebo for treating pain, functional disability, and photo-/phonophobia among patients who did not require bed rest with their headaches and did not vomit more than 20% of the time. However, it was not superior to placebo when given intravenously for more severe acute migraine. No placebo-controlled trials exist for ketorolac, there are only comparison studies against other active migraine medications. Ketoprofen has placebo-controlled RCT data supporting its efficacy.

NNT21 refers to the “number needed to treat”, and is an epidemiological measure that indicates the number of patients that need to be treated to prevent one additional unwanted (or bad) outcome (such as death, stroke or a myocardial infarction). As an example, if NNT = 5 it means that five people must be treated with the medicine to prevent one additional unwanted outcome.

It is not possible to give a full account of the numerous studies that have been conducted. The Institute for Clinical Systems Improvement recommends the use of vasoactive drugs over narcotics and barbiturates for treatment of moderately severe migraine headaches. The American Academy of Neurology recommends migraine-specific medications (triptans and ergot derivatives) for moderate to severe migraines or those mild to moderate migraines that responded poorly to NSAIDs or other OTC preparations.10

**CONCLUSION**

This article provided a concise overview of migraine management from an evidence-based perspective. It is, however, impossible to give a complete overview of all the management aspects that should be taken into account, for example the management of migraine in pregnancy and lactation, migraine and hormone replacement therapy, migraine in children and what to do if prophylactic therapy fails, have not been discussed. The different dosage forms have also not been mentioned, for example the effectiveness of the intranasal versus the subcutaneous route. There is a vast spectrum of evidence-based literature available on migraine and the reader is strongly encouraged to consult this to obtain more information.

**REFERENCES:**


Hormone therapy has been proven to relieve many of the short-term and long-term physiological and physical symptoms associated with menopause.1 Estalis® is the world’s smallest combination hormone therapy patch.

Estalis® ultimately leads to an atrophic endometrium and amenorrhoea.1 Continuous use of Estalis® has a favourable effect on triglyceride levels, with no clinically significant changes seen in body weight and blood pressure.11 It is also an effective endometrial safety profile.12

For further information, please refer to the package insert or contact Nicolette Kotze, Feminine Healthcare Brand Manager at Adcock Ingram on (011) 840 4833.

References available on request.