Migraine
a comprehensive guide

NEURO
NETWORK

Introduction

It can feel worrying when you start to experience regular or severe headaches.

This booklet will help you understand that, for the vast majority of people:

(a) headaches will *not* be a sign of any *worrying* medical problem, and
(b) they are often very easy to treat and to prevent.

Lifestyle changes such as having a regular sleep pattern, drinking plenty of fluid, eating regular meals, avoiding taking too many painkillers or taking caffeine out of your diet can make such a huge difference for most people suffering migraine or other types of headache. Headache is rarely a sign that something is seriously wrong. This booklet will help guide you in deciding whether you should seek medical attention.

There are many different types of headache, migraine, cluster headaches, sinus headache, and more. However, more than 90% of headaches will be caused by migraine – this booklet will help you to identify if your headaches are due to migraine and if so, how best to stop them happening.

Finally, this booklet will explain how

1. migraine may be responsible for so many more symptoms than headache,
2. these symptoms may occur because of migraine even where there is little or no headache, and
3. how migraine may be a very *treatable* cause of other (often severe and otherwise difficult to manage) symptoms such as fatigue, dizziness, insomnia, neck pain, facial pain, depression, poor memory etc.

Contents

What is migraine?

Migraine is a very common and relatively invisible cause of potential disability and suffering. It is recognised by the World Health Organisation as the third most disabling condition in the world. An individual attack is considered to be one of the most disabling experiences someone could have.

In the UK, 5.85 million (1 in 7) adults are affected and 100,000 people miss school or work as a result of this condition each day. It affects children and young adults alike and at important times in their development, career and family life. It may have a great impact on family, friends and work colleagues.

Migraine usually involves a combination of symptoms that typically include headache, nausea, vomiting, sensitivity to noise, light or smell. Patients with migraine will usually want to be on their own in the dark and quiet and to stay still.

The term migraine can refer to either an individual attack of migraine or to the overall condition that makes them “migrainous” and gives them tendencies to be affected by the symptoms associated with migraine.

Who gets migraine and why?

Migraine often runs through families. Patients may have it because their parents or relatives did. It is something in their body’s make-up or gene structure (DNA), but despite this, there is usually no gene test that can give a definitive diagnosis. It is likely there are many genes that may all contribute a little to the potential for having migraine. This means the way people are made can ‘predispose’ or ‘make them more likely’ to have the condition.

However, it will often depend on other factors as to whether they develop symptoms and / or how badly their migraine symptoms affect them.

There are certain factors in life that can increase the chances suffering from migraine: illness (virus), poor sleep, menstrual cycle, menopause, poor diet, dehydration, and others.

Taking regular painkillers (whether taken for headache or for another medical reason) can commonly be an important cause of triggering or worsening migraine .

Finding out what is triggering the migraine can actually help doctors help patients have fewer of them.

How is migraine diagnosed?

Migraine will often be diagnosed if certain features are present; these so called “migrainous” features include

- Headache,
- Increased sensitivity to sound, light and smell,
- Feeling sick or vomiting, and
- Wanting to be still and go to sleep.

A patient might not have headache but can still be diagnosed with migraine because other features are present.

There may be clues whether you have inherited a potential to suffer migraine:

- Travel sickness at any time in life (especially if reading in the back of cars or on buses)
- “*Undeserved*” hangovers (i.e. hangovers after only a little alcohol the night before)
- Raynaud syndrome (white fingers or toes in the cold that go red / blue on warming up)
- A history of infantile colic as a baby
- Bad tummy pains in childhood associated with going pale and dark rings under the eyes
- Irritable Bowel Syndrome symptoms (e.g. stomach cramps/ pains, bloating, alternating diarrhoea or constipation),

  or, a family history of migraine.

What happens in migraine?

In the past, people used to think that an attack of migraine was caused by blood vessels in the head, narrowing then becoming larger (dilating) but this is now known not to be true.

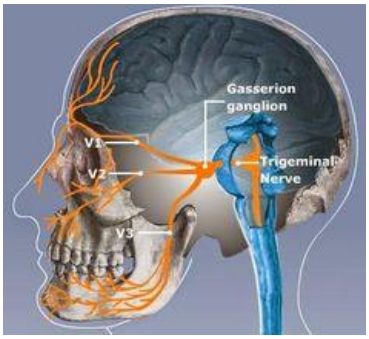
There may be changes in blood flow but this happens *because of* changes to the way messages are being sent around the brain by the nerves (nerves are cells within the brain and body that communicate with each other and send instructions to various parts of the body by transmitting electric signals and releasing chemicals).

Migraine is now clearly established to be a disorder of nerve activity within the brain. Attacks and symptoms arise due to changes in the activity of nerves within certain areas of the brain. These nerves send signals to other nerves and body organs to result in many different symptoms.

It is helpful to think of this brain activity leading to three types of symptoms:

Amplification (increased awareness of sensations from inside the body or the environment)
Autonomic activity (increased activity of the nerves that control automatic bodily functions)
Focal brain dysfunction (brain activity not working correctly in certain areas of the brain)

Amplification: It is likely that the nerves between the trigeminal nucleus in the brainstem (the part of the brain just above where it joins the spinal cord) and a part of the brain called the thalamus are responsible for amplifying nerve signals in migraine.



The trigeminal nucleus has a number of functions and gathers information about sensation from (a) the face and forehead, (b) the neck and shoulders, and (c) from the lining around the brain (the meninges).

Symptoms of migraine related to amplification can commonly include a heightened awareness of external factors from outside the body (e.g. increased sensitivity to noise, light or certain smells). Sometimes it can mean those experiencing migraine become irritable and want to go away from people and surroundings and be somewhere dark and quiet.

This amplification can also lead to symptoms caused by increased awareness of normal body functions; quite commonly, many doctors have considered these symptoms to be caused by psychological problems and labelled such patients as “functional” or “neurotic”. Migraine is a common and very real cause of these types of symptoms and migraine can provide a clear explanation as to what is happening here, without labelling such patients as having psychological problems.

The person with a tendency to having migraine will become aware of and will be less tolerant to the normal nerve signals from within the body.

This increased awareness of normal body sensation in migraine can for example mean that normal sensation is amplified to cause a feeling of tingling or soreness of the skin or even pain and tenderness in various parts of the body, including the chest, abdomen, pelvis, neck, joints or muscles.

There may be an increased awareness of normal feelings within the gut, the heart may seem to race or beat heavily or there may be feelings of dizziness (vertigo).

More than half the patients attending clinics for dizziness will have migraine as the cause of their dizziness.

Therefore patients who may have a long list of symptoms and seemingly worry about relatively trivial matters may actually have migraine tendencies caused by this amplification rather than having a psychiatric or psychological problem.

Amplification and pain:

The trigeminal nucleus receives input from a *network of nerves* that includes nerves from the face and forehead, the meninges (lining of the brain) and the neck / shoulders, but is not good at pin pointing where sensations have come from.

This is the reason why the abnormal brain nerve activity may cause someone with migraine to experience symptoms that appear to come from anywhere in the face, head, neck or shoulders. Symptoms related to this effect may include pain, stiffness, numbness, tenderness, muscle tightness and spasm, and extreme sensitivity to even light touch.

Why is migraine painful?

The nerves that feed in signals to this amplifier (the trigeminal nucleus) come from the neck, the lining of the brain (the meninges) and the face and head. These nerves then may send signals to a pain modulator in the brain called the ‘thalamus’ and this can result in the sensation of pain from anywhere in the body.

There are no nerves within the brain itself that sense pain or touch. The amplifier is unable to distinguish where these symptoms come from and pain may be experienced anywhere in this network. This explains why more than 40% of people with migraine will experience their attack of pain starting in the neck. However, it is a common misconception to think migraine is caused by neck problems. Migraine starts in the brain but the way it affects the nerves in the brain means it can lead to pain, stiffness, tenderness and aching in the neck. Similarly, the pain may be experienced in the face, sinuses or teeth. Some people with migraine may experience pain even outside of the head and next area, in their legs or chest or stomach.

Autonomic activity: The autonomic nerves are those nerves that unconsciously control bodily functions. These are the functions we do not need to think about. For example, the autonomic nervous system controls pulse rate, bladder and bowels, flushing, sweating, nasal running, changes in pupil size in the light, tears, etc.

Autonomic nerve disturbance is very common in migraine. The term *cranial autonomic disturbance* refers to temporary abnormal function of these nerves in the head and face.

> Autonomic symptoms are present in up to 60% of migraine patients while these symptoms may be quite mild, they may sometimes lead to confusion in diagnosis and management, leading to inappropriate and incorrect diagnosis in some patients. Patients with migraine may commonly be inappropriately misdiagnosed as having conditions such as “sinusitis”, “Eustachian tube dysfunction” (a condition that causes the ears to feel full), an allergic disorder, or an eye disorder.
>
> Studies in the United States have shown that as many as 90% or more of patients considered to have sinusitis in hospital clinics actually have migraine as the cause of their sinus pain. Clues to this sinus pain being caused by migraine include the presence of pain on both sides or the above *and* below the eyes, or the presence of other migrainous symptoms as described in this booklet.

Examples of autonomic symptoms:

Generalised autonomic disturbance:

Nausea or vomiting
Pallor
Passing a lot of urine
Diarrhoea
A fast heart rate or drop in blood pressure
Sweating or flushing

Cranial autonomic disturbance

Red / runny / droopy / puffy or twitchy eyes,
Stuffy or runny nose
Fullness in the ear or tinnitus

Focal brain dysfunction: Symptoms that are likely to relate to focal brain dysfunction include phenomena such as “aura” (zig-zags or flashing lights, a part of the vision missing, speech disturbance or numbness / weakness spreading slowly along one side of the body).

Other focal brain phenomena potentially include mood change, irritability, overwhelming tiredness, dissociation (feeling unreal and detached from normal surroundings), food craving (eg for sweet foods or carbohydrate), and yawning.

More rarely people experience so called “Alice in Wonderland” symptoms that may include bizarre distortions of reality (e.g. hallucinations, feeling the body or part of the body to be huge or tiny, the surroundings becoming huge or tiny etc).

What are the different phases of a migraine attack?

There may be four phases to a migraine attack. Not everyone experiences all of these and the presence or nature of each phase may change from attack to attack in the same individual. These four phases are typically noted in the following order:

Prodrome (*hours to days*)

Aura (minutes to hours)

Headache (hours to days)

Postdrome (hours to a day)

Prodrome: The prodrome (otherwise known as the premonitory phase) may occur in up to 50-60% of those experiencing an attack.

This premonitory phase may last anywhere up to hours or a day or two and includes typical warning symptoms that may be noted by the patient or those around them.

Symptoms include tiredness , yawning, irritability or low mood, feeling detached, feeling hyper (huge energy surge), food cravings for sweet foods, thirst, passing a lot of urine, diarrhoea, neck pain, increased sensitivity to noise, light or smell.

People often blame certain foods as triggers for their attacks but quite commonly they have those foods in response to these ‘premonitory’ symptoms and therefore the migraine has already started and is not actually caused by that particular food. True triggers for migraine are actually quite rare.

Some women believe their migraine is triggered by their menstrual cycle (periods). What they may not know is that pre-menstrual symptoms (PMS) can even be the first phases of a migraine attack, followed or not by headache a day or two later.

Aura: Aura is only experienced in about one in 5 patients and usually lasts about 20 minutes in most people, although it may be shorter and some patients have very prolonged aura.

These disturbances can be frightening if the cause is not known but generally these are benign phenomena that do not cause harm.

> The commonest aura is ‘visual aura’ and this may be experienced as zig-zags in vision, blurring or shimmering of vision, a small blind spot that increases in size over the attack. Occasionally aura may relate to speech difficulties or numbness or weakness that most typically spreads slowly (e.g. along an arm to the face).

Migraine headache: The headache phase is very commonly experienced but not all people with migraine will have this phase and it is not uncommon, especially in some older people, to develop aura without a subsequent headache.

For *most* people with migraine, however, they will develop a headache which may be anywhere between very mild and very severe. They will feel like being very still and if possible want to sit or lie down. Moving around may worsen the headache or cause the head to throb. There may be increased sensitivity to noise, light or smell. The attack may be accompanied by nausea or vomiting, or there may symptoms related to the eyes (red, runny, droopy, puffy, dark rings), the nose (stuffy or runny), or ears (feeling full, tinnitus). There may sometimes be relief from vomiting or going to sleep.

Some people with migraine may feel agitated but this is more common in children where the attacks may be much shorter and associated with an abrupt start and finish.

The pain of a migraine attack will often be described as pressure, throbbing, exploding or stabbing pain. It may be felt on one side of the head / face or both sides. Sometimes, it may swap sides during an attack. Pain may be anywhere in the head, neck or face. Facial pain is often seen above / below they eye(s), down the nose, or down the jaw and in the teeth. It may feel like nerve pain or it may throb.

[If the pain has always been on one side of the head and never fully disappears, it is worth thinking of this being caused by a similar but different headache condition called **hemicrania continua**, especially if the autonomic symptoms in the eye and nose (as described above) are prominent].

Postdrome: After an attack, migraineurs will typically feel washed out, tired and somewhat fragile, often a bit tender still in their scalp.

Are migraine attacks caused by triggers?

Migraine attacks may be triggered or made more likely by many complex factors, both internal within the body or external. Many of these are unavoidable, e.g. stress, relief after stress, weather changes, shift work, menstrual cycle etc.

Common triggers that may be more avoidable may include: poor sleep, too much sleep (lie-ins), missing meals, not drinking enough fluid. In addition, headaches may be triggered and made more frequent by caffeine and by painkillers in many people with migraine.

It is important to establish good lifestyle as this may make it more difficult for an attack to be triggered and it may make other preventative treatments more effective if they are still needed.

For migraine, the commonest reason that people remain unwell is that they are taking too much caffeine and too many painkillers. Our experience shows that introduction of a good "foundation" of lifestyle will help approximately 40% of patients improve significantly, where this is all the treatment they need.

Which type of migraine: episodic or chronic?

"**Episodic" migraine** refers to migraine typically occurring for less than half the days of the month. All other days should be truly crystal clear and headache-free.

"**Chronic" migraine** refers to migraine typically occurring more regularly so that more than half of the days are associated with at least some headache and at least eight days of the month have more significant headache associated with other features such as sensitivity to noise, light or smell, nausea or vomiting, or exacerbation of the pain by movement. Chronic migraine affects at least 1 to 2% of the population at any time.

How does chronic migraine develop?
It is more common for patients with chronic migraine to develop this gradually whereby the attacks of migraine had gradually become more frequent and possibly more severe or of longer

duration. The gaps between bad attacks typically fill in with milder migrainous headache and painkillers and other drugs used to prevent migraine often stop being effective or reliable.

Why is chronic migraine much more than "just a headache"?
People suffering chronic migraine will very commonly have many other "non-headache" symptoms and these include:

- Fatigue;
- “Coat-hanger” type neck pain
- Tingling
- Dizziness
- Dissociation (feeling spaced out and detached)
- Visual vertigo (stripes, patterns etc trigger feelings of dizziness)
- Migraine vertigo (dizziness that builds during an attack of migraine headache)
- Veering to one side
- Mood change (irritable, low mood, feeling more emotional)
- Memory disturbance (short term memory problems, word finding difficulties, saying the wrong words, etc)
- Poor quality sleep (eg with frequent wakening or dreaming)
- Restless legs symptoms (discomfort and a sense of needing to move the legs and/or arms, worse in the evening and occurring when still and at rest)
- Periodic limb movements (involuntary twitches in arms or legs, occurring when still and worse in the evening or at night)

Fatigue may be severe in a majority of patients with chronic migraine. It is important to recognise that conditions such as “ME” or “chronic fatigue syndrome” cannot be diagnosed where there is a known and recognised cause for the fatigue syndrome. Therefore people with chronic migraine should not be diagnosed as having “ME” or “chronic fatigue syndrome”. If the true cause of fatigue is recognised to be chronic migraine, this will allow many potential successful treatments to be considered that will be likely to be successful in turning off the fatigue.

Importantly, on those days that are truly crystal clear and headache free, most of the above non-headache symptoms will also typically disappear, possibly with the exception of memory change or restless legs. This is a really important observation as it also reassures everyone that (1) the cause of the problem is chronic migraine and (2) this should be very treatable.

For example, if depression or fatigue or neck pain disappear on headache free days, the likelihood will be that these symptoms have been caused purely by migraine.

Although headaches are often the most prominent feature of chronic migraine, some people experience relatively little or no discomfort.

As migraine is more often than not very treatable, it is always worth considering this diagnosis when patients have a long list of symptoms that may for example include fatigue, facial or sinus discomfort, dizziness, vertigo, blackouts, blocked ears, generalised body pains and tenderness, neck pain, tingling, numbness down one side of the face or body, irritable bowel symptoms, depression, irritability, poor memory or forgetfulness, poor sleep, twitching and/or night time restless legs symptoms.

What is the best way to treat episodic migraine?

If migraine attacks and headaches are relatively infrequent, medications may be used early in the headache phase as the headache becomes severe but should be avoided in the aura phase.

Episodic migraine attacks may often be prevented by laying down a good *"foundation" of lifestyle,* as follows:

(1) stopping all caffeine,
(2) significantly limiting painkillers or triptan medications (e.g. to less than a few times per month at most) – stopping may be even more effective in some people.
(3) drinking plentiful and regular fluids (e.g. up to 3 litres per day),
(4) eating meals regularly, and
(5) going to bed and getting up at similar times each day of the week.

Once an attack is started, the following treatment may be very helpful:

Step 1 – the non-drug approach

Treatment of attacks is not just about tablets. Other things may help including:

- Drink plenty of fluids if a migraine is starting
- Eat slow release carbohydrates (eg banana, biscuits, toast)
- Rest away from noise or light or any known trigger factors
- Menthol (e.g. menthol stick or plaster)
- Heat pack

In addition, some people are now using a handheld nerve stimulator that is worn above the eyes to treat attacks and/or to use regularly to prevent attacks (eg using it each morning and night). This is called Cefaly and is available from www.bhr.co.uk/cefaly. It can be considered as an "electronic painkiller". Using this frequently is not known to increase the risk of bringing on more migraine attacks (as happens with tablet painkillers).

Step 2 – using medications

For many patients with episodic migraine, a simple painkiller taken early in the attack may be helpful. However, this should not be repeated more than a handful of times a month. Painkillers and anti-sickness drugs may work well if used together and early in an attack. If not effective, then a specific migraine drug called a triptan may be considered.

Painkillers (analgesics)

Soluble treatments may work faster and are often better than solid tablets or capsules. Options include (assuming there are no known contraindications):

Paracetamol 1G (at onset of attack)

Aspirin 900mg

Ibuprofen 400mg

Drugs containing codeine or other opiates should NEVER be used in migraine – these include cocodamol, tramadol, solpadeine, dihydrocodeine, morphine.

Antisickness drugs

If there is any nausea or loss of appetite, then the following can be used up to a maximum of 2 days per week. Domperidone may help the stomach absorb fluids and food.

> Domperidone 10-20mg, maximum 40mg per day (requires an ECG to show a normal *QT interval) This keeps stomach moving, allowing fluid and food and other painkillers to be absorbed.
>
> Buccastem will not keep the stomach moving but it may be helpful to stop vomiting. It may be used occasionally 3-6mg twice daily but should be used sparingly to avoid significant side effects.

***QT interval** is a measurement of the time between the start of the Q wave and the end of the T wave in the heart's electrical cycle seen on a electro-cardiogram machine.

Triptans

If the painkillers and/or antickness drugs are not showing enough benefit, then it is worth adding in a triptan drug. These can be prescribed by a GP. They include drugs such as sumatriptan, eletriptan, naratriptan, zolmitriptan. Almotriptan, frovatriptan, etc..

It is worth trying one individual type of triptan in three attacks before deciding if it has been useful – if not, a different one can be tried.

If attacks arise from sleep or come very quickly, especially if there is vomiting, then the triptan can be given by a different route. These medications may be prescribed as a melt or self-injection or a nasal spray (head should be tipped forward not backwards when doing this, to allow it to be absorbed by the lining of the nose).

If an attack of migraine is continuing beyond two days, there is little to be gained by continuing to take painkillers and they actually be making the attack stay for longer by causing rebound worsening as the medication wears off.

Step 3 – Using preventative treatments

Preventative treatments used for episodic migraine may include the tablet and electronic device strategies as listed below for chronic migraine. Preventative treatments can be considered for episodic migraine if:

1. the acute attack treatments are not effective enough
2. the attacks are becoming more frequent
3. the attacks are starting to interfere significantly with school, work or home life.

What is the best way to treat chronic migraine?

Step 1 (Lifestyle)

The first step in most patients with significant migraine attacks is to lay down a *"foundation" of lifestyle* by

(1) stopping all caffeine,
(2) stopping or significantly limiting painkillers or triptan medications (eg to less than a few times per month at most) – stopping may be most effective.
(3) drinking plentiful and regular fluids (eg up to 3 litres per day),
(4) eating meals regularly, and
(5) going to bed and getting up at similar times each day of the week.

For those people that still have significant migraine, this approach of a “foundation of lifestyle” should remain in place long term as it underpins further preventative treatments and makes these treatments more likely to start working and remain effective in the longer term.

Stopping painkillers and caffeine typically causes initial worsening of migraine, sleep and other associated symptoms but this worsening is temporary. It lasts about 1-2 weeks if stopping caffeine, simple painkillers (eg paracetamol, ibuprofen) and/or triptan medications; afterwards symptoms may temporarily be a bit unsettled. During detoxification, some patients will benefit from anti-sickness medications that allow continued absorption of food and fluids.

We generally advise low dose domperidone for up to 7 days in the detoxification period (as long as an ECG is normal and shows a normal QT interval). Buccastem may also be used in this period.

We recommend stopping these abruptly in most people but if there are other significant medical conditions such as diabetes, epilepsy, significant mental health problems or general old age / frailty, there may need to be a more gradual process under supervision of a doctor.

For patients taking opiates such as cocodamol, tramadol, morphine etc., the rebound worsening may last up to 6-8 weeks, especially severe in the first 2 weeks and a doctor’s advice may need to be considered to work out if this is best done gradually or abruptly.

For patients with other pain conditions, it is worth noting that migraine amplifies that pain, just as it may amplify noise, light or smell. The painkillers used to treat pain worsen migraine and this in turn amplifies pain from other medical causes. Stopping painkillers allows us to turn down the amplifier and for a majority of patients, stopping the painkillers usually only causes temporary worsening of that other pain condition.

Long term painkillers are not ideal for chronic pain conditions as they rarely have true long term benefit. Many pain experts are becoming aware that pain conditions may not be helped by long term painkillers and that very few patients with chronic pain conditions truly benefit from regular painkillers.

Recognising and treating migraine by stopping painkillers may be very effective in treating many patients with other long term pain conditions.

Taking regular painkillers may not actually be healthy. There are also increasingly recognised risks of taking some long term painkillers on a regular basis. For example, the NSAID drugs such as ibuprofen, naproxen etc may increase risk of disorders due to narrowed blood vessels such as heart attacks.

Step 2 (Investigations and Sleep)

Once the foundation of lifestyle is in place, it should stay in place and if migraine is still troublesome, other preventative treatment can be added and a simple blood test may be worthwhile to exclude other provoking causes (we often check a full blood count, simple biochemistry, thyroid function, calcium and iron/B12/folate).

If after optimising lifestyle, sleep remains very poor or restless legs continue, this may be worth treating sleep in its own right. A number of treatments may be used and your GP can advise (we often use a tiny dose of gabapentin just at night as this is one of the only drugs that truly gives back proper sleep quality in the context of headache disorders and/or restless legs syndrome[1]). We consider treating sleep as laying down a "ground floor" on top of the "foundation" of lifestyle before we build the management further with preventative treatments.

Step 3 (Preventative Treatments)

If the headaches are still troublesome at this stage, then a preventative treatment can be started.

Medications are traditionally the main first line approach and have a good chance of turning the condition off in the longer term. There are new handheld devices that include Cefaly trigeminal nerve stimulation, Gammacore vagal nerve stimulation and Eneura transcranial nerve stimulation. Injection therapies may include nerve blocks or cranial botulinum toxin injections.

You may be prescribed a "preventative" medication and this should be taken on a regular basis, usually for one year. All preventative medications are slowly introduced in a stepwise fashion to a maximum tolerated dose or a dose that turns off the headache. If side effects of drowsiness or dizziness occur, the drug should be reduced back one step. If the medications however cause significant worsening of mood or of thinking and memory, they should usually be stopped. These side effects will stop the drug from working and can be very troublesome if they are seen.

If no benefit is seen after being on the best tolerated dose for at least three months, it has failed and should be gradually withdrawn while the next treatment is introduced.

Drugs that we commonly use for migraine prevention include:

Blood pressure drugs such as Propranolol or Candesartan

Tricyclic antidepressants such as Amitriptyline or Nortriptyline

Anticonvulsants such as Topiramate or Zonisamide

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[1] The dose of gabapentin is normally 100mg at night, increased slowly by 100mg every week or two, anywhere up to 300-600mg as a single night time dose.

The preventative drugs are chosen according to their potential effectiveness and side effect profile.

Women of child bearing age need to discuss the effects on a baby of they were to become pregnant and anticonvulsants are not usually recommended (especially sodium valproate which has a high chance of causing a child to be born with learning disability if taken during any stage of pregnancy).

Do not be put off taking a drug that lowers blood pressure if you have low blood pressure. Low blood pressure is very common in migraine, most likely due to over-activity of the autonomic nerves. If the drug helps turn off migraine it will potentially stop the migraine pushing the blood pressure lower. This explains why the best drugs for preventing fainting are actually medications designed to lower blood pressure in those patients who have hypertension (e.g. propranolol).

Other drugs that may also be used include Flunarizine, Zonisamide, Sodium Valproate, or Venlafaxine. Pizotifen is not generally a very well tolerated drug as it frequently causes significant weight gain and sedation.

As a general rule, it is worth avoiding drugs such as amitriptyline and other antidepressants if there is poor sleep or if restless legs occur, as these drugs will usually make these problems worse, as they disrupt the normal sleep patterns that are so important to allow a good refreshing sleep.

If there has been no significant response to the above plan of treatment and a number of preventative treatments have been tried to the best tolerated dose for at least 3-4 months at that level, then your neurologist may be able to consider botulinum toxin injections treatment. This involves 31 small injections given every 3 months but it may be quite effective in a number of people.

If patients wish to try a nerve stimulator they can buy a Cefaly device themselves but these are not available in the NHS (https://www.bhr.co.uk/cefaly). They can use this regularly for 2 months morning and night and also for acute attacks, early in the attack. Gammacore and Eneura rely on specialist prescription but these are not yet approved for regular prescription within the NHS but they may be considered by a specialist if other treatments have been ineffective.

Treatment of Chronic Migraine—a summary

A Foundation of Lifestyle	B Treat any residual sleep problem	C Preventative Treatment
No caffeine No painkillers Good fluids Regular meals Regular sleep	Poor sleep quality Restless legs syndrome Sleep apnoea	Oral drugs Injections Nerve stimulators

TABLE OF COMMON ORAL PREVENTATIVE DRUG TREATMENTS

	Propranalol SR	Candesartan	Topiramate	Amitriptyline	Sodium Valproate
Starting dose	80mg	2mg	50mg	10mg	400mg
Increase dose	80mg each 2-3 weeks	2-4mg per week	25mg per week	10mg per week	400mg per week
Typical maximum dose	360mg	24mg	400mg	100mg	2000mg
Main cautions and contra-indications	Raynauds Asthma (OK if low blood pressure)	Nil (OK if low blood pressure)	Kidney stones (calcium)	Poor sleep (worsens sleep patterns / architecture) Avoid if restless legs	Young women of fertile age
Main side effects	Cold hands and feet Asthma Nightmares Depression Postural dizziness	Postural dizziness	Tingling Weight loss Appetite loss Change in taste Depression Agitation Slowed thinking Speech disturbance	Sedation Dry mouth Difficulty passing urine Constipation Poor sleep quality	Increased appetite Temporary hair loss Hearing loss
Pregnancy or risk of pregnancy	? avoid	avoid	avoid	? avoid	**AVOID** 40% chance of learning disability

‘Red flags’ and headache (Is it more than just migraine?)

Most people who have headache can effectively manage their headache by themselves or with the support of their doctor.

The time for urgent help is if a new type of headache occurs in the context of fever; while many people will have headache with simple viral infections, any severe headache with neck stiffness and / or rash should lead to urgent assessment in casualty.

Likewise, if you experience a truly sudden onset severe headache (like a “thunderclap”) that remains severe, it is worth being checked out urgently in casualty.

Older patients over 60 years who develop headache with specific and exquisite tenderness in their scalp, particularly if unwell with other symptoms such as reduced appetite or muscle tenderness across the shoulders and hips should seek urgent medical advice in casualty that day and have blood tests to look for evidence of inflammation in their blood vessels.

A new type of headache that is severe, especially if associated with focal neurological symptoms (e.g. double vision, weakness) should also be assessed urgently.

If headaches are specifically brought on by coughing, sneezing or straining or transient blindness occurs on standing, it is worth being checked medically.

If patients have known cancer, immune deficiency or conditions such HIV and develop a new and severe headache they should also seek urgent medical advice.

Painkillers for other conditions

It is gradually becoming apparent that long term painkillers for medical conditions is not particularly useful and may lead to harm (e.g. increased risk of heart attacks).

As the brain acts as an amplifier for pain in migraine, a patient with migraine may find the condition is amplifying their pain from other causes.

Fibromyalgia, a condition characterised by widespread pains and tenderness in muscles and joints, is probably linked to migraine and caused by the same amplification processes described above.

In most patients with migraine, if they stop painkillers their other bodily pains will temporarily worsen for a few weeks (up to 6-8 weeks if coming off opiates).

After that time, most patients will find their other bodily pains settle to the previous treated level or improve, sometimes particularly after finding a useful preventative treatment for their migraine. This may reflect a turning down of the amplifier so that it no longer amplifies the pain.

Other pain management approaches can be used after this and some people with complex conditions will also benefit from referral to a pain clinic, particularly to look at non-painkiller approaches to reducing the pain or the impact of the pain.

Migraine and dizziness / vertigo

Dizziness in migraine may include dissociation (a feeling of unreality or feeling distant) or true vertigo (a sensation of movement) and unsteadiness.

Migraine vertigo is very common and accounts for more than 50% of referrals seen in specialist dizziness clinics.

It may occur sometimes with little or no headache. While dissociation is probably related to generalised nerve dysfunction in the brain, true vertigo probably reflects the process of “amplification” (as discussed in early chapters).

People with migraine vertigo may experience imbalance (e.g. unsteadiness of veering to one side when walking) and this may worsen in discrete migraine attacks.

People with migraine may generally find their brains are sensitive are more likely to experience visual vertigo. This is where patients have a sense of imbalance or dizziness on looking at certain things such as stripes, patterned carpets, narrow corridors, tall buildings, blinds on windows, lighting units with metal dividing strips, motorway lanes, lines on a page, etc.)

Some will veer to one side when walking, with a subjective feeling of swaying or (less commonly) a sensation of things moving or rotating. Similar effects may be seen if someone is given glasses with a slightly wrong prescription (e.g. when trying out varifocal lenses for the first time). It is likely that in migraine vertigo, the nerve signals from the inner ears are giving an incorrect sense of movement.

Migraine and fatigue

More than two thirds of people with chronic migraine will have significant fatigue. It is important to recognise that chronic fatigue syndrome or myalgic encephalomyelitis (ME) cannot be diagnosed in the presence of a known cause of fatigue such as migraine or a sleep disorder such as restless legs syndrome. Treating migraine will typically see these non-headache symptoms disappear on crystal clear headache free days.

Pregnancy

If planning pregnancy or pregnant, most drugs should be avoided. Particular drugs that should be avoided include antiepileptic medications as they may have a higher risk of causing damage to an unborn baby, especially if taken at the beginning of the pregnancy. Sodium valproate (also known as epilim) has a very high risk of resulting in a baby with learning disability and should most likely be avoided in all women of childbearing age.

Consult your doctor to find out what is the safest approach. Simple painkillers such as paracetamol are probably safe. Occasionally drugs such as propranolol or amitriptyline may be used to prevent migraine but we do not have a guarantee that they are safe and most women find migraine considerably improves in the second and third trimester anyhow. If migraine is problematic, a handheld nerve stimulator such as Cefaly or referral to a specialist headache clinic may be useful to consider nerve block injections.

Breastfeeding

It is worth discussing the treatment options that are safe in breastfeeding with your doctor or pharmacist.

Holistic therapies

Although acupuncture is within the NICE guidelines of headache, it is not clear how truly useful this is and many headache experts consider it to have short lived and temporary benefits.

There is little evidence for any other holistic therapies.

Some over the counter treatments can be used as preventative approaches for migraine, eg riboflavin 400mg or magnesium up to 1000mg daily. They may take up to six months to start working and work in a minority of patients.

Diet and exercise in migraine

There is little evidence that any form of diet helps migraine. Cutting out food triggers is usually futile in the majority of patients as it is more likely that the brain processes of a migraine attack have started before that food is consumed.

We would generally not advocate any extreme dietary restrictions in migraine. Cutting out artificial food colours and additives may be reasonable in some patients.

A small number of patients have been seen anecdotally to respond to the Paleo diet or variations of this diet.

Exercise may be helpful to prevent migraine in the longer term, as may weight reduction. It is important to exercise slowly and surely to a level that doesn't provoke attacks. Good hydration and some slow release carbohydrate may be helpful before exercising to reduce tendencies to triggering an attack.

Smoking

Smoking is not advised in migraine. There is a particular increased risk if there have been prolonged episodes of aura (e.g. more than an hour). Patients with prolonged aura or with frequent headaches are advised to stop and typically it is best to stop abruptly. The risk of stroke or heart attack is related to being a smoker as opposed to the amount smoked. Stopping completely sees a gradual reduction in risk back to that of a non-smoker within two years of completely stopping.

Is it migraine or something else?

Many people worry that headache is caused by something worrying but for the vast majority of patients, it will be simply due to the way they are made. A scan may be considered if your headache disorder has been of recent onset and your doctor is concerned but scans are highly unlikely to be helpful in patients who have had more than 3 months with their current symptoms if their examination is otherwise normal.

If a headache is only ever on one side and is associated *prominent* restlessness / agitation and with features of *prominent* red/runny/droopy/puffy eyes, stuffy/runny nose, flushing sweating or fullness in the ear, you may benefit from referral to a specialist headache or neurology service to see if you have a different cause of headache that involves different management.

More than 90% of patients seen in hospital with headache will, however, have migraine as the cause.

The following table gives some information about the differences between the most common primary headache disorders.

	ATTACK FREQUENCY	ATTACK DURATION	LATERALITY and SEVERITY	MIGRAINOUS FEATURES (aura, noise and light sensitivity, nausea etc)	AUTONOMIC	CHARACTERISTIC BEHAVIOUR
Tension-type headache (very rare)	Daily to monthly	Hours to days Bilateral and symmetrical	Bilateral Never severe	NEVER A featureless headache	NEVER	Never limits activity
Migraine	Daily to monthly	Hours to days Unilateral or bilateral	Can be severe ++ Unilateral or bilateral	Yes	+	Stay flat and still
Hemicrania Continua	Continuous headache	Continuous	Unilateral ++ May be severe at times	+/-	++	Stay flat and still but some experience agitation and restlessness
Cluster headache	1-4 / day	20 minutes to 4 hours	Sidelocked *Usually* severe +++++	+/-	+++	Severe restless agitation, pacing, on all fours, holding head, punching head
Paroxysmal Hemicrania	10 – 40 / day	10–20 mins	Sidelocked *Usually* severe ++++	+/-	+++	Can be restless and agitated
SUNCT	60 – 400 / day	Up to 5 minutes	Sidelocked Severe ++++	+/-	++	Can be agitated

Headache diary

Your doctor may wish you to keep a headache diary (e.g. recording each day as either headache-free, background headache or severe headache) and charting other information (e.g. changes in treatments, menstrual cycle, side effects). This may be very helpful in managing your condition. A diary is enclosed in this information booklet (see appendix)

Research

The Walton Centre has a very active research unit and we are often running clinical trials related to potential new treatments. If you are interested to be considered as a volunteer for ongoing research, then you can contact the clinical research unit at migraineresearch@thewaltoncentre.nhs.uk or they can be contacted via 0151 529 5666.

Other sources of information and support

ADVICE AND INFORMATION- MIGRAINE

The Migraine Trust

www.migrainetrust.org

Migraine Action

http://www.migraine.org.uk

SUPPORT – MIGRAINE AND OTHER NEUROLOGICAL DISORDERS

The Brain Charity
www.thebraincharity.org.uk

INFORMATION AND SUPPORT FOR OTHER HEADACHE DISORDERS (EG CLUSTER HEADACHE)

Organisation for the Understanding of Cluster Headache (OUCH UK)
www.ouchuk.org

MIGRAINE AND OTHER HEADACHE DISORDERS – UK GUIDELINES AND FURTHER INFORMATION

The British Association for the Study of Headache

www.bash.org.uk

Walton Centre Headache Diary Consultant: Headache Diary	Name: Date of onset of diary:

Day	Severity (tick one box)			Menstrual Cycle (female)	Change in medication	Side effects
	No headache	Mild or Moderate	Severe +/- Incapacitated			
1						
2						
3						
4						
5						
6						
7						
8						
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28						
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30						
31						

Details of all medication at *beginning* of the month:

Notes:

For further information on neurological conditions:
Neurological Alliance - Visit neural.org.uk. Call 020 7963 3994.
The Brain Charity - Visit thebraincharity.org.uk. Call 0151 298 2999.
Email: info@thebraincharity.org.uk

This information can be translated on request or if preferred an interpreter can be arranged for additional information regarding these services please contact The Walton centre on 0151 525 3611 and ask for the Patient Experience Team.

NEURO NETWORK