

A Review of Complementary and Alternative Medicines for Osteoarthritis



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Abstract

Osteoarthritis is a degenerative disease and is the most common arthritis. There is a high prevalence of CAM use among those with osteoarthritis and a large proportion of these sufferers consider these medicines to be safe and effective. Thus, an updated review to look at the current available CAM therapies option and its efficacy and safety is constantly needed. The options of CAM therapies for OA includes exercise, yoga, Tai chi, massage, cupping, manipulative therapy, acupuncture, herbal medicine, leech therapy and *Channa striatus* (snake head fish extract). The current evidence remains limited and further good quality research are needed.

Keywords: Osteoarthritis; Pain; Complementary; Alternative medicine; Herbal; Traditional; Physical therapy; Acupuncture

Abbreviations: MCHF: Manufactured Chinese Herbal Formulae; QOL: Quality Of Life; RCT: Randomized Controlled Trial; ASU: Avocado-Soyabean unsaponifiables; OA: Osteoarthritis; CAM: Complementary And Alternative Medicine; NSAID: Non-Steroidal Anti-Inflammatory Drugs

Introduction

Osteoarthritis (OA) is the most common joint disease affecting mostly the older people [1]. With increasing prevalence of older people and obesity, it is anticipated that the burden of this disease will be a major issue globally [1]. OA of the knee and hip contributes most of the OA burden and has a major impact in quality of life especially in terms of pain and disability [1].

Currently the management of OA can be divided into non-pharmacological, pharmacological and surgical [2]. The non-pharmacological management includes education, exercise and weight loss. In the early stage of OA, these management are paramount, but as disease progresses, the need of medication to control symptoms increased [3]. The non-pharmacological treatments also is underutilized and most patients resort to pharmacological therapy [4]. Pharmacological therapy is indicated for the patients to control the pain or functional disability due to pain itself [3]. Therefore, current pharmacological therapy mainly target for symptoms relief. There is growing research interest to prevent or slow disease progression since currently there is no pharmacologic agent that can do such [3].

Non-steroidal anti-inflammatory drugs (NSAIDs) and acetaminophen are the two most pharmacological therapy used to control the symptoms due to pain especially in OA [5].

However, the use of these agent are not without side-effect. Acetaminophen are not as safe as belief [6]. Apart from a well-known hepatotoxicity, a small study showed that it also can cause upper gastrointestinal (GIT) complications [7]. NSAIDs are effective drugs to control the symptoms of OA but its use is associated with broad spectrum of adverse effects such as GIT, cardiovascular, kidney, liver and skin [8]. Due to these factors, patients with OA are willing to try complementary and alternative medicine (CAM) that could provide relief from pain or cure from the illness.

The choice of CAM available for OA are varies such as herbal, nutritional, physical and holistic therapy [9]. The prevalence of CAM used among those with OA range from 40 – 64.8% (Morocco 64.8% [10], USA 47% [11], Pakistan 45.3% [12], and Australia 40% [9]). High CAM used is associated with female gender [9-13], having more severe disease [10], and had low education [12]. Due to high prevalence of CAM use among patients with OA, it is important to understand why the patients with OA resort to this CAM therapy. A systematic review study found that most patients with arthritis resorted to CAM therapy due to several factors which includes frustration with conventional therapy and patients' perception that CAM is safe [13]. Due to its popularity, it is important that patients and practitioners have accessible and clear evaluation of the efficacy and safety of

these treatments. This short review aims to look at the current available CAM therapies option for the patients and its efficacy and safety.

To ease the discussion, CAM use for OA will be divided into;

- a) Physical therapy which includes exercise, yoga, Tai chi, massage, cupping, manipulative therapy
- b) Acupuncture and moxibustion
- c) Herbal medicine
- d) Others- leech therapy, *Channa striatus* (snake head fish extract)

The discussion and consideration of glucosamine and chondroitin was excluded since these have been extensively reviewed in other publications. Glucosamine and Chondroitin are the two which are breaching the gap between alternative and conventional therapy. Originally both are considered a natural therapy for osteoarthritis. Recent studies suggest glucosamine sulphate are not merely symptom modification but also cartilage structural modification[14]. However, the overall the evidence for glucosamine is still conflicting[14-16].

Physical therapy

Tai Chi, qigong, and yoga are included under CAM mind-body exercises. Findings from the literature suggest that these CAM exercises demonstrate considerable promise in the management of OA in terms of pain reduction, muscle strength, physical function, stiffness and balance[17-19].

Tai Chi and qigong both originated from the China and are a form of Traditional Chinese Medicine or exercise. Both are a moderate-intensity mind body exercise with breath control training and features gentle, smooth, graceful, coordinated, and flowing movements of different body parts, emphasizing constant shifting of body weight between two legs with both knees flexed all the time while meditating and breathing deeply[17]. Yoga in another hand origins in ancient Indian philosophy that combines physical postures, breathing techniques, and meditation or relaxation[17].

Cupping is another form of CAM that has been study for relieving the symptoms of knee osteoarthritis (OA). In a randomized controlled exploratory pilot study for 4 weeks, it was found that pulsatile dry cupping significantly reduced the knee OA symptoms compared to the control group[20].

Acupuncture and moxibustion

The number of patients undergoing acupuncture to treat osteoarthritis has increased over the last few years. [21] Filiform-needle acupuncture, warm-needle moxibustion, and fire-needle moxibustion are three main types of acupuncture and moxibustion[22]. At present, filiform-needle acupuncture, warm- needle moxibustion and fire-needle moxibustion have shown to be effective treatments for knee OA. Two meta-

analysis of randomized controlled trials (RCTs) on fire-needle moxibustion and electro-acupuncture in treatment of Knee OA had been conducted and the results showed that both treatments were more effective than control group in symptom management [22,23]. However, GRADE analysis indicated that the quality of evidence for all outcomes was relatively low in the meta- analysis for the fire-needle moxibustion[22].

The efficacy of acupuncture as an adjunctive therapy to pharmacological treatment of knee OA was studied with a 3-armed, single-blind, randomized, sham-controlled trial; it compared acupuncture combined with pharmacological treatment, sham acupuncture including pharmacological treatment, and pharmacological treatment alone[21]. In the study, patients who underwent acupuncture plus pharmacological treatment had significantly better function and less pain after 8 weeks, compared with patients subjected to sham acupuncture plus pharmacological or pharmacological treatment alone [21]. The side effects of acupuncture were minor (mostly hematomas) which was the known side-effect of this treatment [21]. A recent study showed that high intensity laser radiation which is a relatively new method of application in physical therapy practice is also effective for symptom relieved in knee OA[24].

Herbal medicines

A big number of herbal medicines had been studied extensively for the treatment of OA. These includes big groups of Chinese traditional medicines, Ayurveda and also western CAM.]. In a Cochrane systemic review, it was found that majority of the studies were bias and of poor quality. Thus, meta-analyses were restricted to *Boswelliaserrata* (monoherbal) and avocado-soyabeanunsaponifiables (ASU) (two herb combination) products[25]. In the review, only ASU product Piasclidine® had moderate effect for short term use in knee OA[25]. Among the oral herbal studied in this systematic review were *Curcuma domestica*, *Derris scandens*, *Harpagophytumprocumbens* (Devil's claw), *Boswellia serrate*, *Garcinia kola*, *Ricinusofficinalis* (castor oil), *Rosa caninalito*(rose hip), *Zingiberofficinale*(ginger), *Salix daphnoides* or *Salix pupurea x daphnoides* (willow), *Uncariaguianensis* (cat's claw)and *Vitellariaparadoxa*(shea).

In a recent systematic review done in 2015, manufactured Chinese herbal formulae (MCHF) was assess for effectiveness in treatment of knee OA. A total of 17 kinds of MCHF were identified from the twenty-six included trials. Manufactured Chinese herbal formulae (MCHF), also known as Chinese patent medicine, are typical combination of several Chinese herbals which could enhance the therapeutic effect and reduce the side effect of a single component.

Meta-analyses showed that MCHF significantly relieved the global pain of knee joints, either used alone or combined with routine treatments[26]. However, firm conclusions cannot be made due to the poor methodological quality of included trials[26]. All the trials had no serious adverse and were shown

to be safe [26]. Among the MCHF studied were *Yaotongning capsule* and *TouguXiaotong capsule*.

Others

The application of medicinal leeches was widely practiced in ancient times. Leech therapy also has been used in the treatment of osteoarthritis[27]. In a randomized controlled trial (RCT) , treatment with leech therapy was effective to relieved pain up to day 7 only compared to the control group[27]. Another RCT done among 112 patients for 26 days, It was found that this treatment could alleviate the symptoms of knee OA.

Another CAM that was studied was *Channa striatus*, a snake-head fish, widely available in South East Asia. The fish is known traditionally for its wound healing properties and relieving pain[28].A randomized, double-blinded, placebo-controlled pilot trial using oral CS extract for 3-month intervention period had been conducted among primary knee osteoarthritis patients. There were significant improvement of pain, symptom scores and quality of life (QOL) domain score ($p < 0.05$) in those who consumed CS compared to placebo[29].

Conclusion

The current evidence regarding efficacy of various CAM modalities for osteoarthritis remains highly limited and inconsistent. There is emerging but in most cases low-level of evidence for the efficacy of various CAM in treating osteoarthritis. However, no current evidence does not equate to lack of effectiveness. Rigorous research into the use of complementary medicines in arthritis is evolving and needed to be updated each year.

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