Complementary and Alternative Therapies for Pain in Older Adults

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Introduction

Complementary and Alternative Medicine (CAM) has been defined as a group of diverse medical and health care practices, products, and systems that are not presently considered part of conventional medicine but are increasingly being used. For older patients already receiving multiple drugs, such practices are attractive as nonpharmacological approaches to pain management. This review highlights several CAM therapies, including acupuncture treatment, massage therapy, and several natural health products supported by recent research.

Key words: pain, acupuncture, massage, Devil’s claw, glucosamine

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Introduction

Complementary and Alternative Medicine (CAM) has been defined as a group of diverse medical and health care systems, practices, and products not presently considered part of conventional medicine. It includes a wide and sometimes confusing range of modalities (Table 1).

In common with most industrialized countries, the number of Canadians using some sort of CAM therapy has been steadily rising. Uptake is highest among those with chronic pain-related conditions, including back problems, arthritis, and migraine headaches. Such products and services are usually used concurrently with mainstream medicine, the majority of users believing that the use of CAM together with conventional medicine is better than using either alone. Older users visit CAM practitioners less frequently than younger patients, but those who do tend to be well-educated, have higher disposable incomes, and have wider social networks which provide them with more diverse kinds of health information than older adults using mainstream medicine alone.

The evidence base for most CAM therapies is often insufficient to draw firm conclusions about efficacy and safety. However, in this relatively new field it is important to remember that lack of evidence does not necessarily mean lack of efficacy; rather, the therapy may not have been adequately tested. Based on a comprehensive review by Ernst et al. in 2001, Table 2 illustrates the current evidence base for a number of CAM therapies used for pain relief.

This review highlights several promising complementary approaches for which research evidence is growing, and which can reasonably be recommended to patients seeking guidance from their general practitioner.

Acupuncture

Acupuncture is an integral component of traditional Chinese medicine (TCM) but is also practiced by western-trained physicians, dentists, physiotherapists, and naturopaths. It involves the placement of fine needles in the skin at specific points. The selection of points is based on the TCM philosophy of energy flow through channels or meridians. It is believed that obstructions or deficiencies in this energy flow contribute to disease or disability. Mild electrical stimulation may be applied to the needles (electroacupuncture) (Figure 1).

Mode of Action

Acupuncture points appear to coincide with changes in skin conductance. Needling
these points has been shown to release systemic endogenous opioids (endorphins).

**Efficacy**

In a study of 570 patients aged 50 and over with osteoarthritis (OA) of the knee, an improvement in pain and function was observed at 26 weeks. A similar result was found in a separate study of 88 subjects with OA of the knee. In chronic shoulder pain, long-term analgesic effects were observed with acupuncture compared to a specially designed retractable needle. The use of such novel placebo procedures may improve the quality and validity of clinical trials of acupuncture. Electroacupuncture was marginally better than placebo in a study of mechanical neck pain involving 128 patients aged 18–80 years, but the difference was of doubtful clinical significance.

**Safety**

Reports of serious adverse effects are rare but include effects of skin puncture (e.g., bruising/bleeding, hypotension, anxiety, fainting, and vomiting), deep penetration (e.g., pneumothorax and nerve injury), and infection transmission (including hepatitis C, if reusable needles are used).

**Comment**

Seeking therapy from well-trained and experienced acupuncturists may reduce adverse events.

**Massage Therapy**

Massage therapy (MT) involves the manipulation of soft tissues and joints to maintain, rehabilitate, or augment physical function and reduce pain.

**Mode of Action**

It is believed that the effects of massage are due to increases in blood flow, reduced muscle tension, and decreases in neuronal excitability. Changes in stress hormones (cortisol) and parasympathetic activity induce the relaxation response. Some studies suggest that massage therapy may have a beneficial impact on immune function.

**Efficacy**

Several studies have shown benefit in headache management, low back pain, cancer-associated pain, and the reduction of anxiety and depression. Although few studies have directly examined the effects of massage therapy in an older population, there is some evidence that massage therapy reduces anxiety and shoulder pain following stroke in the aging and reduces pain and depression in frail older adults.

**Safety**

Adverse effects are rare and usually associated with the use of untrained practitioners. Reported adverse events include cerebrovascular accidents, hematomas, and nerve damage.

**Comment**

While the initial cost of MT may be high (a one-hour massage averages $70 CAD), recent studies in low back pain have shown massage therapy decreases other pain-related expenditures (such as medications and additional back care services). Some drug plans will cover costs or partial costs with a prescription.

**Natural Health Products**

Natural Health Products (NHPs) include supplemental vitamins, essential and nonessential nutrients, cofactors, beneficial bacteria, and natural medicines (such as herbal and homeopathic remedies). In Canada, new regulations and a new directorate at Health Canada govern the manufacture and sale of NHPs. The regulations, which took effect on January 1, 2004, control health claims and dosages.
and require the reporting of adverse reactions. All licensed products will carry an NHP number by December 31st, 2010.

Concurrent use of pharmaceutical drugs with NHPs presents the potential for interactions. It is therefore important to ask patients taking prescription drugs or over-the-counter medication if they are taking any NHPs (vitamins or herbal medicines), since many patients do not discuss their use with their physicians. Several NHPs with acceptable side effect profiles show promise as effective alternative or supplementary pain medications.

**Devil’s Claw**

Devil’s Claw (Harpagophytum procumbens, Pedaliaceae) is a traditional African digestive tonic and remedy for rheumatism. It is becoming increasingly popular in North America as an anti-inflammatory for use in osteoarthritis, rheumatoid arthritis, low back pain, and gout.

**Mode of Action**

Anti-inflammatory mechanisms are not fully determined but may involve inhibition of lipoxygenase and leukotriene production, inhibition of cytokines and TNF-alpha, and suppression of cyclooxygenase-2 and nitric oxide synthase.\(^{17}\)

**Efficacy**

Several different preparations of Devil’s Claw are currently on the market. Constituents include iridoid glycosides, one of which—harpagoside—is used as a biological and standardization marker. A recent meta-analysis of knee, hip, and spine clinical trials concluded that the efficacy of Devil’s Claw depended on dosage and dosage form. There was limited evidence for ethanol extracts containing less than 30mg harpagoside. Moderate evidence was found for 60mg per day in powdered form, and strong evidence for aqueous extracts at 50mg harpagoside per day. Aqueous extracts at 100mg per day were effective for acute exacerbations of chronic nonspecific low back pain (CNSLBP).\(^{18}\) In a small six-week study, aqueous extracts of 60mg harpagoside were comparable to rofecoxib at 12.5mg per day for CNSLBP.\(^{19}\)

**Safety**

Harpagophytum procumbens is contraindicated in patients with gastric or duodenal ulcers, and mild GI upset may occur at high doses. An *in vitro* inhibitory effect on CYP450 enzymes has been reported and an interaction with antiarrhythmic drugs is theoretically possible.

**Glucosamine**

Occurring naturally in all human tissues, glucosamine is an aminomonosaccharide synthesized by chondrocytes from glucose and glutamine. It stimulates the synthesis of various components of cartilage such as glycosaminoglycans, proteoglycans, and hyaluronic acid. Glucosamine is used in the treatment of osteoarthritis. Supplemental glucosamine is 90% absorbed orally and transported into the systemic circulation without effect on its molecular structure. It is sometimes used in combination with chondroitin, a cartilage precursor thought to inhibit cartilage-degrading enzymes.

**Mode of Action**

Glucosamine supplementation is thought to influence the balance between cartilage matrix synthesis and degradation, although the precise mechanism of action remains to be established (Figure 2). The structural effect on the cartilage has been shown by demonstrating a slow-down in the narrowing of the joint space on sequential radiographs of knees.\(^{20}\)

**Efficacy**

Three recent meta-analyses of controlled randomized trials of glucosamine in osteoarthritis have been positive.\(^{20–22}\) The Glucosamine Arthritis Intervention Trial (GAIT) funded by NIH-NCCAM is currently underway. Patients (n=1,588) with knee osteoarthritis will be treated for 24 weeks with either glucosamine sulfate, chondroitin sulfate, glucosamine with chondroitin, or placebo and the response compared to celecoxib. Results are due in Spring 2005.

**Safety**

Mild gastrointestinal problems, skin reactions, drowsiness, and headaches have occurred, but have reversed on discontinuation of treatment. Glucosamine infusions in animal models can create insulin resistance, so caution is advised in diabetic patients.\(^{23,24}\)

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**Table 2: Current Evidence on Efficacy and Safety of Some Common CAM Therapies Used for Pain Management**

<table>
<thead>
<tr>
<th>Therapy</th>
<th>Evidence</th>
<th>Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acupuncture</td>
<td>Encouraging</td>
<td>Serious adverse effects are rare</td>
</tr>
<tr>
<td>Aromatherapy</td>
<td>Inconclusive</td>
<td>No serious side effects</td>
</tr>
<tr>
<td>Chiropractic</td>
<td>Not uniform</td>
<td>Although uncommon, serious side effects have been reported</td>
</tr>
<tr>
<td>Herbal medicine (e.g., Devil’s Claw)</td>
<td>Some are effective</td>
<td>Differs from herb to herb</td>
</tr>
<tr>
<td>Homeopathy</td>
<td>No sound evidence</td>
<td>No serious side effects</td>
</tr>
<tr>
<td>Massage</td>
<td>Encouraging</td>
<td>Few serious adverse effects</td>
</tr>
<tr>
<td>Osteopathy</td>
<td>Inconclusive</td>
<td>Adverse effects less than Chiropractic</td>
</tr>
<tr>
<td>Reflexology</td>
<td>Inconclusive</td>
<td>No serious side effects</td>
</tr>
</tbody>
</table>

Information for this table was adapted from Ernst et al., 2001.\(^3\)
Complementary and Alternative Therapies for Pain

Comment

Most clinical trials have used 500mg t.i.d. for a minimum of eight weeks or 400mg intramuscularly or intravenously once daily.

Conclusion

For most complementary modalities there is at present insufficient evidence available on how effective they may be as adjunct or alternative treatments for pain. However, this is a relatively new field to capture the attention of researchers, and as interest continues to grow there will undoubtedly be new information available to the physician that will prove to be useful in clinical decision making. Acupuncture and massage therapies have a long history of safe use, and recent research supports their benefits in pain management. Of the many natural health products for which pain relief claims have been made, two currently popular products, Devil’s Claw and glucosamine, appear promising.

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References


