Neuropathic Pain

What is neuropathic pain? What causes it and how can it be managed? Pain specialists Dr John Lee and Dr Alan Fayaz explain the condition and provide information on the treatment options available

Neuropathic pain is how we describe any of the unwanted sensations (e.g. pain, ache, tingle, itch, burn, etc.) that can be experienced following damage to nerves. The problem may lie in the peripheral nervous system (the nerves leaving the spinal cord) or in the central nervous system (the brain and spinal cord). Damage to nerves can give rise to changes in sensory (numbness, increased sensitivity, pain), motor (weakness, spasms) and autonomic (colour, temperature, sweating).

Why do I have neuropathic pain?

There are numerous causes of neuropathic pain. Below are some examples:

Common causes of neuropathic pain

- nerve entrapment (pinching of a nerve), where the nerve travels from the spine in the back (sciatica), or as a nerve enters the hand (carpal tunnel syndrome)
- nerve damage after surgery or trauma, such as following thoracotomy (chest wall surgery) where the intercostal nerves are damaged
- diabetes resulting in numbness and pain, usually starting in the feet and hands ('glove and stocking' distribution)
- post-herpetic neuralgia (pain after shingles from herpes zoster infection).

Less common causes

- trigeminal neuralgia (a specific form of facial pain)
- multiple sclerosis
- pain related to cancer (e.g. from the tumour) or from the treatment of the cancer (chemotherapy and radiotherapy)
- infection from HIV or polio
- malnutrition: vitamin B_{12} deficiency, excess alcohol consumption
- phantom limb pain
- blood supply problems (stroke) which can result in pain down one whole side of the body.

When doctors assess people with neuropathic pain, they are going through such a list in their minds. Doctors have a saying, though, which helps to guide them: 'common things are common'. So, the most likely cause of your symptoms will be a common condition.

How do we know if I have neuropathic pain?

Your doctor will try to make a specific diagnosis by taking a pain history, examining you and perhaps by arranging certain blood tests or other

investigations, such as nerve conduction studies (where needles are used to test the flow of small electric currents through your nerves). If a specific diagnosis is established, it may allow the disease or condition to be treated as well as the pain itself. For example, better control of diabetes would also help to improve pain from diabetic neuropathy. However, it is more common for neuropathic pain to be present without a specific diagnosis being possible.

Neuropathic pain can be suspected on clinical grounds because it has characteristic symptoms and signs. Screening tools have been developed which allow patients and non-specialists to be more confident in making the diagnosis of neuropathic pain.

People often describe their neuropathic pain as ‘burning’ or ‘electric’, or may experience numbness or sensitivity of the skin, tingling, itching, aching or tightness. These symptoms may be different depending on the time of day (it is often worse at night) or what you are doing at the time.

People often struggle to find the right words to describe their pain. The most important thing is to do your best when you are asked about it. If the pain comes and goes, **it is also helpful to write down a few notes** when it comes so you can remind yourself about it at a later date. This might also help you to see a link between what you are doing and when the pain comes on, so called ‘trigger factors’.

What can be done to manage neuropathic pain?

Management of any type of chronic pain includes a combination of drug and non-drug therapies. Early recognition and early treatment are considered to offer the best chance of optimal pain control.

No two patients are the same. Your doctor will ensure that treatment is tailored to your needs, your wishes and your particular circumstances. It is really important that you understand not only the nature of your pain problem, but also the options available for treatment. There are specialist pain management centres around the UK where expert advice is available.

1. Drug treatments

Regular painkillers do not usually work for neuropathic pain. These include non-steroidal anti-inflammatory drugs or NSAIDs (for example, ibuprofen, diclofenac and aspirin), paracetamol and simple opioid drugs (for example, codeine and dihydrocodeine).

There are classes of drugs that are more likely to help neuropathic pain than the more regular painkillers. These include the recommended ‘first-line’ drugs for neuropathic pain (such as amitriptyline and gabapentin).

There is more information about the different types of medication used for neuropathic pain on page five of this leaflet.

Although some people have relief from pain soon after starting neuropathic

pain medication, drugs often need to be taken for several weeks at the appropriate dose in order to deliver optimal pain control. You should be offered regular reviews to find out how well the treatment is working.

If your neuropathic pain is not responding to the first-line pain medications, your doctor may consider changing your treatment to one of the other first-line treatments, or combining two different drugs together.

If you are finding that your pain is severe or is having a significant effect on your daily life, or if the health problem that has caused your pain has got worse, your doctor should consider referring you to a specialist sooner rather than later.

Drug interactions

Both patients and doctors are concerned about these. The first-line treatments for neuropathic pain and the more straightforward painkillers are generally well tolerated. People with certain conditions like heart, liver and kidney problems, or who are already taking other medications that share the same side effect profile, will need to take special care. It is reassuring to know that many of the trials of neuropathic pain drugs include a good number of older patients.

2. Non-drug treatments

These strategies include general guidance and therapies, such as pain management techniques and physiotherapy and interventional techniques, e.g. injection of anaesthetic around painful nerves, or use of complex implants placed under the skin (see 'Non- drug treatments', page 7).

General guidance

This involves taking into account your individual preferences and limitations due to medical conditions or other circumstances; providing a package of care which addresses not only pain symptoms but other possible associated problems like low mood, depression, anxiety or distress, sleep problems and functional limitations or disability; and assessing you as a whole person, not just focusing on your neuropathic pain.

Pain management techniques

Many people find using pain management techniques to be an effective way of coping with neuropathic pain.[1] 'Pain management' usually means finding self-help techniques that enable you to live as fulfilling a life as possible and, in many cases, to reach beyond what you imagined your limits might be with your pain condition.

There are **pain management programmes** (PMP) run by many of the larger pain clinics, which can guide you in making the most of life despite your pain. They involve a number of techniques and require the healthcare professionals involved to undergo specialist training in order to practise and adopt them.

[1] NICE. 'CG173 Neuropathic pain – pharmacological management': 1.1.1.

Physiotherapy

Physiotherapists specialising in pain may take a different approach to what you might expect. They want to understand your pain, its causes and how it affects your daily life. This often includes trying to understand more about your work, relationships, hobbies and what is important to you. The physiotherapist can help you to develop ways of getting back to important activities, such as movement and exercise, and social activities - particularly activities that you enjoy. The focus is on living well again. They might offer group sessions or work with you on an individual basis.

Additionally, physical supports or TENS (transcutaneous electrical nerve stimulation) – where an electrical signal is delivered by a small battery-operated device via electrodes placed directly on the skin – may be used.

What if my neuropathic pain comes and goes?

Intermittent pain can be more difficult to manage because many of the recommended therapies are relatively slow to take effect and are long lasting, which is not what is needed. You may have some benefit from techniques that a physiotherapist can teach you, TENS – not to be used on the face – tramadol and intermittent gabapentin (which is a shorter acting drug for neuropathic pain). A specialist pain management centre will be a good place for advice.

Where can I get more help with understanding neuropathic pain?

The best source of help is likely to be your GP, but if you are also treated by a specialist (like a diabetes doctor or specialist nurse) they are likely to be able to answer many of your questions. If they are unable to help, they should be able to refer you on to a pain clinic or neurologist at one of the UK's Centres of Excellence. You can have a chat with your GP about the specialist services that are available to you locally.

Pain Concern is able to take emails and calls to guide you in the understanding of your condition and can also make suggestions as to where you might find more help: painconcern.org.uk

Further resources

The National Institute of Health and Care Excellence (NICE) guideline on 'Neuropathic pain – pharmacological management in non-specialist settings' – updated in 2013 – gives guidance on drug treatments for neuropathic pain with information for the public: nice.org.uk/guidance/cg173

The National Institute of Health and Care Excellence (NICE) interventional procedure guidance on percutaneous electrical nerve stimulation (PENS) for refractory neuropathic pain, where a tiny needle is used to send small electrical signals through the body to 'distract' the nerve: nice.org.uk/guidance/ipg450

The International Association for the Study of Pain is an international organisation for pain specialists. They named 2014-2015 their 'Global Year Against Neuropathic Pain', producing helpful factsheets on the subject: iasp-pain.org/Advocacy/Content.aspx?ItemNumber=3934

The British Pain Society (BPS) has a section of its website for patients and has links to a number of other sites and organisations: britishpainsociety.org/people-with-pain/

More about treatments for neuropathic pain

Neuropathic pain medications for non-specialist settings[2]

There are two groups of 'neuropathic pain' medications which will be used in a non-specialist setting (such as a GP surgery) as first-line treatments to help with your pain:

a) **Antidepressants** These can be used for their effect on pain, not for their antidepressant effect. They can work for pain at doses much lower than required for depression and can work in patients who are not depressed. Examples in this category are amitriptyline and duloxetine. People with chronic neuropathic pain, particularly with conditions such as trigeminal neuralgia, often become depressed due to the extreme nature of their pain. In these cases talking over the issues with your healthcare professional may lead to psychological therapies being offered, alongside medication and other pain management treatments.

b) **Antiepileptics** Once again, these are used for pain, not for their antiepileptic effect. They can be very helpful in 'calming' neuropathic symptoms. Gabapentin and pregabalin are most commonly used but have now become controlled drugs so cannot be ordered on a repeat prescription. Carbamazepine is only used for people with trigeminal neuralgia in non-specialist settings.[3] See also the European Academy of Neurology guidelines on trigeminal neuralgia 2019.

Both of these groups of drugs can cause weight gain, and also drowsiness, so they are started at a lower dose and increased gradually to the most effective dose. They should also be used with caution in women of child bearing age, as they can be potentially harmful to the developing foetus, especially in the early stages of pregnancy.

At first, people often stop taking the medicine because they experience

[2] Information on non-specialist treatments is based on NICE. 'CG173 Neuropathic pain – pharmacological management: The pharmacological management of neuropathic pain in adults in non-specialist settings'.

[3] There is limited evidence for the efficacy of carbamazepine in the treatment of other forms of neuropathic pain. Wiffen P. J. et al. Carbamazepine for chronic neuropathic pain and fibromyalgia in adults. *Cochrane Database of Systematic Reviews*. 2014, issue 4.

side effects early on and have yet to feel any benefit. However, if you can persevere, side effects will often reduce or disappear.

If your pain is felt in a localised area, you might benefit from the topical use (applied directly to the painful area) of capsaicin cream (capsaicin is the 'hot' ingredient in chilli peppers). When using capsaicin cream, you can apply lidocaine 5% ointment about 10–15 minutes before to numb the area so it doesn't burn.[4]

If your pain is very severe your doctor may prescribe you tramadol for a short time. (Not generally prescribed for people living with trigeminal neuralgia.)

You should not be offered cannabis extract, capsaicin patch, lacosamide, lamotrigine, levetiracetam, morphine, oxcarbazepine, topiramate, long-term tramadol or venlafaxine for your neuropathic pain outside a specialist clinic, unless the specialist pain service has advised your doctor to prescribe them.

Neuropathic pain medications in specialist settings

This section sets out what you might experience when being treated in specialist pain management services. The use of opioids to treat neuropathic pain remains controversial. The evidence of benefits is not as clear as originally thought and there are significant concerns amongst doctors that long-term benefits might be outweighed by adverse effects.[5] It should be noted that opioids will not relieve trigeminal neuralgia's pain.

There are other sorts of neuropathic pain medications that tend to be more for specialist uses but that you may have heard of. These treatments may include lidocaine (a local anaesthetic, similar to the medicine used to numb your teeth before dental procedures), and ketamine (more commonly known as a vet's anaesthetic agent – but which in very low doses can help nerve pain) both of which are administered by intravenous infusion. In some instances, topical agents such as a capsaicin 8% patch (much stronger than the cream) or a concentrated lidocaine patch, cream or spray, may also be offered to manage pain symptoms. However, all of the above treatments are short-term but may help to break the pain cycle.

Most of the opioids are 'prescription only medications' (POM) because they are potent drugs which can be abused or cause harm if used incorrectly; some are available over the counter. Some of the drugs may be familiar:

- codeine
- dihydrocodeine
- compound medications joined with paracetamol (where 'co-codamol' is paracetamol and codeine and 'co-dydramol' is paracetamol and dihydrocodeine)

[4] McCleane G. J. et al. The addition of GTN to capsaicin cream reduces the discomfort associated with application of capsaicin alone. A volunteer study. *Pain*. 1998, volume 78, issue 2; 149-51.

[5] McNicol E. D. et al. Opioids for neuropathic pain. Cochrane Database of Systematic Reviews. 2013, issue 8.

- more tightly restricted and controlled drugs which require special security around their storage and prescriptions (such as morphine, oxycodone, buprenorphine or fentanyl). This last group is only recommended for specialist use in neuropathic pain.

As with any medication, you should have a frank discussion with your specialist about the risks to you and the potential benefits if you are considering starting a medicine in this class. Also be clear about what *you* feel is a good balance between pain relief and side effects.

There has been a lot of discussion in the media recently regarding the use of cannabis based medicinal products (including cannabis oils) in the management of certain health conditions. Unfortunately, there is not enough evidence to support the use of this group of drugs in chronic pain management yet although changes in the law will make further research into their uses easier to undertake in the future.

Non-drug treatments

Sometimes a nerve injection can be used to give temporary pain relief. An example of this would be a nerve root injection where a solution of local anaesthetic and steroid is injected into the back around the level where, for instance, a nerve root may be affected by a prolapsed disc. Injections like this are used as a temporary addition to other treatments in order to achieve faster control of the pain. They are not usually a long-term solution.

Some types of nerve pain can be managed with complex implants to the brain or spinal cord[6] and there are some surgical techniques for trigeminal neuralgia. These types of treatment are not common and are only considered if pain is not being adequately managed with all of the above drug and non-drug therapies. These interventions are only offered in specialist centres as part of a package of care and do not work on all types of pain.

There is also a relatively non-invasive method of helping particularly difficult to treat neuropathic pain called 'PENS' (percutaneous electrical nerve stimulation). This involves stimulating your nervous system using a needle probe placed under your skin and a small electrical generator (box). (Again, like TENS, this should not be used on the face.) It is recommended by NICE and can be carried out by a team specialising in pain management. It has been proven to be more effective than TENS.[7]

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[6] NICE. 'TA159: Spinal cord stimulation for chronic pain of neuropathic or ischaemic origin'.
[7] NICE. 'IPG450: Percutaneous electrical nerve stimulation for refractory neuropathic pain'.

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Shingles Support Society is a UK-based patient support group. If your pain is a result of shingles, you can see the treatment that doctors will use to treat post-herpetic neuralgia and also read self-help suggestions from other sufferers: shinglessupport.org.uk

The Trigeminal Neuralgia Association UK (TNA UK) provides information, support and encouragement to those who live with the condition. Their aim is to raise awareness of TN within the medical community and the general public at large:
tna.org.uk