

# Psychiatric and Psychological Management Considerations Associated with Nerve Damage and Neuropathic Trigeminal Pain

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*This article reviews current models of neuropathic pain and relates recent research in the neurobiology of pain to improved understanding of psychiatric and psychological aspects and treatment of chronic aspects of pain. Some of the anomalies associated with beliefs about chronic pain are also outlined. In particular, the notion that pain is either verifiable or due to psychiatric disturbance is laid to rest; the onus is on the clinician to understand and treat the patient with sensitivity, rather than on the patient to provide proof of pain. J OROFAC PAIN 2004;18:360-365*

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**T**his article will focus on recent developments that have influenced our understanding and management of chronic pain from a psychological and psychiatric perspective. In certain instances, the research data applies specifically to pain known to arise from damage to nerves. However, most of the literature in this area refers to chronic pain as it is generally defined: pain that has persisted on a more or less daily basis for at least 3 months and/or beyond the expected healing time. Therefore, the term *chronic pain* is generally used in this paper. To date, there have not been any high-quality randomized trials comparing the psychological effects of neuropathic pain as opposed to the impact of other chronic pain conditions such as musculoskeletal pain on psychological or psychiatric functioning.<sup>1</sup> However, where standardized assessments have been used with patients suffering from neuropathic pain, such patients generally display similar levels of psychological distress and psychiatric illness. According to a recent review of the clinical needs of neuropathic pain patients, the most common presenting psychiatric comorbidities are depression, anxiety disorders (including fear avoidance as detailed below) and sleep disorders.<sup>2</sup> The prevalence of depression in chronic pain is known to be extremely high, with an estimated 30% to 54% of clinic-based chronic pain patients also suffering from a major depressive disorder.<sup>3</sup>

This article also will outline some of the anomalies associated with health beliefs about chronic pain and discuss how current research in the neurobiology of pain, which stems mainly from animal models, can assist us in the psychiatric and psychological management of chronic pain patients.

## Background

Consistent with cognitive theories of information processing, the behavioral medicine literature has highlighted the importance of lay health-belief models and their influence on behavior.<sup>4</sup> Individuals are said to possess specific “cognitive sets” about a given health domain. These cognitive sets, which may be implicit or explicit in awareness, ultimately determine behavior in terms of the actions that the individual takes in relation to his or her health.<sup>5</sup> These cognitive sets are not static, but in fact represent fluid, evolving conceptualizations of the factors considered to be relevant or irrelevant to the illness domain by the individual. Over the past 20 years or so, there have been enormous shifts in lay health beliefs in areas such as diet, the importance of exercise, smoking, and the effects of sun exposure. In other illness domains, such as heart disease, lay health-belief models have even progressed in recent times to incorporate a self-management perspective. There is now a general acceptance that for most individuals who suffer a myocardial infarction, some degree of lifestyle change will be a necessary and important part of their treatment.<sup>6</sup>

And yet when we consider lay beliefs about chronic pain and its treatment, there has been little change if any over the past 400 years or so. Most chronic pain sufferers continue to subscribe to a strict biomedical view of pain, which correlates the experience of pain with the degree of tissue damage that is observable.<sup>7</sup> Failure to identify the cause of pain or to effect a cure is then interpreted as a sign that either the examination or test used was faulty (in this case, the test is often repeated many times), or that the clinician was less than capable (so a different one is sought, often many times). As the patient becomes increasingly frustrated and despondent with the inability of the medical system to cure him or her, there may also be a change in the attitudes of the treating professionals toward the patient. The persistence of pain over time despite the application of multiple tests and multiple treatment approaches is interpreted as a sign of an underlying psychopathology, which only causes

the patient further distress. As noted by Kleinman,<sup>8</sup> “If there is a single experience shared by virtually all chronic pain patients it is that at some point those around them—chiefly practitioners, but also at times family members—come to question the authenticity of the patient’s experience of pain” (p 57). This also applies to chronic orofacial pain. For example, Marbach et al<sup>9</sup> demonstrated some 14 years ago that facial pain patients often feel stigmatized by the pejorative use of labels such as *psychogenic pain*, and that this in turn leads to “strained interactions” in their subsequent dealings with health-care providers.

It is interesting to reflect for a moment on why lay beliefs about heart disease have changed so dramatically in recent times, and yet the public perception of chronic pain remains predominantly stuck in an organic versus functional dualism. It is arguably the result of those working in the field not doing enough to dispel these outdated ideas. Although there are undoubtedly individuals who dissimulate in relation to chronic pain, either consciously (malingering) or unintentionally (factitious disorder), they are the minority. For the vast majority of chronic pain sufferers, terms such as *psychogenic pain* and *somatization disorder* produce only frustration and distress and offer little in terms of treatment, evidence-based or otherwise. Yet these notions persist in lay understandings because of a lack of alternative conceptualizations of pain being presented and discussed.

## Pain Models

As stated in the preceding sections, the patient’s understanding of his or her illness is highly influential in determining the behaviors associated with the illness.<sup>5</sup> For example, it has been demonstrated that chronic pain patients who believe that there is a medical cure for their pain and who believe that they have little control over the pain do less well in treatment than those who endorse more active coping models.<sup>10</sup> The issue of patient beliefs is therefore a critical one.

Whereas clinicians in the past have had little data with which to create a useful explanatory model for patients for their persistent but nonmalignant pain, the various articles in the present issue of this journal alone offer a wealth of information upon which to base new conceptualizations. Evidence-based phenomena such as central and peripheral sensitization, including the expansion of receptive fields of central nociceptive neurons and cortical reorganization,<sup>11–15</sup> offer a number of clinically valuable

strategies for chronic pain patient management. The central sensitization pain model can help to explain to patients why they are experiencing pain despite a lack of radiographic evidence, why their pain may have spread into surrounding areas, and why they often experience numbness, tingling, and other abnormal sensory phenomena. These findings are also evidence against the psychogenic model of pain, which relies on gross assessments of structural damage in order to verify the pain complaint.

### Principal Psychiatric or Personality-Related Characteristics

But perhaps most importantly, drawing on this state-of-the-art research in the field of pain makes it possible to validate the patient's experience of pain. Farrar<sup>16</sup> has drawn attention to the importance of understanding the experience of neuropathic pain from the patient's perspective and attempting to focus treatment on the aspects of the pain and its intensity, limits, affective quality, sleep disturbance, and other emotional disturbances which are most troubling to the individual.

Anxiety as an emotional state has an important part to play in the perception of pain; anxiety may cause the patient to think that pain indicates long-term problems, or patients may somatize, ie, amplify, abnormal or normal bodily sensitization or develop hypochondriacal concerns about the problems. The prolonged stress of chronic pain may lead to learned helplessness, withdrawal, lethargy, feelings of worthlessness, and sometimes guilt and anxiety. Furthermore, it is estimated that as many as 50% of pain patients are depressed.<sup>3</sup> There are no specific reported psychiatric or personality problems or disorders associated with neuropathic trigeminal pain, although the author's clinical impression is that patients may express suicidal ideas.

However, a central sensitization pain model, which offers validation of pain without having to demonstrate its cause, may free the patient from feeling as though he or she has to "prove" the reality of the pain by resorting to increasing levels of disability (the observable correlates of pain). The model is also valuable in providing reassurance that ongoing pain is not necessarily an indication of ongoing structural damage.

It should be acknowledged that just telling a patient "pain doesn't equal damage" is often not sufficient to reconfigure a health-belief system that has been built up in the patient over a lifetime. Most patients will need time, further information,

and a significant amount of support from the clinician in order to accept this new way of understanding their pain. And finally, the central sensitization pain model is important with regard to the patient's expectations of treatment. As lay beliefs about pain are often associated with mechanistic notions of something being "broken" or "wrong" which needs "fixing,"<sup>7</sup> the centrally maintained pain model conveys a far more complex picture of pain. Changes in the ways in which pain nerves send messages and in the excitability of the central nervous system suggest that finding a cure for the pain is not straightforward and in many cases not possible. However, the central sensitization explanatory model also recognizes the importance of descending modulatory factors in the experience of pain<sup>14</sup>—and this can shift the emphasis toward more active involvement of the patient in his or her treatment.

### Imaging and Pain

Yet another dimension to the experience of chronic pain is provided by the newer imaging technologies such as functional magnetic resonance imaging. The data provided by these scanners bridges the artificial divide that is perceived to exist between psyche and soma by illustrating the associations between cognitive or affective responses to the environment and cortical activation. For example, Gracely et al examined the link between catastrophizing and brain activity in a group of chronic pain (fibromyalgia) patients receiving a blunt pressure stimulus.<sup>17</sup> Catastrophizing is a habitual, automatic, cognitive style defined as "a tendency to magnify or exaggerate the threat value or seriousness of an event."<sup>18</sup> It is routinely measured with a self-report questionnaire (Catastrophizing subscale of the Coping Strategies Questionnaire<sup>19</sup>), where patients are asked to rate the frequency with which they experience a series of catastrophic thoughts such as "This pain is overwhelming" and "There is nothing I can do to manage the pain." The Gracely et al study also controlled for depressive symptomatology, as the 2 variables are often strongly correlated.

The results of the study revealed that patients reporting high levels of catastrophizing also demonstrated twice the activation in the ipsilateral secondary somatosensory cortex compared to low catastrophizing patients. Catastrophizers generally showed increased activation in the brain areas associated with the anticipation of pain (medial frontal cortex, cerebellum), attention to pain (dorsal anterior cingulate gyrus, dorsal prefrontal cortex),

emotional aspects of pain (claustrophobia), and motor control. These findings suggest that pain catastrophizing, independent of the influence of depression, is significantly associated with increased brain awareness, and support the contention that catastrophizing influences pain perception through altering attention and anticipation and heightening emotional responses to pain. The pretreatment catastrophizing score for neuropathic pain patients undergoing a short treatment trial has even been shown to predict pain intensity 8 weeks later,<sup>20</sup> which further highlights the powerful influence that pain-related cognitions can have upon the sensory aspects of the pain experience.

Hagelberg et al<sup>21</sup> has suggested that striatal dopaminergic system hypofunction, which has been studied using positron emission tomography, may be involved in chronic orofacial conditions. Villemure and Bushnell<sup>22</sup> stated that the origins of neuropathic pain lie in a malfunctioning nervous system; nerve cells become overstimulated or misfire, and overabundant pain messages are sent to the brain. Using brain imaging, they examined brain activity of distracted patients. They emphasized the value of educating patients to understand that blocking pain reduces the chance of pain in the future. Subjects reported less pain when asked to concentrate on a visual, auditory or olfactory stimulus rather than the pain stimulus. The distraction dampens the pain signal before it reaches the higher centers. Villemure and Bushnell stated that doctors and patients benefit from understanding that emotional and psychological factors have a powerful influence on pain experience and that there are many ways to modify this experience.

## Fear Avoidance

Another pain model that is gathering an increasing amount of supportive evidence is the fear-avoidance model proposed by Vlaeyen et al.<sup>23,24</sup> It has been shown that fear of pain or of reinjury (an affective state based on a cognitive substructure that includes catastrophizing as an important factor) can lead to behavioral avoidance, which in turn seems to be an essential component of the transition from acute pain to long-term pain chronicity. The fear avoidance model suggests those patients who attend to more signals of threat, ie hypervigilant patients, will be less able to shift attention away from pain-related information at the expense of other tasks, including coping and getting on with the problems of daily life. Similarly, such pain-related fear is likely to be

associated with increased psychophysiological reactivity when the individual is confronted with situations that are appraised as dangerous, thus perpetuating the cycle of increased discomfort and increased avoidance.

While most of the fear-avoidance literature has focused on musculoskeletal pain syndromes, there is no reason to assume that a similar cognitive behavioral pattern does not occur with patients suffering from neuropathic pain. Many chronic orofacial pain patients report a range of avoidant behaviors, including limited mouth opening, avoidance of touching the face, and the avoidance of various social situations. The reattribution of symptoms (from those representing damage and deterioration to those reflecting anxiety and a hypersensitive central nervous system) has been shown to be an important aspect of pain treatment, and Goldberg et al<sup>25</sup> have set out several useful clinical markers. In order for treatment to be successful, these authors have recommended that a doctor be able to follow up leads, be empathic, believe the patient, understand health beliefs, and take a proper history so that empathic assessment becomes part of treatment.

## Psychological Management Guidelines for Neuropathic Pain

A step-by-step approach to the management of neuropathic pain is as follows:

1. Treat the cause of pain.
2. Treat the pain using, for example, antidepressants, anticonvulsants, analgesics, cognitive behavioral therapy (CBT), or hypnosis.
3. Address the patient's suffering: Reduce the impact of chronic pain on his or her physical and psychological state and quality of life.

This third step will be highlighted in the following outline.

For patients suffering from chronic pain where surgical or pharmacological treatments have not provided sustained pain relief (or the side effects associated with the pain relief are unacceptable), psychological approaches to pain management become the preferred option. CBT is now the psychological treatment of choice for patients with intractable chronic pain. This approach differs from biomedical interventions in 2 important respects. First, the goal of CBT is not specifically to reduce or relieve pain, but rather to teach the individual coping strategies so that his or her quality of

life can improve despite pain. Secondly, unlike treatments where something is “done” to the patient (surgery performed, injection given, medication prescribed, and so on), CBT is an explicitly “hands-off” intervention. It involves teaching a set of skills and strategies which the patient must learn and then incorporate into daily life. It requires that the patient move away from being a passive recipient of treatments—where improvement is the responsibility of the health-care professional—to assuming responsibility for his or her own improvement through the systematic application of the pain management techniques.<sup>23</sup>

Typically, chronic pain sufferers engaging in a CBT program will be exposed to a variety of physical, psychoeducational, and psychological treatment strands with the aim of improving functional activity levels, decreasing emotional distress, and increasing independence from health-care providers. Pain management programs may include some or all of the following: exercises and stretches for improving fitness, flexibility, and stamina; information about pain and pain mechanisms in order to correct any misperceptions or misunderstandings; cognitive therapy for mood; relaxation training with or without electromyographic biofeedback to reduce muscle tension, enhance well-being, and improve sleep; goal setting and activity scheduling to increase activity levels in a controlled way; communication skills training; anger management; medication rationalization; and vocational rehabilitation where necessary.<sup>26</sup> Pain management programs are typically delivered by multidisciplinary teams bringing expertise from a range of different backgrounds including medical/dental specialties, clinical psychology, nursing, and physiotherapy. Such integration of specialties is one of the key features of this kind of intervention.

Although there is considerable variability among programs as to which of these components are included and to what extent each is emphasized, there is now a considerable literature to demonstrate the overall value of this approach. A meta-analysis of 25 randomized controlled trials of CBT for adult chronic pain by Morley et al<sup>27</sup> revealed that when compared to a waiting list control (which in effect is a clinical management matter, as patients are not precluded from seeking other treatments while waiting to receive this treatment), CBT was superior on all domains of assessment. These included pain experience, cognitive coping and appraisal, mood, behavioral expression of pain, and social role functioning. Compared to

other active treatment control conditions, such as physiotherapy, routine pain clinic treatment, and standard educational packages, CBT remained the superior treatment in terms of pain experience, pain behaviors, and the use of active coping skills.

The use of CBT for the management of neuropathic pain has been recommended on the basis of the emerging evidence base for its efficacy.<sup>28</sup> Unfortunately, while small projects have been undertaken with specific types of neuropathic pain conditions (eg, Evans and Fishman<sup>29</sup>), there has not been any formal trial of CBT for neuropathic pain as yet.<sup>1</sup> This would be an important next step in the management of these intractable pains, particularly given the data presented earlier to indicate that many sufferers report major limitations in their quality of life because of pain.

## Conclusions

In many ways, a special issue of a journal such as this one demonstrates the extent to which psychiatric considerations as well as other aspects of chronic pain have changed. Throughout this issue, data have been presented which inadvertently but comprehensively lays to rest a notion that pain is either verifiable by gross assessment (ie, observable in a routine examination or by means of a routine test), or is the product of psychiatric disturbance. The evident plasticity of the nervous system, both peripherally and centrally, validates the complaints of the majority of chronic pain sufferers, ie, those without an obvious lesion or disease process, who had previously been labeled as having a psychosomatic disorder and prescribed psychotherapy rather than comprehensive pain therapy, which should include CBT.

This article also reflects the increasing consideration of how normal psychological processes are brought to bear within an abnormal situation such as intractable pain. The role of anxiety and fear have become paramount in understanding the development and maintenance of persistent pain, not only in terms of the cognitions underlying them but also in terms of cortical activity and behavioral responses to pain. Yet it remains true that, irrespective of the research data that accrues within the field itself, it is the ability of the clinician to convey this information from laboratory to consulting room and to utilize it therapeutically that is of the highest importance.

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