Audiology department
Vestibular migraine

Who is the leaflet for? What is its aim?
This leaflet is for patients experiencing dizziness and/or imbalance, who may have symptoms consistent with a diagnosis of vestibular migraine.

The aim is to provide further information regarding vestibular migraine, including typical symptoms, and ways your vestibular migraine may be managed. Sources of further information and support are also provided.

Overview
Vestibular migraine is a relatively new diagnosis that is becoming increasingly recognised. It is sometimes also called ‘migrainous vertigo’, ‘migraine associated dizziness’, or ‘migraine associated vertigo’.

Dizziness has been accepted as a symptom in migraine for some patients for many years but over the last decade vestibular migraine has become more recognised as either a variant of migraine or a condition in itself. Vestibular migraine was first classified in the International Headache Society International Classification of Headache (2nd edition) in 2005.

Migraine is a type of headache disorder that is classified as a primary headache, as it does not have another underlying condition causing it. Secondary headaches have a known cause for the pain, for example blocked sinuses or flu.

Migraine is common, affecting approximately 15% of adults in the UK. It affects more women than men possibly due to hormonal reasons, although this has not been proven. There is often a history of migraine in the family.

Migraine can severely affect quality of life. Some people may need to stay in bed for a number of days. Many days of work are lost due to migraine every year.

Migraines vary between individuals and some people may experience migraines several times per week whereas others experience an occasional migraine or have a number of years between migraines.

In vestibular migraine, patients typically experience episodes of dizziness or vertigo (“spinning” dizziness) before, during, or immediately after a migraine headache. Dizziness may occur independently of a migraine headache, however, with up to 40% of individuals with vestibular migraine not experiencing a headache during an attack. The dizziness of vestibular migraine may be associated with light sensitivity, sound sensitivity and/or visual auras. It has been estimated that vestibular migraine affects 1% of the general population or 11% of patients attending specialist clinics for dizziness.

Vestibular migraine can be associated with other balance disorders such as Benign Paroxysmal Positional Vertigo (BPPV) or Meniere’s disease, in some individuals.
Types of migraine
There are a number of types of migraine. Probably the two best known are migraine without aura (formerly known as common migraine) and migraine with aura (formerly known as classic migraine).

Symptoms
A migraine headache is often described as severe, “throbbing” or “pulsating”, one-sided and activity limiting. It is often accompanied by nausea and/or vomiting, and some patients experience diarrhoea.

In patients with migraine with aura (which accounts for approximately 20 to 30% of migraine sufferers), aura symptoms normally occur 15 minutes prior to the migraine headache and last a few minutes up to an hour.

Some patients with migraine have aura symptoms, but no headache.
Aura symptoms, can include:
- Visual disturbances such as flashing lights, “sparkles” or “stars”, zig-zag lines, dark or coloured spots, or loss of peripheral vision
- Intolerance of light (photophobia)
- Intolerance of sound (phonophobia)
- Intolerance of smells (osmophobia), or alteration / loss of smell
- Numbness, tingling or weakness

In vestibular migraine, patients experience episodes of dizziness, vertigo (“spinning” dizziness), motion sensitivity or imbalance. These episodes are variable and can last between seconds and weeks, but usually last minutes to days. Episodes of dizziness may be spontaneous, provoked by movements, or provoked by certain visual environments. Migraine patients are often susceptible to motion sickness.

Speech can be disturbed in migraine, and sufferers have reported memory changes, feelings of fear and confusion, and more rarely, partial paralysis or fainting.

Some patients with vestibular migraine report hearing loss, fullness in the ear, or tinnitus (often “ringing” or “buzzing” in the ear or head, but also other sounds without an external cause). This can make it difficult to differentiate vestibular migraine from other ear related causes of dizziness.

Diagnosis
There is no single diagnostic test for vestibular migraine or migraine in general. Your diagnosis will be based upon your symptoms, exclusion of other causes of dizziness, and sometimes on the results of further investigations.
Some further investigations may include:
- Hearing tests
- Vestibular (balance) assessment
Your medical consultants will decide whether they think any further investigations might be helpful in your individual case.
Some dizzy patients may have a MRI scan but this is not considered necessary for headache or migraine symptoms alone.

Patients with migraine often have other family members with migraine, and can report a history of severe motion sensitivity, or motion or travel sickness since childhood. Diagnosis may be supported by successful management using treatments for migraine.

**The diagnosis of vestibular migraine can be very difficult as the vestibular or dizziness symptoms may not occur at the same time as any other migraine symptoms or with any headache. Some patients can experience migraine for many years before the onset of symptoms of dizziness or have previously experienced episodes of dizziness and then later develop migraine. Migraine may be missed if there is no symptom of headache.**

**Differential diagnosis**
Vestibular migraine can closely mimic Meniere’s disease, making it difficult to differentiate these two conditions in some patients. Confusingly, there is also an association between Meniere’s disease and migraine so that true Meniere’s disease patients are more likely to suffer from migraines.

**Causes**
The underlying cause or causes of vestibular migraine or other types of migraine have not been fully established.

It is thought that chemical messengers and other chemicals in the brain may be altered to result in changes in brain activity to include either hyper-excitability or over-sensitivity and/or depression or reduced activity. There may also be changes to blood vessels or blood flow, or inflammatory processes occurring.

The brain messenger chemical serotonin or 5HT has been implicated in migraine. Serotonin is known to be able to constrict or dilate blood vessels, and influences our perception of pain in the blood vessels in the brain.

It is thought that there are probably additional things happening during a migraine that are not yet understood.

There may also be hormonal influences to cause migraines and genetic links to explain who is more susceptible to migraine.

Vestibular migraine might be explained by hyper-excitability in the area of the brain that overlaps with vestibular or balance structures.

**Triggers for migraine**
Triggers for migraine are factors that may lead to the underlying reactions in the brain that in susceptible individuals cause migraine symptoms.
Triggers are varied, very individual to each person, and may differ for individual episodes of migraine in the same person. It is usually a combination of triggers, rather than a single one, that will lead to a migraine or associated symptoms.

A ‘Threshold Theory’ has been suggested as it is thought that the migraine trigger or triggers need to pass a crucial threshold in order to cause symptoms, whereas a trigger or triggers will be tolerated and a migraine will not occur if they remain below this threshold. The final trigger may be the most obvious but the other underlying triggers are likely to be equally as important.

Some people with migraine are known to have a biochemical defect that affects their ability to handle foods containing chemicals called amines such as tyramine (which is found in cheese, wine and citrus fruits), or phenylethlamine (which is found in chocolate and alcohol).

**The link between amines, blood sugar level and migraine**

After a long time without food our blood sugar levels drop until a level where there is a sudden outpouring of adrenaline (an amine) to release sugar stored in the liver. This sudden increase in adrenaline can cause a migraine.

Patients are often aware of potential food triggers for migraine but it is now thought that the most frequent migraine triggers are often missing or not eating meals at regular times, dehydration, and poor sleep. Therefore it is a good idea for all migraine patients to eat meals on time, drink plenty of water, and maintain regular sleep patterns.

Triggers for migraine can include:

<table>
<thead>
<tr>
<th>Emotional triggers</th>
<th>Physical triggers</th>
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<tbody>
<tr>
<td>Stress</td>
<td>Tiredness</td>
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<tr>
<td>Anxiety</td>
<td>Over-exertion (physical &amp; mental)</td>
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<td>Tension</td>
<td>Late nights</td>
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<td>Shock</td>
<td>Poor quality of sleep</td>
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<td>Depression</td>
<td>Shift work</td>
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<td>Excitement</td>
<td>Change in sleep patterns</td>
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<tr>
<td>Anger</td>
<td>Poor posture</td>
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<td></td>
<td>Neck or shoulder tension</td>
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<td>Travelling for a long period of time</td>
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<tr>
<th>Diet/food triggers</th>
<th>Environmental triggers</th>
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<tbody>
<tr>
<td>Delayed or irregular meals</td>
<td>Bright lights</td>
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<tr>
<td>Insufficient food, fasting or dieting</td>
<td>Flickering screens e.g. television or computer screen</td>
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<td>Dehydration</td>
<td>Flashing lights</td>
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<td>Alcohol, particularly red wine, sherry or beer</td>
<td>Loud noise</td>
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<tr>
<td>Tyramine (a food additive)</td>
<td>Change of weather /climate e.g. humidity, very cold temperatures</td>
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<td>Caffeine products, such as coffee or tea</td>
<td>Intense or penetrating smells</td>
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<tr>
<td>Chocolate</td>
<td>Smoking or smoky rooms</td>
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<td>Citrus fruits</td>
<td>Stuffy atmosphere</td>
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<td>Cheese and other dairy products</td>
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### Hormonal triggers

- Menstruation and the premenstrual period
- Puberty
- Pregnancy
- Contraceptive pill
- Menopause / Hormone replacement therapy

### Other triggers

- Eye strain
- Congested nose / sinus problems
- Toothache or other dental problems
- Some types of sleeping pills

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### Management

There is no known cure for migraine but there are various ways in which it may be managed.

Treatment of vestibular migraine is based upon treatment for migraine with and without aura. More research is required to discover whether particular treatments are more effective than others more specifically in vestibular migraine.

**Identify and avoid your triggers**

*It can be helpful to keep a diary to identify your triggers. You should note down as much as possible from the suggested triggers table above for the 24 hour period preceding your migraine attack to include:*

- Everything you ate and drank, and when you ate or drank it
- Unusual events or activities, for example extra travelling, social occasions, or extra working
- Strong emotions, for example worry or shock
- How you feel, for example tiredness, tension, confusion, excitability, lethargy, or high energy
- Environmental influences, for example loud noises, strong smells, or strong or flickering lights
- Weather, for example changes in climate
- Menstruation / your period
- What you think triggered the attack

Once you have three to four records compare them to look for any similarities.

**Small lifestyle changes then may be possible in order to minimise your chances of having a migraine. If there are no similarities apparent then consider repeating the exercise but making notes for the 48 hour period before a migraine attack.**
Alternatively, you can keep a daily diary over an extended period that might help you identify the combination of triggers that need to occur to result in an attack. It is not necessary to avoid common triggers for migraine if they do not trigger your migraines. Otherwise you might find yourself unnecessarily avoiding many pleasant aspects of your life.

Adjustments to the working environment may be helpful for some patients. Try to ensure good lighting that is well maintained to reduce flicker, avoid glare, reduce reflections on your computer screen from windows, maintain a comfortable temperature, and ensure adequate ventilation.

You should try to avoid excessive fasting (going without food) for more than four hours during the day or 12 hours overnight. Any interval without food should be shortened if you use more energy than usual, for example if you take vigorous exercise.

You should try to avoid peak and troughs in your blood sugar levels by eating slow-release carbohydrates and other foods with a low glycaemic index (low GI), to include certain fruits and vegetables, wholegrain foods, pulses, lean meat, yoghurt, and milk. Avoid high GI foods such as sugary foods, crisps, white bread, and baked potatoes. Carbohydrates should be eaten in combination with protein and/or fat. Try to always eat breakfast, and try eating little and often rather than one to two main meals per day.

Medication at the start of migraine attacks
Some people may be prescribed medication that is used at the start of attacks to prevent symptoms developing.

Analgesic medications, such as aspirin (adults only) or paracetamol, or non-steroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen or again aspirin, can be used but should be taken at the first sign of an attack before any headache has developed. This management is often used in patients with mild to moderate symptoms.

Patients with moderate to severe symptoms, or where analgesics have not been effective, may be prescribed a triptan medication (adults only) to act as a serotonin or 5HT replacement. These should be taken as soon as any headache starts, but not before (for example not too early during the aura phase which usually precedes any headache). They are likely to be less effective if taken too early during an attack. If any particular triptan is not helpful in an individual another type of triptan is likely to be effective.

Preventative medication
Other patients may be prescribed preventative (or prophylactic) medication that is taken on a daily basis for three to six months. This is usually where migraines are frequent (four or more per month) or where acute medications are not suitable or have not been effective. The aim of preventative medications (such as beta-blockers, propanolol, flunarizine, topiramate or amitriptyline, for example) is to reduce the frequency and/or severity of attacks.
Note: Please be aware that some medications for migraine may not be suitable for you dependent upon your age, if you are pregnant or trying to become pregnant, have particular other medical conditions, or are taking other particular medications. Please always consult with your doctor or a pharmacist before taking medications.

Behavioural/physical therapies
As well as avoidance of triggers, there is evidence that other behavioural or physical therapies are helpful for some patients, especially where stress is contributing to symptoms:

- Relaxation therapy
- Stress reduction
- Biofeedback
- Massage
- Exercise
- Acupuncture (endorsed by the British Medical Association)

Other treatments
Some other treatments have started to be used, rarely, in patients with very severe migraine, to include:

- Occipital nerve injections
- Botox

These treatments are not used routinely and only where other management strategies have failed. Patients may qualify for Botox injections only if they experience headaches for 15 days of each month, with migraine headache on at least eight of these days. Botox may help migraine generally but may not improve vestibular symptoms.

Complimentary treatments
Butterbur, feverfew, co-enzyme Q10, vitamin B2, and magnesium have been suggested as complimentary treatments with some evidence of possible effectiveness for some people in randomised controlled trials. Ginger can help manage any nausea associated with a migraine.

Vestibular migraine specifically
There is some evidence that vestibular rehabilitation exercises might help dizziness related to head movements in some patients. Other treatments for migraine are often tried first though, as vestibular rehabilitation exercises can make the dizziness worse in some cases. Trying general treatments for migraine first can also help to differentiate which particular treatment is effective for each individual.

Management of associated symptoms
It may be necessary to consider management of the psychological consequences of having migraine, including vestibular migraine. Anxiety commonly becomes inter-linked with migraine and may require treatment.
Contacts/Further information

Vestibular audiologists, Audiology Department
Telephone: 01223 217797

Migraine Action
Telephone: 0116 275 8317
Email: info@migraine.org.uk
Website: www.migraine.org.uk

The Migraine Trust
Telephone: 0207631 6970
Email: info@migrainertrust.org.uk
Website: www.migraine.org.uk

References/ Sources of evidence

Patient.co.uk. Migraines: Symptoms, Causes and Treatments. www.patient.co.uk/print/4299 (05/05/2015).

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