

Chronic Pain Management: Therapy, Drugs and Needles

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In 1931, the French medical missionary Dr Albert Schweitzer wrote, "Pain is a more terrible lord of mankind than even death itself". Seventy years on, chronic pain sufferers cannot agree more with this statement, while clamouring for help from family physicians and specialists, and even 'therapists' who promise to offer pain relief using unconventional methods or bizarre potions. Some persons would even contemplate suicide in order to avoid suffering pain for the rest of their lives.

Chronic pain is a complex condition in both pathological and neurobiological terms. The causes are diverse, and may even be unknown in some instances. Why does a patient with fibromyalgia exhibit so much pain? Why does one who had an anatomically successful discectomy continue to have intractable radicular (i.e. sensory nerve root) symptoms? Why does a depressed patient show more pain than another patient with the same condition? In medical school we learnt that pain is a symptom and, instinctively, we search relentlessly for an underlying problem so that we can solve it.

Often, a prolonged and expensive search for a cause and a cure stands in the way of managing chronic pain. Chronic pain has long been viewed by many doctors as less important clinically than other chronic diseases like hypertension, diabetes mellitus, heart disease, and stroke, because "nobody dies from chronic pain". However, some studies have shown central neuroplastic changes in patients with chronic pain, much like the changes that occur with learning and memory.¹ Health authorities and healthcare workers should therefore view chronic pain as a disease rather than a symptom. Moreover, there is evidence that supraspinal mechanisms may be involved in neuropathic pain conditions such as complex regional pain syndrome (CRPS).²

Data from studies in the USA showed that chronic pain affects about 50 million Americans every year. Other studies have also shown that chronic pain affects about 19% of the general population in Europe, 29% in Canada and 17% to 20% in Australia.³⁻⁵ Closer to home, a survey found a 10.8% prevalence of chronic pain in Hong Kong.⁶ In this issue, Yeo and Tay⁷ provide local data on the prevalence of chronic pain in Singapore.

Chronic pain management requires a multimodal approach to address the biological and psychosocial factors that can contribute to or perpetuate chronic pain. Some of these approaches include pharmacological treatment, physical therapy, cognitive behavioural therapy (CBT), and interventional pain therapy. Drug treatment remains the mainstay for the management of many chronic pain conditions.

Clinical studies have confirmed the analgesic efficacy of non-steroidal anti-inflammatory drugs (NSAIDs) in painful conditions, e.g. pain involving an inflammatory component or bone pain in patients with advanced cancer. NSAIDs are generally safe when used for limited periods, but they may produce serious adverse effects such as gastrointestinal erosion, ulceration and bleeding with extended use. Whereas treatment with selective cyclooxygenase type-2 (COX-2) inhibitors has been associated with a slightly lower risk of gastrointestinal adverse effects, concerns regarding their cardiovascular risks, including myocardial infarction and stroke, have limited their long-term usefulness.⁸ In addition, nephrotoxicity is, independently, a potential risk with the use of NSAIDs and COX-2 inhibitors.

Opioid analgesics are commonly used and widely accepted in the treatment of severe pain related to cancer. However, the long-term use of opioids for chronic non-malignant pain remains controversial. Nevertheless, attention has turned back to the opioids in the management of chronic non-malignant pain, because opioids are very effective.⁹ Some examples of the latter conditions are osteoarthritis, low back pain, and even neuropathic pain syndromes such as postherpetic neuralgia and diabetic peripheral neuropathic pain. The potential benefits of prescribing opioids must naturally be weighed against the risks of harm.

Opioid-related adverse effects such as constipation, nausea, vomiting, and somnolence are poorly tolerated by some patients. Significant morbidity and mortality due to respiratory depression or respiratory arrest from opioid overdose can also occur.¹⁰ In addition, concerns over the non-medical use of opioids leading to misuse, abuse and drug diversion are valid, and often deter physicians from prescribing opioids even when opioids are medically indicated. The American Pain Society and the American

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Academy of Pain Medicine have recently published guidelines on the safe and appropriate use of opioids in chronic non-malignant pain.¹¹ Such guidelines help protect physicians and patients by providing recommendations on proper patient evaluation, strategies for appropriate opioid prescription, and on the management of opioid-related adverse effects.

The role of adjuvants in treating neuropathic pain is well established.¹² In this issue, Chan and Ng¹³ review the use of antidepressants in the management of nociceptive, neuropathic as well as mixed pain conditions. Other commonly used adjuvants include N-methyl-D-aspartate receptor antagonists (ketamine), anticonvulsants (e.g. carbamazepine), calcium channel alpha-2-delta ligands (e.g. gabapentin, pregabalin) and topical capsaicin and lidocaine (lignocaine).

CBT is an integral part of chronic pain management, complementing pharmacological as well as physical therapy. In this issue, Tan et al¹⁴ report the results of a successful CBT programme for a small group of patients in a tertiary institution in Singapore.

For a long time, anaesthesiologists have used regional analgesic techniques, e.g. epidural infusions and peripheral nerve blocks, to provide pain relief for patients during and after surgery. The widespread use of labour epidural analgesia has also helped to improve the childbirth experience of many women. Naturally, the role of anaesthesiologists has expanded to include various injection therapies e.g. epidural steroid injections, sympathetic nerve blocks, and intrathecal opioid infusions for chronic non-cancer and cancer pain. With the extensive use of imaging to better visualise anatomical targets, the use of interventional pain management techniques has grown exponentially in the last decade. It is now standard practice to perform interventional pain procedures with fluoroscopic guidance.¹⁵ Continuous fluoroscopy and contrast confirmation also improve the safety of such procedures, as it avoids risk of intravascular injection of local anaesthetic and corticosteroids, which can potentially cause fatalities.^{16,17}

Interventional pain management is indicated in patients with intractable pain despite optimised pharmacotherapy, or patients with intolerable drug side effects. Interventional pain treatments play a crucial role in both non-malignant and cancer pain management.^{18,19} In particular, implantable devices using intrathecal drug delivery systems effectively deliver small doses of local anaesthetic and opioids directly to the site of pain in cancer patients with extensive metastatic disease.²⁰

Another advanced implantable pain therapy for chronic persistent pain is spinal cord stimulation.²¹ Epidural leads implanted over the dorsal column in the spinal cord produce electrical impulses generated from a subcutaneous battery to block nociceptive signals before they reach the brain.

A tingling sensation masks the pain in the affected region of the body.

As awareness of chronic pain continues to grow, the subspecialty of Pain Medicine will move forward, incorporating expertise from disciplines such as anaesthesiology, rheumatology, oncology, palliative medicine, psychiatry and rehabilitation medicine. Our understanding will continue to grow as research scientists strive to discover new pain pathways, neurotransmitters and receptors. Together with the advances in biomedical engineering, pain physicians will likely be equipped with new drug targets and techniques to fight against this terrible 'lord of mankind', thereby reducing or even removing the suffering of patients with chronic pain.

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