

## Neuropathic (Nerve) Pain

### *What is neuropathic pain?*

- Neuropathic pain is—pain produced by a nerve irritation, disease or injury.
- Neuropathic pain is sometimes called '*nerve pain*' or '*neuralgia*.'
- Neuropathic pain is sometimes difficult to diagnose and it can be missed.

### *What causes neuropathic pain?*

Neuropathic pain is due to damage or a malfunction in the 'wiring' of the nervous system. When nerves are irritated, they become super-sensitive and 'fire-off' thousands of extra pain signals, just like the shower of 'sparks' coming from a damaged power line that's fallen to the ground during a storm.

These extra nerve impulses or 'sparks' are mistakenly interpreted as 'pain' signals by the brain.

Nerves anywhere in the body can be damaged by injury, surgery, 'compression' (e.g. spinal disc pressing on a nerve going to the leg [sciatica]), viruses (e.g. shingles), diabetes, auto-immune diseases (e.g. rheumatoid arthritis), vitamin deficiencies, medications, alcohol; also damage to the spinal cord (e.g. a diving or car accident) or the brain (e.g. stroke or multiple sclerosis).

### *Common causes of neuropathic pain*

- Shingles (called *post herpetic neuralgia*).
- Diabetes (usually starts in feet & hands, often associated with numbness & tingling).
- Chemotherapy for cancer, alcohol, low vitamin B levels.
- Nerve compression ('a trapped nerve') ('sciatica'; 'carpal tunnel syndrome').
- Nerve injury caused by surgery ('phantom' nerve pain after leg amputation).
- Facial nerve pain (*trigeminal neuralgia*), dental nerve pain (severe toothache).
- Stroke, multiple sclerosis, Parkinson's disease.
- Complex Regional Pain Syndrome (CRPS) (please see our handout on this condition).
- In many cases of neuropathic pain, there is *no obvious cause*.

### *What does neuropathic pain feel like?*

#### **Pain**

- Because neuropathic pain is a problem with the body's *electrical wiring (nerves)*, it often feels 'electrical' in quality.
- People usually describe 'electric shocks', 'lightning-strikes', 'buzzing', 'zapping' and 'tingling', also 'burning', 'stabbing' and 'aching'.

## Patient information

- Neuropathic pain often 'waxes and wanes' or comes in 'bursts', lasting from seconds to hours (remember the shower of 'sparks' from a fallen power line).

### *Other symptoms*

- Apart from *pain*, patients may also experience other symptoms in areas of nerve damage;
- Touch sensitivity (called 'allodynia'), produced by lightly brushing the skin or applying pressure, heat or cold (often triggered by cool breezes, air conditioning, bed sheets or hot showers).
- Allodynia feels similar to taking a hot shower when you are sunburned.
- Numbness.
- Pins and needles.
- Strange sensations ('ants crawling').
- Muscle aches and spasms.
- Changes in skin temperature, colour or sweating.

### *Management of neuropathic pain*

- Neuropathic pain is sometimes difficult to treat and can be long-lasting, especially conditions like shingles.
- A pain 'cure' is not always possible, but simple treatments often work well.
- When managing neuropathic pain, we adopt a *multi-modal, team-based approach*, combining disease management, pain medications, nerve blocks, comfort measures, pain management programmes, physiotherapy and psychology.

First, treat the underlying cause: e.g. diabetes, vitamin deficiency, alcohol intake etc.

### **Neuropathic pain medications**

- These medications work by 'damping-down' nerve firing, reducing the number of pain impulses ('sparks') coming from the irritated nerves (like a fire extinguisher).
- We use *epilepsy medications* such as pregabalin [Lyrica™] or gabapentin because epilepsy, like neuropathic pain, is caused by overactive nerve firing.
- Other medications include *tricyclic antidepressants* (TCAs) (amitriptyline [Endep™], nortriptyline [Allegron™], imipramine) and some of the newer antidepressants (SNRIs) such as duloxetine [Cymbalta™] or venlafaxine [Effexor™].
- Other epilepsy medications such as valproate [Epilim™] or phenytoin [Dilantin™] and some of the newer antidepressants (SSRIs) *are less effective* for neuropathic pain.
- *Carbamazepine* [Tegreto™] is the *most effective* medication for *nerve pain in the face*, such as trigeminal neuralgia.
- *Tramadol* or *tapentadol* are excellent neuropathic pain medications.

## Patient information

- Less commonly prescribed medications that may help are *clonazepam, baclofen or clonidine*.
- Occasionally, patients may need to trial *morphine-based medications (called opioids)* if no other treatments have been helpful. We recommend Norspan™ patch, oral oxycodone/naloxone (Targin™) or in some cases, methadone (needs specialist advice).
- Sometimes a combination of two neuropathic pain medications is needed.
- Because these medications work by ‘damping-down’ nerve firing in the brain, they can sometimes make you feel sleepy or dizzy and affect thinking and memory.
- The way to deal with these side effects is to *slowly build up the dose at night* so the body gets used to it.

## Gels, creams and local anaesthetics

These are applied to areas of sensitive skin to reduce **touch pain & sensitivity** (the ‘sunburn sensation’).

- **MENTHOL cream (4% plain) (don’t need prescription)**
  - *Dencorub Arthritis Ice Therapy Gel (220g)* to areas of sensitive skin up to 4 x daily (cooling effect).
- **CAPSAICIN (capsicum) CREAM (need prescription)**
  - *Capsaicin cream 0.075% (55g), Zostrix HP cream™*. Apply to area of sensitive skin up to 4 x daily. May cause burning sensation when you first use it-this improves quickly; keep away from eyes or sensitive skin. Cease if significant rash or redness develops (a bit of redness or pale skin is normal).
- **EMLA local anesthetic CREAM (30 g tube) (need prescription)**
  - Apply a ‘50 cent piece’ amount of the cream to skin over the painful area (*do not rub it in*) and cover with a plastic dressing (‘glad wrap’ or clear adhesive dressing such as Tegaderm™); let the cream ‘melt’ under the plastic and remove after 8 hours (usually best overnight). Cease if significant rash or redness develops (a bit of redness on pale skin is normal).
- **5% LIDOCAINE (lignocaine) PATCHES (prescription or over-the-counter)**
  - Apply one patch to area of skin sensitivity and pain for 12 hours per day.

## Physical therapies

- Bandaging, stockings or ‘Tubigrip’ to protect sensitive skin from rubbing.
- Tight T-shirt or ‘Tubigrip’ worn over sensitive skin; chest wall or abdomen (e.g. shingles pain).
- Apply heat or cold packs to painful areas.

## Patient information

- **Physiotherapy** may help pain associated with spinal nerve compression (e.g. sciatica).
- **TENS machine** for ½-1 hour, up to 3 x daily as needed, near the painful area.
- **Mirror box and brain re-training therapies:** Physiotherapists use these techniques in CRPS or phantom nerve pain. See link: <http://www.gradedmotorimagery.com/>.

## Behavioural pain management

- Pain education, stress, anxiety and sleep management, relaxation, mindfulness.

## Highly specialised treatments

- Nerve blocks.
- PENS (electrical nerve stimulation).
- Botox injections.
- High strength capsaicin patches.
- Lidocaine (local anaesthetic) intravenous infusions.
- Ketamine intravenous infusions.
- Nerve stimulator implants (expensive and only useful for a small group of selected patients).

**Please discuss these treatment options with your doctor.**