Chronic Pain

Natural Solutions
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Part I: Food Sensitivities
Chronic pain affects a large percentage of the general population on a daily or otherwise regular basis. It includes a variety of different conditions, such as osteoarthritis (“wear and tear” arthritis), rheumatoid arthritis, migraine, fibromyalgia, low-back pain, and even repetitive strain conditions such as various types of tendonitis and other injuries that do not heal properly. Approximately 18.9% of Canadians over 18 years of age are estimated to suffer from chronic pain.[1] Many people depend on pain-killers and other medications in order to function normally on a day-to-day basis. There are a variety of natural therapies that offer relief from chronic pain. This series will discuss some of these lesser-known therapies.

Many conditions characterized by chronic pain involve inflammation due to activation of the immune system. This is true for most autoimmune conditions — such as rheumatoid arthritis (RA), psoriatic arthritis, ankylosing spondylitis (AS), lupus (SLE), and other arthrides, as well as for migraines, and even fibromyalgia, although this latter is less well-known.[2–4] Autoimmunity refers to various conditions where the immune system attacks its own body, producing antibodies against proteins present on the body’s own cells, activating T-cells to react against these proteins, or producing various proinflammatory chemicals called cytokines.[5, 6]

Alterations in digestive function have been identified in some of these conditions. In fibromyalgia, for instance, there is an association with the presence of “leaky gut”. [7] “Leaky gut” is a term that describes a situation where there is deterioration in the barrier function of the gut lining, allowing larger food particles to enter the bloodstream and trigger an immunological reaction. In a study of 40 patients with fibromyalgia, 17 patients with chronic regional pain syndrome, and 57 normal controls, patients with chronic pain had significantly higher rates of increased intestinal permeability compared with normal controls.[7] The presence of increased intestinal permeability, or “leaky gut,” has also
be demonstrated in patients with juvenile arthritis.\(^8\) Another study found elevated intestinal permeability in a group of patients with lupus, ankylosing spondylitis (AS), and another condition called Behcet’s.\(^9\)

Naturopathic doctors recognize that certain foods can act as triggers for the development of leaky gut, which can lead to immune activation when the implicated food proteins enter the circulation. Consumption of these foods can lead to hyperactivation of the immune system, similar to what can happen with allergies. The term “food sensitivity” is used to describe this phenomenon. Although the role of food sensitivity on chronic pain is yet underrecognized, there are a number of studies that suggest an overlap between some of these conditions, in particular fibromyalgia, with celiac disease (gluten intolerance).\(^10\) Another study of rheumatoid arthritis found that these patients have increased levels of food-specific antibodies present in their intestinal fluid, compared to normal subjects.\(^11\) The involved foods included proteins from cow’s milk (\(\alpha\)-lactalbumin, \(\beta\)-lactoglobulin, casein), cereals, hen’s egg (ovalbumin), cod fish, and pork meat.\(^11\) Similar results have been shown by an older study of proteins from wheat and milk.\(^12\)

Identification and elimination of food sensitivities may pose an effective strategy to the management of chronic pain. We encourage readers to seek the guidance of a naturopathic doctor in undertaking such an approach.

In part II we will discuss the role of acupuncture therapy…

References
Part II: Acupuncture

In part I we reviewed the role of immune activation in contributing to chronic pain conditions. In particular, we discussed the role of food sensitivities. Acupuncture is another promising natural therapy for chronic pain. Acupuncture involves the insertion of very fine needles, comparable to the width of a hair, into specific points on the body. These points can be located near trigger points in large muscle groups or near the trajectory of nerve pathways. Acupuncture acts by causing tense muscles to relax, decreasing muscle spasm, increasing local blood flow, blocking the transmission of pain impulses along the nerves, and stimulating the release of natural pain-killing substances such as endorphins.[1–3] A multitude of studies have shown acupuncture to be effective for chronic pain caused by osteoarthritis, low-back pain, headache, neck pain, and tendonitis.

Randomized controlled trials conducted by the Canadian College of Naturopathic Medicine have shown that naturopathic care for shoulder pain and for low-back pain, with acupuncture comprising a key element of the treatment plan, was more effective than standard treatments such as use of specific exercises.[4, 5]

Another study of 44 patients with osteoarthritis of the knee found that use of two different acupuncture protocols combining the use of different points on the leg was able to reduce pain considerably.[6] Subjective pain ratings as well as stiffness and function were improved after acupuncture treatment.

In a study of 60 patients with chronic neck pain, daily acupuncture treatment for two cycles of six days was shown to rapidly improve pain as measured by pain rating index (PRI), visual analogue scale (VAS), present pain intensity (PPI), and the total pain score.[7]

Finally, a review and meta-analysis published by the Archives of Internal Medicine...
concluded that “[a]cupuncture is effective for the treatment of chronic pain and is therefore a reasonable referral option”. The conditions reviewed by this study included back and neck pain, osteoarthritis, chronic headache, and shoulder pain.

Acupuncture has been shown to exert anti-inflammatory effects, and may also affect the repair of injured tissue. For instance, acupuncture can increase type I collagen synthesis, which is the main factor that influences tendon biomechanical properties. Acupuncture has been shown to inhibit the release of substance P in the transmission of pain sensation, while increasing the body’s release of natural pain-inhibiting substances such as endorphins.

Based on such clinical and mechanistic evidence, it appears that acupuncture may be an invaluable therapy in the management of chronic pain.

In part III we will discuss the use of intravenous nutrient therapy…

References
Part III: Intravenous Nutrient Therapy

In earlier sections, we reviewed the role of gut barrier function and food sensitivity as well as the role of acupuncture in the treatment of chronic pain conditions. In this section we discuss the role of intravenous nutrient therapy in the treatment of low-back pain, fibromyalgia, migraine, and neuralgia.

Intravenous nutrient therapy is a diverse group of treatments, and different nutrients are used in the treatment of specific conditions. Nutrients that are commonly combined in the treatment of chronic pain include the B vitamins and magnesium. The “Myer’s cocktail” describes a commonly used formula that combines the B vitamins with magnesium, calcium, and vitamin C.[1] Delivery of these nutrients intravenously quickly achieves higher concentrations in the body than can be achieved through oral administration. Absorption of nutrients in the gut is limited, and this may be a particular problem in those with suboptimal digestive function to begin with. IV administration circumvents this problem.

Existing studies suggest that IV nutrient therapy can be effective in reducing pain and improving quality of life in patients with chronic pain. A recent (2013) study found that use of intravenous magnesium helps reduce chronic low-back pain.[2] A total of 80 patients with chronic low-back pain — despite being treated with a combination of physiotherapy as well as anticonvulsants, antidepressants or simple analgesics — were treated with either intravenous magnesium for two weeks, followed by oral magnesium for four weeks, or a placebo. The magnesium group experienced a significant reduction in pain, and this effect lasted for up to six months. There was also an improvement in range of motion, including flexion, extension, and lateral flexion movements.

Another study found that intravenous magnesium was effective in treating complex regional pain syndrome (CRPS).[3] This is a poorly understood condition that results in
severe local pain, typically an arm or leg, following some sort of injury, surgery, stroke or heart attack; but the pain is disproportionate with the severity of the initial injury. Eight patients with CRPS were given intravenous magnesium daily for five days, and two patients received only saline injections. Results showed that after five days, the magnesium group experienced improved pain, less impairment, and better quality of life, and the magnesium was well tolerated.

Studies suggest that the Myer's cocktail, a combination of B vitamins with magnesium and vitamin C, may improve symptoms of fibromyalgia.[4, 5] Administered as weekly infusions for eight weeks, the Myer's group experienced significantly improved tender points, pain, depression, and quality of life following treatment.[4] Another smaller study showed that participants receiving Myer's infusions experienced decreased pain and fatigue, and increased physical function, usually within 24–48 hours of the initial infusion.[5] At the end of eight weeks, there was a 60% reduction in pain and an 80% decrease in fatigue.

Finally, several studies have demonstrated that intravenous magnesium is highly effective for the treatment and prevention of migraines.[6–9] One study examined 120 patients with acute migraine, administering 1 g IV magnesium. This study found limited benefit for migraine without an aura, but in those patients with an aura, there was significantly lower intensity of photophobia and an almost 40% reduction in pain within one hour.[6] Another study examined use of IV magnesium in 40 patients with moderate to severe headaches, including migraines without aura, cluster headaches, chronic tension headaches, or chronic migraine.[9] Approximately 80% of all the patients experienced complete elimination of pain within 15 minutes of magnesium infusion.[9] No recurrence or worsening of pain was observed within 24 hours of the treatment in 56% of the patients. There was also an elimination of migraine-associated symptoms such as photophobia and nausea.

These studies indicate that intravenous nutrient therapy may offer an effective strategy for treatment of a wide variety of chronic pain conditions, including low-back pain, fibromyalgia, and migraines.

In part IV we will discuss the role of novel, anti-inflammatory supplements.

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Part IV: Important Anti-Inflammatory Nutrients

Up until now, we have discussed the role of food sensitivity, acupuncture, and intravenous nutrient therapy in the treatment of chronic pain. In this section, we discuss the role of select natural agents which, while they may be known for other effects, are relatively unknown for their role in the management of chronic pain. These agents are vitamin D, probiotics, and a newer agent called natural eggshell membrane (NEM).

Vitamin D and probiotics are important interventions for chronic pain because they help regulate immune function. As discussed in part I, a central feature of many chronic pain conditions is an overactivity of the immune system, often with the immune system inappropriately “attacking” the body’s own cells. Vitamin D and probiotics have been shown to increase immune tolerance in various types of autoimmune and allergic conditions, regulating the balance of effector and regulatory T-cells and overall immune responsiveness.[1–3] In addition, there is a growing body of evidence evaluating their effectiveness for conditions of chronic pain.

One study found that many patients with rheumatoid arthritis (RA) were vitamin D–deficient, with levels below 50 nmol/L, including up to 30% of those taking a vitamin D supplement of 800 IU or more.[4] This underscores the need for proper assessment and treatment...
of vitamin D status, particularly in patients with autoimmune disease. Another study found that treatment with activated vitamin D in combination with immunosuppressant medications in patients with rheumatoid arthritis led to significantly better pain relief after three months, compared to use of immunosuppressant medications alone.[5]

With respect to fibromyalgia, a survey found that of 100 patients with fibromyalgia, 61 had vitamin D deficiency.[6] Another study found that while there was no difference in rates of vitamin D deficiency between patients with fibromyalgia and healthy subjects, vitamin D levels were associated with pain severity, such that lower vitamin D levels were associated with increased pain and worse function.[7]

There are a handful of studies suggesting that supplementation with probiotics may be helpful in reducing pain associated with rheumatoid arthritis. One study found that supplementation of a lactic acid–producing bacteria preparation was able to significantly reduce pain, and improve patients’ ability to perform physical activities, such as walking two miles, reaching, and other daily activities.[8] There was also a significant reduction in the inflammatory marker CRP. Another randomized, controlled trial found that supplementation with *Lactobacillus rhamnosus* reduced the number of painful joints by almost 50%, and reduced the global assessment of disease activity in 71% of the probiotic group compared to 30% of the control group, although this did not reach statistical significance.[9]

Natural eggshell membrane (NEM) is an anti-inflammatory agent and provides specific ingredients required for the repair of damaged cartilage, for instance.[10, 11] NEM has been shown to improve pain, range of motion, and function as measured by the WOMAC scale in patients with osteoarthritis.[10, 11] NEM has been shown to take effect within a relatively short period of time; as soon as ten days.[11]

There are many natural therapies that offer promise for individuals suffering from chronic pain conditions. As awareness of these options grows, we anticipate that more people will resort to these therapies in the coming years, in particular given their low side-effect profile and excellent safety record.

References


