

A Hospital-Based Multidisciplinary Approach to Chronic Pain Management

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ABSTRACT

The Alan Edwards Pain Management Unit at the Montreal General Hospital is a bilingual hospital-based multidisciplinary chronic pain treatment facility. Its members are practitioners in the disciplines of anaesthesia, oncology, rheumatology, physiatry, physiotherapy, psychiatry, palliative medicine, and others. The patients who present typically have chronic, often unrelenting, pain for years which progresses to a complex condition that drastically changes their physical, social, and mental functioning. The team works together to synthesize both medical and relevant psychological issues to develop individual treatment programs using multiple treatment modalities including pharmacological management, physiotherapy, psychological techniques, clinic-based procedures, and operating room-based interventions. The unit is also dedicated to academic endeavors including the conducting of pain research, the hosting of instructional rounds, and the teaching of fellows, residents, and medical students. As a student welcomed there on a 2-week elective, I had the opportunity to participate in the initial pain assessments and assist in multiple treatment modalities, both in the clinic and in the operating room. Given that chronic pain is among the most common presenting complaints seen by physicians, I am confident that this experience will undoubtedly influence the future practice of any student who takes advantage of this unique opportunity.

KEYWORDS: *chronic pain, analgesia, multidisciplinary treatment*

The Alan Edwards Pain Management Unit (AEPMU) is located in a quiet wing on the 19th floor of the Montreal General Hospital with views of Montreal's skyline and the Saint Lawrence River. Through a recently completed 2-week elective, I had the opportunity to gain insight into the workings of this bilingual hospital-based multidisciplinary chronic pain treatment facility. The unit serves Montreal and surrounding areas, as well as other rural communities in Quebec.¹ Certainly, it was encouraging to see the amount of professional knowledge and expertise working together, as the unit consisted of individuals trained in the disciplines of anaesthesia, oncology, rheumatology, physiatry, physiotherapy, psychiatry, palliative medicine, and others. The overarching purpose of the unit is to treat patients with chronic pain, but, as I soon discovered, the members are also active participants in pain research and other academic endeavours. Additionally, the unit and its members provide countless opportunities to teach and train medical and dental students, residents, and fellows—I was fortunate enough to be one of those students.

The patients who present to the AEPMU typically have had chronic, often unrelenting, pain for years. They have been seen by multiple physicians and have undergone numerous diagnostic tests and tried countless forms of treatment, all to no avail. As I learned, this pain typically begins as a straightforward physical

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problem which progresses to a complex condition that affects their global level of functioning. The pain is often so debilitating that patients are unable to maintain employment, potentially leading to financial stresses. The pain is such that patients may also limit, or completely cease, participation in activities such as sports, leisure, and socializing. The changes patients are required to make as a result of their chronic pain are profoundly connected to their mental health. As I learned, for patients, chronic pain often results in stress and anxiety, as they are no longer able to participate in society and within their families in ways they are accustomed to. Many patients feel they are a burden to their families, and a surprising number of patients suffered from depression, some of whom are at risk of self-harm or suicide. It was eye-opening, and often challenging, to learn of and speak to people who were once high-functioning, respected professionals and seasoned athletes who have succumbed to chronic pain, drastically changing their physical and mental functioning.

In brief, the pathophysiology of pain involves the sensing of

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peripheral pain stimuli by specialized nociceptors which transmit to the dorsal horn of the spinal column and on to the central nervous system (CNS) via numerous ascending pathways, where it is processed and interpreted in the somatosensory cerebral cortex.² There can be either direct monosynaptic contact or interneuron intermediates involved in the transfer from nociceptors to neurons in the dorsal horn of the spinal cord, and this interaction can be inhibitory or excitatory.³ Control of sensory processing is done in local spinal cord segmental circuits and by descending signals from the brain, which can be inhibitory or facilitatory.³ These descending fibers may interact with opioid, noradrenergic and serotonergic systems to decrease stimulation by noxious inputs.


There are several mechanisms that are thought to facilitate pain becoming chronic. Peripheral sensitization occurs when tissue inflammation changes the chemical environment of the nociceptors, causing them to either become directly activated and produce pain, or make their terminals hypersensitive to future stimuli.³ It is thought that damaged cells release their contents and make substances (such as cytokines, bradykinin, histamine, prostaglandins, and growth factors) which, along with inflammatory cells, contribute to this change in environment.⁴ Central sensitization occurs when there is an amplification of the synaptic transfer from the nociceptors to the dorsal horn neurons resulting in stimuli below the threshold of nociceptor excitability producing pain.³ There is also a phenomenon called ectopic excitability, in which there is a stimulation-independent pacemaker-type activation of injured and neighboring uninjured sensory neurons.⁴ Phenotype switch can occur when there is peripheral nerve injury resulting in the physical rearrangement of the central terminals of sensory neurons.⁴ Another mechanism of chronic pain is disinhibition, in which the inhibition of pain is reduced, causing a subjective increase in pain. This is thought to be related to the loss of GABAergic inhibitory currents.⁵ The exact etiology of chronic pain in a given patient, and how he or she will respond to therapy, is difficult to establish but likely involves many of these, and other, mechanisms.

I was able to participate in the patients' initial evaluations, which are conducted by a team that includes a physician and a psychologist. The team works together to synthesize both medical and relevant psychological issues, attempting to gain context into the patients' subjective pain experience. Each program is individualized to patients' needs, and, in this way, the length of stay within the program varies for each patient depending on the form of pain one is experiencing, the outcome it has on functioning, and response to treatment. It is apparent that collaboration is a mainstay at the unit as it is very common to see one clinician walking down the hallway and informally seeking medical advice from a colleague in a differing field of expertise, in order to best support a patient. Indeed, what struck me as being quite unique was that most patients had synchronized appointments with various pain specialists who then took the time to update one another on progress made.

During the course of my elective I took part in observing and participating in initial pain assessments which consisted of interviews, physical examinations, a review of investigations, formation of differential diagnoses, and the development of multidisciplinary treatment plans. In addition, I observed and

assisted with multiple clinic-based treatment modalities, including pharmacological management, physiotherapy, psychological techniques and clinic-based interventional procedures (e.g., intravenous lidocaine infusions, peripheral nerve blocks, transcutaneous electrical nerve stimulation, local anesthetic/steroid injections). It was also here where I learned a great deal about various common pain syndromes and how they can be recognized.

In the operating room I was exposed to numerous more invasive modalities including fluoroscopically guided diagnostic/therapeutic facet joint blocks for patients in whom conservative measures had failed. The facet, or lumbar-zygapophysial, joints are often a source of discomfort in chronic lower back pain. They are true synovial joints that are formed between the posterolateral articulations connecting the vertebral arch of one vertebra to the arch of an adjacent vertebra.⁶ The joint, its capsule, and surrounding structures stimulate nociceptors when stretched or compressed.⁷ The procedure involves putting the patient in prone position and, under fluoroscopic guidance, identifying the facet joint of interest. The joint is entered using a 22- or 25-gauge spinal needle and injected with 1 mL of local anesthetic with or without corticosteroid.⁷ Facet blocks were one of several interesting modalities I learned about.

I thoroughly enjoyed my elective and am thankful to everyone at the AEPMU for providing me with an interesting learning opportunity. Chronic pain is among the most common presenting complaints seen by physicians, with some studies finding that it is responsible for between 20% and 50% of all primary care visits.^{8,9,10} It will undoubtedly influence all of our future practices, regardless of specialty. The educators at the AEPMU, along with the patients I worked with, showed me how chronic pain itself, is a disease that can manifest in distressing consequences. Moreover, I learned it is often more realistic to target functional improvements, rather than absolute resolution of pain. For some patients, it is not possible to entirely eradicate pain, and, in these cases, the best we can do is reduce pain while encouraging patients to lead the most fulfilling lives possible which, unfortunately, might include pain. 

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