



Hemiplegic migraine



Hemiplegic migraine is a rare condition which has been linked to a genetic abnormality and it is being more readily diagnosed by the medical profession in the UK. Symptoms include temporary weakness down one side of the body, which usually lasts between 5 minutes and 1 day but can last for several days. Other symptoms include:

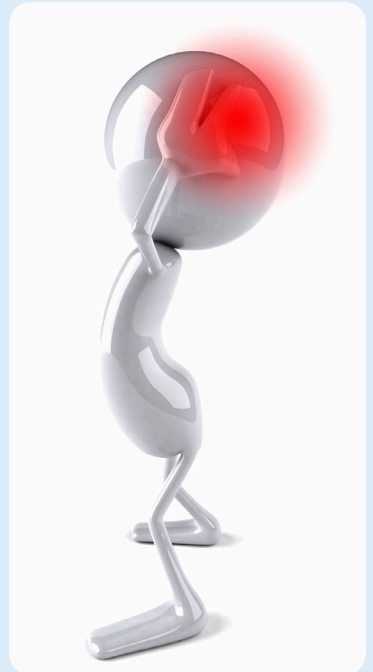
- sensory disturbance including tingling or numbness
- visual symptoms including flickering lights, spots, lines or loss of vision
- speech disturbance.

These symptoms are often associated with a severe headache. This form of migraine may be confused with a stroke, but the effects are usually fully reversible and there are specific treatments available. Strokes usually come on suddenly whereas hemiplegic migraine attacks will often start slowly with one symptom and progress to other symptoms spreading over many minutes or hours. Positive sensory phenomena (e.g. flashes of light, pins and needles etc.) may be more commonly seen in migraine with aura and hemiplegic migraine but negative phenomena (e.g. loss of sensation, numbness or loss of vision etc.) may be more commonly seen as isolated manifestations in stroke. In addition, strokes or transient ischaemic attacks (TIA's) generally would only occur once or twice but with hemiplegic migraine, individuals are aware that they may have many attacks without coming to harm.

What causes the symptoms of hemiplegic migraine?

In recent years the understanding of migraine within the medical world has greatly improved, recognising that migraine is a disorder that involves many aspects of physiology, including the central nervous system, neurotransmitters and other chemicals within the brain.

Migraine is thought to be caused by a release of neurotransmitters (chemical messengers) through nerve endings in the trigeminal system located in the brain. When a migraine attack has been triggered, this is then thought to expand the blood vessels in the brain. Due to these irregular changes, temporary paralysis is known to present during some migraine attacks.



There are two types of hemiplegic migraine:



1. Familial hemiplegic migraine (FHM) is where migraine attacks occur in two or more people in the same family and every individual experiences weakness on one side of the body as a symptom with their migraine.
2. Sporadic hemiplegic migraine (SHM) is where someone experiences all the physical symptoms of familial hemiplegic migraine but doesn't have a known connection within their family. The cause of this type of hemiplegic migraine is unknown; some are due to new or so called 'sporadic' gene mutations.

Am I at an increased risk of stroke because I have hemiplegic migraine?

Hemiplegic migraine does not result in strokes in the vast majority of people and after a few attacks people realise that it's not a stroke. It is still frightening and unpleasant but usually it's not life threatening. There are extremely rare exceptions where people do go on to develop a stroke, but that's an exception rather than a rule. For example, if the average stroke risk in a woman is 9 out of 100,000 and migraine doubles the risk, the chance of stroke becomes 18 out of 100,000; this is still a very low absolute risk. Where blood pressure or cholesterol are elevated, it may be worth asking your doctor for treatment particularly if there is any family history of heart disease or stroke.

Treatments for hemiplegic migraine

There is concern about certain medications that may make problems worse. This may mean that some of the most popular migraine medications, such as the triptans, should be avoided. Non-steroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen, will help to relieve pain and reduce inflammation if taken at the onset of the headache. Ibuprofen is often better absorbed if used alongside an anti-sickness drug, such as domperidone.

There is little conclusive research as yet to establish a single best course of drug treatment for hemiplegic migraine. What has so far been published, along with anecdotal clinical experience, suggests that either one of flunarizine or topiramate may be good preventative medication options. Preventative measures are very important in cases of hemiplegic migraine and are most likely to be effective if individuals are not overusing acute treatments, such as painkillers and anti-inflammatory drugs, and caffeine. Non-prescription preventatives may also be considered; however, there is limited scientific study in the field of migraine and to date there are no good controlled trials of these drugs in hemiplegic migraine. To follow are few options that you may wish to consider with your doctor alongside lifestyle factors, such as ensuring you keep hydrated, have regular meals and have a regular sleep pattern.

Non-prescription preventative treatments

Butterbur (*Petasites hybridus*) is very toxic unless purified. It is a member of the asteraceae family and is a fleshy, extensively creeping plant, with a short root, growing somewhat slanted on the ground. A randomised, controlled trial of 245 patients with an average of 4.8 migraine days per month saw 68% of patients that took Petadolex 75mg twice daily improved their frequency and intensity of migraines by over 50%. The trial was conducted over 3 months in 2004. Long term safety appears okay for Petadolex but there is no data available for other preparations. ^[1.]

Feverfew (*Tanacetum parthenium*) is a herbal extract and the active ingredient is parthenolide. A 2006 study of 147 patients who experienced an average of 4.8 migraines per month found that their migraines decreased by 1.8 days per month on average. This was a randomised, controlled trial over a 3 month period and patients took 6.25mg of feverfew three times a day. However, feverfew was only positive for those patients who experienced more than 4 migraines per month. ^[2.]

Co-enzyme Q10 100mg three times per day showed very few side effects in a 2006 study of 42 patients and for 47% of patients it improved their migraines by over 50%. This was a randomised, controlled trial that was conducted over a 4 month period. ^[3.]



Vitamin B2 (riboflavin) 400mg per day also show very few side effects in a 1998 study of 80 patients. For 59% of patients their migraines improved by more than 50%. This was a randomised, controlled trial that was conducted over a 4 month period. [4.]



Magnesium 400mg per day: side effects from increased magnesium intake are not common because the body removes excess amounts. Studies have shown that migraineurs have low brain magnesium during migraine attacks. [5.]. Two controlled trials have shown that oral magnesium supplementation (taking in by mouth) can be effective in headache prevention. [6., 7.]



What are calcium channel blockers?

Verapamil and flunarizine are calcium channel blockers, initially used to improve blood flow and both can be used to treat hemiplegic migraine. Verapamil starts at a dose of 80mg three times a day. Flunarizine is the most recent, but is not licensed, marketed or generally available in the UK, only being available from a small number of hospitals. It can be used to treat dizziness, vertigo and migraine and appears particularly effective when migraine occurs with numbness or paralysis. Flunarizine is started at 5mg taken at night, the dose increasing to 10mg after one month if necessary. Flunarizine is generally a well tolerated drug but some individuals may feel tired on it or may occasionally gain weight and will need to reduce the dose or stop. Very rare side effects may include slowing of movements with stiffness or very significant depression. If these side effects are experienced, the drug should be stopped.



These drugs may not start to work for eight to twelve weeks. If the medicine seems effective, you should keep taking the tablets for at least six months.

What is topiramate?

Topiramate, also known as Topamax, is used as a preventative medication option in migraine and is also used to treat epilepsy. The dose of topiramate in the treatment of migraine should be increased slowly over four weeks. If you experience side effects involving slowing of thought processes, difficulties with speech or mood disturbances, then the drug should be stopped as it is unlikely to be a benefit and such side effects do not typically disappear. Common side effects includes some tingling in the hands and feet which reverses on stopping the medication; this will not cause damage to nerves. There is a small increase



of risk of kidney stones and individuals with a family history of kidney stones may need to consider whether the risk is worthwhile. This risk may be potentially reduced significantly by increasing the amount of fluid you intake. Once you have reached the maximum dose that can be tolerated, you should take topiramate for four months to assess whether they benefit you.

Genetic link to migraine

The good news is that new genetic research is allowing us to diagnose even sporadic hemiplegic migraine more accurately. The genes associated with familial hemiplegic migraine are CACNA1A, ATP1A2, and SCN1A. Gene mutations can cause problems in the body, such as calcium or sodium channel malfunctions, sending wrong signals. Although genetic tests for hemiplegic migraine are not generally available on the NHS, they may very occasionally be used in certain headache clinics.

We hope this research will provide a real stimulus for further research to identify other genes implicated in migraine, and how we might control the pain pathways. Although identifying genes does not necessarily lead to any greater treatments for individuals currently, they may be very useful as a future research tool. The prospect of future developments in blocking the action of this gene and any others that are found is a very exciting new target for migraine treatments which will be specific and will help migraineurs in the years to come.



For further information, advice on migraine management and for updates on the latest migraine research, please contact Migraine Action by calling **0116 275 8317**, emailing info@migraine.org.uk, or visiting the charity's website at www.migraine.org.uk. All of our information resources and more are only made possible through donations and by people becoming members of Migraine Action. Visit www.migraine.org.uk/donate to support one of our projects or visit www.migraine.org.uk/join to become a member.

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