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Treating Neuropathic Pain: Mindfulness Meditation Is More Effective Than Pharmacotherapy

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Abstract

Neuropathic pain is severe chronic pain with no single source and, for that reason, is difficult to treat. I review two treatments for neuropathic pain: pharmacotherapy and mindfulness meditation. In pharmacotherapy, psychotropic drugs are the main form of treatment. Although it is currently the treatment of choice, relying solely on drugs can result in unwanted side effects, including drug tolerance. Mindfulness meditation, a therapy designed to help the patient achieve self-understanding and self-regulation, avoids these effects. For these reasons, mindfulness meditation should be recommended as an alternative to psychotropic drugs when treating neuropathic pain.

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Physical pain can be viewed as warning the body of tissue damage and helping it avoid further harm until the damaged tissue is repaired. When stimuli cross the threshold of nociceptor primary sensory neurons (PSNs), pain is elicited (Woolf & Mannion, 1999). These neurons have receptive fields throughout the surface of the body and eventually synapse in the dorsal horn of the spinal cord (Hogan, 2010).

Neuropathic pain (also known as chronic pain) is the result of damaged PSNs. Damage can occur in the peripheral or central nervous system and results in spontaneous pain, pain hypersensitivity, or both (Woolf & Mannion, 1999). The complexity of neuropathic pain is increased by the large number of causes, including infection, trauma, metabolic abnormality, chemotherapy, surgery, irradiation, neurotoxins, inherited neurodegeneration, nerve compression, inflammation, and tumor infiltration (Dworkin et al., 2003). The multiplicity of origins and manifestations of neuropathic pain make it difficult to treat and, thus far, impossible to cure.

Chronic pain is not only physically limiting but produces severe psychological repercussions as well. Gore, Brandenburg, Hoffman, Tai, and Stacey (2006) surveyed 265 patients with neuropathic pain and found that patients not only reported substantial, daily pain but also increased anxiety, depression, sleep disturbance, and impaired quality of life because of the unrelieved pain. This chronic pain compromises all aspects of the lives of those affected and the lives of their significant others (Turk, Wilson, & Cahana, 2011).

The pharmacotherapeutic treatments for neuropathic pain have limited effectiveness and usually result in a host of unwanted side effects (Dworkin et al., 2003). Mindfulness meditation, an inexpensive, nondrug treatment, has been shown to relieve the symptoms of chronic pain without harmful side effects (Kabat-Zinn, Lipworth, & Burney, 1985). It also effectively mitigates the psychological consequences of neuropathic pain (Pepping, Walters, Davis, & O'Donovan, 2016). Because of these benefits, mindfulness meditation should be considered a viable alternative to pharmacotherapy.

Limitations of Pharmacotherapy

Currently accepted medical alternatives to pharmacotherapy

include surgery, neuro-augmentation, somatic, behavioral, and rehabilitative treatments, though the effectiveness of these methods remains inconsistent (Turk et al., 2011). If a particular medication is ineffective in treating neuropathic pain, rather than turning to alternative forms of treatment, the currently accepted approach is to continue prescribing medication until an effective one is found (Dworkin et al., 2003; Moulin et al., 2007). One problem with this approach is the adverse side effects of this medication. Another that will be considered is the diminished effect of drugs with continued use (drug tolerance).

Side Effects of Medication

Adverse side effects associated with analgesic drugs include dizziness, gastrointestinal problems, inflammation, skin reactions, constipation, sedation, and nausea (Dworkin et al., 2003). These effects may be exacerbated when multiple medications are prescribed, especially since the average number of medications taken each week to manage chronic pain is 3.8 (Gore et al., 2006). These medications include opioids, anti-inflammatory drugs, antidepressants, anticonvulsants, skeletal muscle relaxants, and topical agents (Turk et al., 2011). Treating the many symptoms of neuropathic pain with multiple prescriptions is costly, inefficient, and invites a host of unwelcomed side effects.

Poor and Diminishing Effect of Analgesics

Another limitation is the growing ineffectiveness of drugs. Because neuropathic pain is chronic, it outlasts the interval in which drugs may be effective (Dworkin et al., 2003). Moreover, to restore effectiveness, larger dosages are required, thereby intensifying the side effects (Trang et al., 2015). Kingery (1997) reviewed 92 drug trials for 48 different medications for neuropathic pain and concluded that none produced more than minimal long-term effectiveness.

Benefits of Mindfulness Meditation

A preferable alternative to pharmacotherapy is mindfulness meditation, the “intentional self-regulation of attention to present moment experience, coupled with a non-judgmental and accepting stance toward whatever may arise” (Pepping et al., 2016, p. 1). Mindfulness meditation differs from traditional pain-reduction

treatments in its primary goals of self-regulation, self-liberation, and self-exploration, all of which conduce to self-understanding (Shapiro, 1992). The use of mindfulness meditation may not only reduce pain but also prevent pain from interfering with daily life.

Mindfulness meditation is most commonly practiced through mindfulness-based stress reduction (MBSR), an 8–10 week program that includes mindful scanning of one's body, sitting and walking forms of meditation, and basic yoga (Shigaki, Glass, & Schopp, 2006). The MBSR coach encourages patients to be increasingly mindful of everyday activities (to be "aware of the moment") and to practice meditation between sessions (Kabat-Zinn, 1990).

A Holistic Approach

Mindfulness meditation provides a focus on the psychological problems associated with neuropathic pain as well as relief from the pain itself (Kabat-Zinn et al., 1985; Pepping et al., 2016). When Kabat-Zinn et al. (1985) analyzed the effectiveness of mindfulness meditation in 90 chronic pain patients enrolled in a 10-week stress reduction and relaxation program, they found significant reductions in present-moment pain, negative body image, pain-induced inhibition of activity, mood disturbance, and psychological symptoms. More recently, Pepping and colleagues (2016) reported that, of 190 participants whom they interviewed, the primary reason given for commencing and continuing mindfulness meditation was to alleviate emotional stress and enhance emotional regulation.

Effectiveness

Not only is mindfulness meditation as effective in treating neuropathic pain as traditional psychopharmacological treatments, but is, in some cases, more effective than comparable psychological treatments such as cognitive behavior therapy (CBT). This is especially noticeable in terms of effect size, a standardized measure of differences between treatment groups (Cohen, 1977). Veehof, Trompetter, Bohlmeijer, and Schreurs (2016) conducted a meta-analysis consisting of 27 studies to determine the effectiveness of acceptance and mindfulness-based interventions in treating chronic pain. They found significant effect sizes for therapies designed to reduce pain interference (of daily tasks) and for therapies designed to reduce pain intensity. By contrast a meta-analysis of the effectiveness

of CBT for chronic-pain performed by Williams, Eccleston, and Morley (2012) resulted in small effect sizes for pain intensity, pain-inference, and mood. Because this treatment treats both the interference and the intensity of pain, research supports that mindfulness meditation may be more effective in treating neuropathic pain than traditional treatments such as CBT and pharmacotherapy.

A more direct comparison of mindfulness meditation to pharmacotherapy can be seen in Kabat-Zinn and colleagues' (1985) study. They compared the outcomes in 90 chronic-pain patients who were treated with mindfulness meditation with those in a comparable group of patients who were treated with physical therapy, analgesics, and antidepressants. In a 10-week follow-up, those in the former group reported significant reductions in anxiety (65%), depression (59%), hostility (57%), somatization (physical symptoms without a known cause; 30%), and lack of self-esteem (45%), while those in the latter group reported smaller reductions in the same measures (29%, 18%, 7%, 0%, and 34%, respectively). Mindfulness meditation therefore shows significant promise in treating neuropathic pain more effectively than pharmacotherapy does.

Cultural Preference for Pharmacotherapy

Despite the demonstrated effectiveness of mindfulness meditation, pharmacotherapy is still the most common treatment for neuropathic pain (Dworkin et al., 2003). There are a number of reasons why this is the case, many of which may be due to patient preferences. Patients are more familiar with taking medication than they are with practicing mindfulness meditation. This is likely because meditation is not a common part of American culture and is usually associated with East Asian cultures (Kabat-Zinn et al., 1985). Conserving time and energy are also concerns; it is arguably much quicker and easier to take a pill than to spend 45 min meditating every day (Kabat-Zinn et al., 1985). The lack of physicians trained in mindfulness meditation is another notable reason for a preference for pharmacotherapy (Baer, 2003). These preferences indicate that, although scientific evidence supports mindfulness meditation as a practical alternative, custom and social preference still holds significant sway in favor of pharmacotherapy as the treatment of choice for neuropathic pain.

Conclusion

Mindfulness meditation is a form of treatment for neuropathic pain that is focused on helping the patient accept the existence of the pain while also limiting the pain's interference with the patient's overall well-being (Kabat-Zinn et al., 1985). The evidence I have reviewed supports mindfulness meditation as an acceptable, and sometimes preferable, alternative to pharmacotherapy (Kabat-Zinn et al., 1985; Veehof et al., 2016). The latter usually results in multiple prescriptions that cause serious side effects and have diminished effectiveness over time (Kingery, 1997; Trang et al., 2015). Mindfulness meditation, however, is a more holistic approach, one that addresses the psychological effects of neuropathic pain on the quality of life (Pepping et al., 2016). Those who suffer from neuropathic pain should be aware of both forms of treatments and their comparative benefits and liabilities so that they can choose the best approach to not only relieve their pain but also reduce its interference in living healthy, meaningful lives.

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