The MPNP first published recommendations on the management of neuropathic pain due to spinal cord pathologies in 2006.1 This article provides a summary of the new data included in the 2011 update of these recommendations; however, as much of the evidence is from studies in spinal cord injury (SCI) patients, the focus of this update is on the management of neuropathic pain due to SCI.

Pain following SCI is highly prevalent and its adverse impact on a patient is substantial. Neuropathic pain affects 40% of SCI patients, 40% of whom suffer from intense neuropathic pain.2 This imposes on the patient not only poor quality of life but also psychological issues.3

In recognition of these and the multidimensional aspects of pain, the 2011 update of the recommendations introduce simplified pain assessment methods and wide-ranging effective therapeutic options to meet the unique needs of each individual patient.

Updated recommendations are designed with physicians and patients in mind

The 2011 recommendations have been revised to provide easy reference to important updates of post-SCI neuropathic pain management. Importantly, besides clinical and epidemiological knowledge about pain, the recommendations emphasize practical applications.

In the Assessment section, the role of clinically validated screening tools, such as the Douleur Neuropathique 4 (DN4) questionnaire, the Visual Analog Scale (VAS) and the Neuropathic Pain Symptom Inventory (NPSI) questionnaire, are reviewed.4,5 The DN4 questionnaire is diagnostic, while the VAS questionnaire aids the evaluation of neuropathic pain.6

The Management section highlights key treatment recommendations the busy practitioner needs to know, with a review of the supporting literature in the Appendix section.
In addition, the recommendations include a simplified treatment algorithm guiding selection of therapies (Figure 1). This treatment algorithm is not meant to be a substitute for clinical judgement; rather, it is an ongoing effort to apply evidence-based medicine into everyday practice and is meant to be adapted to the needs of the patient.

**Anticonvulsants remain the mainstay therapy for post-SCI neuropathic pain**

Anticonvulsants – pregabalin and gabapentin – have been found in systematic literature reviews to be appropriate first-line treatments for post-SCI neuropathic pain, supported by level 1 evidence. Intravenous analgesics – lidocaine, ketamine, alfentanyl, morphine – have level 1 evidence to support their effectiveness; however, they are limited to short-term use. Similarly, although there is level 1 evidence for tricyclic antidepressants, they are most likely to benefit patients with neuropathic pain and depressed mood. Subsequent line of therapies may include duloxetine, tramadol and opioids.

Poor responders to oral, transdermal or intravenous analgesics may be considered for invasive procedures (such as dorsal root entry zone lesioning [DREZotomy]), although less invasive procedures such as spinal cord stimulation should first be attempted.

**Intervention modalities beyond pharmacological treatment may be considered**

The recommendations include a new subsection on non-pharmacological therapies which discuss recent evidence demonstrating potential benefits of osseous manipulative treatment (OMT), cognitive behavioural therapy (CBT) and acupuncture in patients for whom drug treatments proved ineffective.

OMT was found to improve patients’ pain perception, while CBT significantly improved patient assertiveness, coping, self-efficacy, depression and quality of life. Electroacupuncture therapy was shown to be effective in patients with central neuropathic pain, and is likely to benefit patients with constant, bilateral or symmetric pain.

**Conclusion**

Anticonvulsants remain the mainstay of evidence-based pharmacological treatment. In patients for whom drug treatments proved ineffective, invasive procedures may be considered. Recent literature has also highlighted the potential role of psychological intervention and acupuncture in select patients with post-SCI neuropathic pain.

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**References**


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**INTERVIEW**

**Multidisciplinary treatment for neuropathic pain: Role of neurologists and neurosurgeons**

Various specialties and allied health professions are involved in the management of neuropathic pain. The multidisciplinary membership of the MPNP reflects this. A series of interviews with MPNP members according to their specialties will be featured in Challenges in Neuropathic Pain.

**Patient populations**

In the public health system, Dr Tsoi’s and Professor Mok’s patients are referred by both general practitioners and other specialists. However, Dr Lam’s patients in private practice are mostly self-referred. Patients may be referred for further investigation and diagnosis or if they have difficult-to-treat neuropathic pain that may be refractory to first-line treatment.

The most common neuropathic pain conditions encountered by neurologists are trigeminal neuralgia, postherpetic neuralgia, pain associated with neuropathy due to a variety of causes (such as diabetes) and pain associated with spinal cord pathologies (eg, multiple sclerosis). Dr Lam most frequently treats patients with trigeminal neuralgia, and lumbar and cervical radiculopathy.
**The specialist’s role**

Dr Tsoi explained that, as a neurologist, he aims to determine the complete diagnosis in all patients. In cases where causes are not reversible, or for idiopathic conditions, the main aim is to control neuropathic pain. The first step is to identify and avoid any aggravating factors that trigger the pain. The next step is to review and adjust pharmacological treatment(s) for pain control. Medications commonly prescribed include anticonvulsants, such as pregabalin, gabapentin, carbamazepine and topiramate, as well as tricyclic antidepressants (TCAs), such as amitriptyline. Non-steroidal anti-inflammatory drugs are also used. If neuropathic pain is refractory to these treatments, the patient will be referred either to a multidisciplinary pain clinic or to other specialists for specific procedures which may be helpful (e.g., microvascular decompression, Gasserian ganglion percutaneous techniques or gamma knife for trigeminal neuralgia). Professor Mok added that neurologists were familiar with the role of antiepileptic drugs in the management of neuropathic pain.

Dr Lam stated that neurosurgeons were often the first to diagnose patients with neuropathic pain. They provide various medical, interventional and surgical treatments for the management of neuropathic pain conditions. Neurosurgeons most frequently prescribe pregabalin, TCAs and tramacodol, while spinal nerve root decompression and radiofrequency neurolysis of the trigeminal nerve and spinal nerve roots are the most frequent procedures.

**Recent advances in neuropathic pain management**

All interviewees cited new drugs in the pharmacological armamentarium for neuropathic pain as one of the major advances in the past decade. These novel therapies have greater potency than older therapeutic options, with the added advantage of a lower incidence of side effects.

From Dr Tsoi’s perspective a key advance has been an updated International Classification of Headache Disorders, which he considered to be “very useful and authoritative in the clinical management of headaches”. For neurosurgeons, Dr Lam indicated the success rate of treating neuropathic pain with minimally invasive procedures has increased with advances in equipment that combine a neurostimulator with radiofrequency neurolysis.

Lastly, new and updated recommendations as well as guidelines on management of neuropathic pain (in general and by neuropathic pain condition) have been published recently by eminent bodies including the International Association for the Study of Pain, the American Academy of Neurology and the European Federation of Neurological Sciences. The MPNP has also developed recommendations for the management of various neuropathic pain conditions, which are available at www.neuropainhk.org.

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**CASE PRESENTATION**

**Neuropathic pain – is there a lesion?**

**Background**

Neuropathic pain is defined by the International Association for the Study of Pain as pain caused by a “lesion” or “disease” of the somatosensory nervous system. Sometimes it is quite difficult clinically to differentiate between a “lesion”, whereby surgical intervention is possible, and a “disease”, which is amenable only to pharmacological therapy. This is illustrated in the following case.

**Medical history, presentation and clinical investigation**

A 50-year-old lady, previously enjoying good health, had been suffering from a severe sore throat for 1 year. The pain was burning in character, initiating in the left oropharynx and radiating to the left neck. She had consulted numerous doctors, including surgeons, dentists and otolaryngologists. Many investigations were done, including X rays, CT scan and fiberoptic endoscopy, but they could not identify any “lesion” in the throat, oropharynx or neck that could account for the pain. A diagnosis of “glossopharyngeal neuralgia” was made. The patient commenced pharmacological therapy, comprising a combination of anticonvulsant, antidepressant and anxiolytic. The pain was barely controlled, with the significant side effect of dizziness from the medications.

**Further investigation and surgical intervention**

To determine the possibility of a “lesion” over the left glossopharyngeal nerve, an MRI scan of the brain stem and left cerebropontine angle was performed. The scan revealed encroachment of the left glossopharyngeal nerve by a vascular loop arising from the posterior inferior cerebellar artery. The patient underwent microvascular decompression (Figures 1 and 2), which significantly relieved the pain. She was therefore able to tail off the medications. The pain has not recurred in the 9 months since surgery.

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*Figure 1. Intraoperative photo showing the close proximity of the vascular loop (red arrow) with the left glossopharyngeal nerve (yellow arrow)*

*Figure 2. Postoperative MRI showing the vascular loop (red arrow) being separated from the left glossopharyngeal nerve (yellow arrow) by the surgical material (broken arrow)*
The role of the sympathetic nervous system (SNS) in maintaining and contributing to some neuropathic pain states is well established. Minimally invasive sympathetic nerve blocks are the standard nerve block for neuropathic pain and are also used in treating vascular and visceral pain; however, evidence of their efficacy is limited to case reports and small studies.1,3

A small study (n = 100) by Hooshmand and colleagues found that sympathetic nerve blocks only provided short-term pain relief in the first few months post-injury, averaging at 11 days. The author concluded that the clinical utility of sympathetic nerve blocks is more diagnostic than therapeutic.2

Neuropathic pain is often multifactorial, with the SNS as one of several causes. As such, the patient is not likely to achieve full pain relief by sympathetic blocks alone. Adjuvant pharmacotherapy is often needed, as well as physiotherapy, neuromodulation or psychological interventions, to improve pain relief outcomes. In addition, a different target site of nerve block may be considered. Eker and colleagues found that, among patients with neuropathic pain due to peripheral nerve damage (n = 88), peripheral nerve block with 0.5% lidocaine plus 80 mg depo-methylprednisolone significantly improved pain assessment scores compared with lidocaine alone at 3-months post-block.4

Among patients with neuropathic pain in the upper extremities and thorax, a thoracic sympathetic block (TSB) has been found to be a useful therapeutic procedure. Yoo and colleagues determined that TSB is particularly beneficial when performed early, in patients with chronic pain in the upper extremities.5

Vlassakov and colleagues conducted a systematic literature review to assess the effectiveness of nerve blocks in neuralgias and radicular pain syndromes. As the studies reviewed were either case reports or case series, they found inconclusive evidence for the use of nerve blocks in these painful syndromes.3

Despite their weak evidence base, nerve blocks are still commonly used to provide relief to patients for whom conservative measures prove ineffective or insufficient. In each case, benefits need to be balanced against risks to justify their use.

References

Part 1: Nerve blocks

Carbamazepine, Stevens-Johnson syndrome and genetic screening

Carbamazepine is an anticonvulsant that is also used to treat neuropathic pain conditions. For instance, it is recommended as a first-line agent in the management of trigeminal neuralgia.1 While carbamazepine is effective, caution must be exercised as it is associated with the severe cutaneous hypersensitivity reactions Stevens-Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN).

The clinical presentation of SJS and TEN includes painful mucosal erosions and wide areas of bullous eruptions, which result from epidermal necrosis.2 The degree of detachment of body surface area is 10% in SJS and more than 30% in TEN.3 An early diagnosis is essential as the mortality rate for SJS and TEN can be as high as 30%.3

Genetic screening for the HLA-B*1502 allele can help identify those at risk of developing SJS and TEN. The prevalence of the HLA-B*1502 allele is higher in Asian populations (up to 15%) than in Caucasians (1–2%).2,3 In a Han Chinese population from central and northern China, a strong association was detected between HLA-B*1502 and carbamazepine-induced SJS–TEN, with the HLA-B*1502 allele present in 94.1% of 17 SJS–TEN patients.4

A prospective study in Taiwan recruited 4,877 carbamazepine-naïve subjects who underwent genetic testing for the HLA-B*1502 allele.5 Only those testing positive (7.7%) for HLA-B*1502 were advised to avoid carbamazepine. The others proceeded with carbamazepine treatment. None of the HLA-B*1502-negative patients developed SJS–TEN in the 2 months after commencing therapy.

The Food and Drug Administration in the United States recommends genotyping for all Asians in whom carbamazepine treatment is indicated.5 Patients should undergo genetic screening prior to commencing carbamazepine to decrease the risk of potentially life-threatening cutaneous reactions.

References

REVIEW

INTERVENTIONAL THERAPIES FOR NEUROPATHIC PAIN