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A systematic review and meta-analysis of Tai Chi for osteoarthritis of the knee

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KEYWORDS
Osteoarthritis of the knee;
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Tai Chi;
Meta-analysis;
Systematic review

Summary
Objectives: This paper aimed to systematically review and meta-analyze the effectiveness of Tai Chi for osteoarthritis of the knee.
Methods: MEDLINE, the Cochrane Library, EMBASE, Scopus, PsycInfo and CAMBASE were screened through April 2013. Randomized controlled trials (RCTs) comparing Tai Chi to control conditions were included. Two authors independently assessed risk of bias using the risk of bias tool recommended by the Cochrane Back Review Group. Outcome measures included pain, physical functional, joint stiffness, quality of life, and safety. For each outcome, standardized mean differences and 95% confidence intervals were calculated.
Results: 5 RCTs with a total of 252 patients were included. Four studies had a low risk of bias. Analysis showed moderate overall evidence for short-term effectiveness for pain, physical function, and stiffness. Strong evidence was found for short-term improvement of the physical component of quality of life. No long-term effects were observed. Tai Chi therapy was not associated with serious adverse events.
Conclusion: This systematic review found moderate evidence for short-term improvement of pain, physical function and stiffness in patients with osteoarthritis of the knee practicing Tai Chi. Assuming that Tai Chi is at least short-term effective and safe it might be preliminarily recommended as an adjuvant treatment for patients with osteoarthritis of the knee. More high quality RCTs are urgently needed to confirm these results.

Contents

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Introduction

Osteoarthritis of the knee is one of the most common chronic diseases among older adults with high impact on physical function[1]; about one fourth of people over 55 years will report a significant episode of pain in the knee in the last year.[2] Osteoarthritis of the knee is a condition which is associated with articular cartilage destruction in addition to underlying bony changes at the joint margins.[3] Main complaints include pain and functional impairment during everyday activities which severely affects quality of life in these patients.[4]

Symptomatic therapeutic approaches mainly consist of physiotherapy, pharmacological therapy or, if therapies fail, joint replacement therapy.[5,6] Patients are also encouraged to use some kind of joint-friendly strengthening and aerobic exercises,[6,7] as it may reduce pain, increase function and reduce the progression of the osteoarthritis.

Tai Chi, developed as martial art in China, has been practiced for centuries. After introduction in Europe and America the perception of Tai Chi shifted and it is nowadays regarded a form of exercise or gymnastics. Tai Chi typically includes a series of dance-like movements that combine to postures or forms. The forms are executed using slow and smooth movements that flow into each other. Tai Chi not only is a movement therapy, but it also includes meditative aspects.[8] Due to its meditative character it may also reduce stress and increase psychological well-being.

Patients with osteoarthritis of the knee might benefit from Tai Chi by increasing lower extremity muscular strength and joint stability,[9] for example Tai Chi has been found to reduce falls in older adults.[10] The meditative aspect might further decrease stress and improve well-being and since Tai Chi can be offered as group therapy this might foster contact and social support. Therefore Tai Chi might be a supplementary therapeutic option for patients suffering from osteoarthritis of the knee.

To our knowledge, a recent review has investigated the effectiveness of Tai Chi for osteoarthritis in general[11] however no long-term effects were evaluated. Therefore, the aim of this review was to systematically assess and meta-analyze the short- and long-term effectiveness of Tai Chi therapy for osteoarthritis of the knee.

Methods

Protocol and registration

The review was planned and conducted in accordance with the PRISMA guidelines for systematic reviews and meta-analyses[12] and the recommendations of the Cochrane Back