Journal of Traditional Chinese Medical Sciences (2014) 1, 49–61

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Cupping therapy for acute and chronic pain management: a systematic review of randomized clinical trials

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Received 3 April 2014; accepted 15 June 2014

Available online 9 December 2014

KEYWORDS
Cupping therapy;
Pain;
Systematic review

Abstract *Objective:* Cupping as a traditional therapy is used to treat a myriad of health conditions, including pain. This systematic review assessed the effectiveness and safety of cupping for different types of pain.
Methods: Thirteen databases and four trial registries were searched for randomized clinical trials. Meta-analysis of data was conducted if there was non-significant clinical and statistical heterogeneity (measured by I^2 test) among trials.
Results: Sixteen trials with 921 participants were eligible and included. Six trials were assessed as low risk of bias, another six trials were of unclear risk of bias, and the remaining four trials were of high risk of bias. Pain was related to three acute and seven chronic diseases. Meta-analysis showed a beneficial effect of cupping compared to wait-list control (visual analogue scale (VAS), MD −1.85 cm, 95%CI −2.66 to −1.04) and heat therapy (numerical rating scale, MD −2.05 cm, 95%CI −2.93 to −1.17). Cupping combined with acupuncture was superior to acupuncture alone on post-treatment pain intensity (VAS, MD −1.18 cm, 95%CI −1.68 to −0.68), however, no difference was found between this comparison based on changes in pain intensity (difference of VAS, MD 0.16 cm, 95%CI −0.54 to 0.87). Results from other single studies showed significant benefit of cupping compared with conventional drugs or usual care.

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Peer review under responsibility of Beijing University of Chinese Medicine.

http://dx.doi.org/10.1016/j.jtcms.2014.11.003

Hematoma and pain at the treated site, increasing local pain or tingling were reported as mild adverse effects of cupping.
Conclusion: This review suggests a potential positive short-term effect of cupping therapy on reducing pain intensity compared with no treatment, heat therapy, usual care, or conventional drugs.

Introduction

Most people suffer serious pain at some stage of their lives. Nearly 80% of all visits to general practice involve at least one complaint directly related to pain, and 75% of Americans have experienced chronic or recurrent pain, costing $200 billion annually.[1] While pain is often prophylactic to further injury, appropriate pain management is also recognized as a fundamental human right and integral to good patient care.[2]

Pain can be classified physiologically as skeletal, neuropathic, or inflammatory[3]; or be classified by type of tissue involved, such as skin, muscle, viscera, joint and bone; or related to disease/condition, such as cancer, fibromyalgia; or may reflect psychologic states, age, gender, and culture. However, most guidelines and organizations, including the latest International Classification of Disease,[4] fundamentally classify pain as either acute or chronic as the initial stage of categorization.

Traditional Chinese medicine (TCM) has been used to treat pain for more than 2000 years, which holds that pain is mainly caused by disorder (insufficiency or disturbance) of *qi* (energy) and blood circulation, causing blood stasis or *qi* blockage in the organs, energy channels, and other parts of the body.[5]

Cupping therapy is a TCM healing modality that has been applied in Asia, particularly in China, as well as northern Europe (Scandinavia).[6] Cups can be made of different materials such as bamboo, glass, or earthenware. During treatment the air inside the cups is first rarefied to create a partial vacuum, which can be accomplished by various means such as heat or vacuum apparatus. The cups are then applied on the skin over prescribed acupuncture points. The resulting effect is local hyperemia or homeostasis as treatment for a specific disease.[7]

There are seven major types of cupping techniques in China.[8] Dry cupping is the most commonly used type, which uses the flaming heating power to achieve suction, then wet cupping (use blood-letting on the tender point before suction), moving cupping (move the cup towards one direction), flash cupping (remove the cups after suction without delay), et al. Different techniques are applied for different purposes of treatment. The principle of cupping treatment is to regulate and promote movement of *qi* and blood.[9] By doing so, cupping is able to alleviate pain, caused by blood stasis and *qi* blockage. Cupping may also accelerate microcirculation and relieve muscular spasm.[10]

A previous review of the efficacy of cupping therapy was conducted in 2010,[8] among the top 20 diseases/conditions in that review, 12 ailments involving 342 studies were related to pain. In the update review which published in 2012,[11] nearly all 135 included trials were reported as high risk of bias for their methodological quality. In addition, only one systematic review of seven studies assessed the effect of cupping for pain conditions, including cancer pain, low back pain, trigeminal neuralgia, et al.[12] Though evidence from these studies was positive, the number of studies and total sample size were too small for the authors to draw a firm conclusion. Thus, considering the large number of cupping trials and the uncertainty of its therapeutic effect, this review re-evaluates cupping therapy for pain management to reflect current research evidence.

Methods

The protocol of this review was registered and published at PROSPERO (CRD42013006756), accessible at: http://www.crd.york.ac.uk/PROSPERO/display_record.asp?ID=CRD42013006756.

Criteria for considering studies for this review

Studies considered for inclusion were parallel-group randomized controlled trials (RCTs) that used any form of cupping (dry cupping, wet cupping, flash cupping, moving cupping, medicinal cupping, needling cupping, or water cupping) compared with no treatment or other active therapies. Participants had to be 18 years or older and could be of any gender. Pain conditions, known or idiopathic, including musculoskeletal pain, neurologic pain, or pain caused by infection or other disease with at least moderate pain (e.g. baseline visual analog scale, or VAS, pain intensity score in excess of 3 cm) were included. Comparisons also included a combination of cupping therapy plus other therapies versus other therapies alone. Trials used combined therapy employing cupping therapy with other TCM therapy (such as acupuncture or herbal medicine) compared with other interventions were excluded. We contacted authors to confirm their randomization methods. Trials that used inappropriate or spurious randomization or trials that authors were unable to provide information on randomization methodology were excluded.

Primary outcomes included: patient-reported pain intensity, which was assessed qualitatively or quantitatively through any type of pain severity score (e.g. VAS) and tender point counts for certain diseases, such as fibromyalgia; patient-reported pain episodes; numbers of patients who had at least 50% of maximum possible pain relief over baseline; and number of patients who had at least 30% of