

UNIT NO. 3

PAIN MANAGEMENT IN
NEUROLOGICAL DISORDERS

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ABSTRACT

Painful neurological disorders do not have a single unifying mechanism. Primary headaches such as migraine and tension headache have an ill-defined but non-neuropathic aetiology. Neuropathic conditions such as trigeminal neuralgia, atypical facial pain, post herpetic pain and peripheral neuropathy arise from an abnormal sensory nervous system without actual tissue damage and are generally more difficult to treat than non-neuropathic conditions. Neurological disorders may be intermittently or chronically painful. Headaches may cause either acute or chronic pain. Neuropathic pain tends to be chronic. Successful pharmacological management of pain depends on distinguishing between neuropathic and non-neuropathic pain and determining when chronicity is present. Particular drug classes have proven efficacy in different pain types.

PRIMARY HEADACHE

The two most common varieties of primary headache are tension headache and migraine. Tension headaches may be defined as chronic when they have been present for at least half the time over at least 6 months. Cluster headache and ice-pick pains are distinctive primary headaches which respond to specific medications.

Table 1. A simplified version of the International Headache Society diagnostic criteria for migraine and tension headache

	Migraine	Tension headache
Duration	4-72 hours	Any
2/4 of:		
Severity	Moderate to severe	Mild to moderate
Location	Unilateral	Bilateral/generalized
Relationship to exertion	Worse	No difference or improved
Nature	Throbbing with pulse	Tight, non-throbbing
1/2 of:		
Nausea or vomiting	Present	Absent
Photophobia and phonophobia	Present	Absent

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Cluster headaches are characterized by attacks of extremely severe piercing periorbital pain lasting 30-90 minutes occurring 1 to 10 times per day, often accompanied by lacrimation and nasal congestion. Episodes are frequently nocturnal. Most sufferers are male. Ice pick headaches are usually present in migraine sufferers. They are irregularly recurring, brief stabbing pains occurring singly or in series, exclusively or predominantly felt in the distribution of the first division of the trigeminal nerve.

Traditional drugs for symptomatic headache relief include Paracetamol and its combinations (e.g Paracetamol/Codeine, Paracetamol/Caffeine), NSAIDs of various types as well as Ergotamine/Caffeine. These are appropriate first-line therapies because of their low cost and high efficacy in the majority of headache patients. But in the case of treatment failure or when drug allergies or contraindications are present, the use of other drug classes such as triptans (e.g. Sumatriptan, Zolmitriptan, Naratriptan), opioids (e.g. Tramadol), muscle relaxants (e.g. Eperisone) as well as different drug delivery systems (e.g. Diclofenac topical gel, Ketoprofen patch) is indicated. Triptans work well as specific treatments for migraine and cluster headache. The parenteral (S/C) form is preferred with severe nausea and vomiting, or with cluster headaches.

Prophylactic treatment should be considered when headaches occur at least once a week for at least a month, and when the intensity of pain is great enough to adversely affect the patient's quality of life. In the case of patients with brief but frequent pains prophylactic treatment is the only pharmacological intervention possible. Issues to discuss with the patient include potential side effects and the expected benefits (approximately 70% chance of improvement). Prophylactic drugs should be effective with once-a-day dosing because of quality of life and compliance issues. Antidepressants such as Amitriptyline, Moclobemide and Venlafaxine are useful for any chronic headache type, and in fact, for chronic pain of any aetiology. Flunarizine, Valproate and Atenolol are useful migraine preventers. Flunarizine is particularly helpful for migraine with co-existent vestibular dysfunction. Verapamil, Valproate and oral steroids are useful in cluster headache prevention. Indomethacin works well in ice-pick pain and has specific efficacy in other rare primary unilateral headaches such as chronic paroxysmal hemicrania and hemicrania continua. Cafergot should be used with caution because of its tendency to cause both drug-induced headaches with frequent use as well as rebound headaches with treatment cessation.

PAINFUL NEUROPATHIC CONDITIONS

Some commonly encountered clinical conditions where pain has a neuropathic origin include trigeminal neuralgia, atypical facial pain, post herpetic pain and peripheral neuropathy. The commonest cause of painful peripheral neuropathy is diabetes. The major drug classes with proven efficacy in neuropathic pain are antidepressants, antiepileptic drugs and antiarrhythmic drugs. In practice, it is possible to combine two or more drug classes in an attempt to maximise clinical benefit.

The tricyclic antidepressants (TCAs) are a mainstay of treatment in neuropathic pain. Tertiary TCAs such as Amitriptyline and Imipramine inhibit both serotonin and noradrenaline reuptake and are slightly more effective, but less well tolerated, than secondary TCAs like Nortriptyline and Desipramine, which only inhibit noradrenaline reuptake. The analgesic effect of TCAs has been shown to be independent of their antidepressant qualities. TCAs are useful in painful diabetic neuropathy, central post-stroke pain and post-herpetic neuralgia. They should be used with caution in the elderly, patients with heart disease, narrow angle glaucoma or prostatism. Treatment should begin at the lowest possible dose (because of sedation), which is increased weekly in small increments until the desired effect is achieved or side effects become unmanageable. Their full effect is usually not seen before 1-2 weeks. Selective serotonin receptor inhibitors (SSRIs) such as Citalopram and Paroxetine are not as effective as the TCAs for the treatment of neuropathic pain but are better tolerated. Their side effects include asthenia, sweating, GI disturbances, somnolence, dizziness, and ejaculatory disturbances. Venlafaxine is a 5HT, NE, and DA reuptake inhibitor structurally unrelated to other antidepressants and has documented efficacy in painful diabetic neuropathy. When treating chronic pain of any kind with antidepressants, ensure that patient's expectations are appropriate, especially with respect to the slow onset of effect, the need for long term use, the possible development of side-effects as well as tolerance to those effects over time.

Anticonvulsants are particularly helpful for neuropathic pain with a lancinating quality. The drug of choice for trigeminal neuralgia is Carbamazepine. Gabapentin is better

tolerated than Carbamazepine and has proven efficacy in diabetic neuropathy and post-herpetic neuralgia. Small trials have suggested that Valproate, Topiramate and Clonazepam may be tried for trigeminal neuralgia if first-line drugs fail or are poorly tolerated. Dose-limiting side effects of this class of drugs include sedation, dizziness and ataxia.

Antiarrhythmic drugs such as I/V Lignocaine and Mexilitine have value in peripheral neuropathic pain syndromes, such as DM neuropathy, postherpetic neuralgia, and sciatica as well as in central neuropathic pain.

The role of conventional opioids in neuropathic pain is controversial, and usage should be reserved for the pain specialist. Tramadol is a synthetic opioid which has some central neurotransmitter reuptake inhibitor properties. It can give significant pain relief in diabetic neuropathy. Side effects include constipation, nausea and sedation.

Topical Capsaicin depletes substance P from the terminals of unmyelinated C fibres, initially causing a burning sensation followed by anaesthesia. Efficacy has been documented in diabetic neuropathy and postherpetic neuralgia. Side effects include burning and erythema at the application site. Lignocaine 5% gel and patch has been reported to provide significant short-term partial pain relief for postherpetic neuralgia as well as in painful neuropathy.

RECOMMENDED READING

MOH Guidelines on Headache Management (/2001)

LEARNING POINTS

- o Distinguish between neuropathic and non-neuropathic pain: each will respond to different drug classes
- o Determine if pain of neurological origin is acute or chronic: chronic pain should be treated with daily prophylactic medication
- o Precise identification of primary headache types can be critical for effective symptomatic management
- o Dose titration of antidepressants and antiarrhythmics should be carried out gradually, until either therapeutic benefits or unacceptable side effects occur.

What it should have been

We apologise for the printing error in the July-Sep 2003 issue of The Singapore Family Physician.
 "Update on Treatment of Childhood Myopia Progression" - Ms Angela Cheng's affiliation should be "Singapore Eye Research Institute".