



REVIEW ARTICLE

Is Cupping an Effective Treatment? An Overview of Systematic Reviews

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Abstract

Several systematic reviews (SRs) have assessed the effectiveness of cupping for a range of conditions. Our aim was to provide a critical evaluation and summary of these data. Electronic searches were conducted to locate all SRs concerning cupping for any condition. Data were extracted by two authors according to pre-defined criteria. Five SRs met our inclusion criteria, which related to the following conditions: pain conditions, stroke rehabilitation, hypertension, and herpes zoster. The numbers of studies included in each SR were small. Relatively clear evidence emerged only for one indication, that cupping may be effective for reducing pain. Based on evidence from the currently available SRs, the effectiveness of cupping has been demonstrated only as a treatment for pain, and even for this indication doubts remain.

1. Introduction

Cupping is a treatment used in the realm of folk medicine and by clinicians in several cultures. The technique involves a plastic, bamboo, or glass cup to create suction on the skin over an acupuncture point, painful area, or a reflex zone [1]. It has been postulated to reduce pain as well as a host of other symptoms. In dry cupping, which pulls the skin into the cup without drawing blood, negative pressure on the skin acts as an irritant to subcutaneous tissues. In wet cupping the skin is lacerated so that blood from the dermal microcirculation is drawn into the cup. Cupping (both dry and wet) has been

claimed to drain excess fluids and toxins, loosen adhesions and lift connective tissue, bring blood flow to stagnant skin and muscles, and to stimulate the peripheral nervous system. In addition, cupping is said to reduce pain and high blood pressure as well as modulate neurohormones and the immune system [1,2]. Cupping has also been used to improve subcutaneous blood flow and to stimulate the autonomic nervous system [1,2].

Cupping is often used as a symptomatic treatment for a wide range of conditions in clinical practice, e.g., pain, hypertension, and stroke rehabilitation. However, its clinical effectiveness remains uncertain, and many clinicians are skeptical about its value.

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Numerous clinical trials and several systematic reviews (SRs) have recently emerged. Unfortunately, their conclusions are far from uniform.

This overview is aimed at summarizing and critically evaluating all SRs assessing cupping as a symptomatic treatment for any condition. Our ultimate goal is to provide clinicians with clearer guidance regarding the value of this therapy.

2. Methods

Electronic literature searches were carried out in Medline, EMBASE, AMED, CINHALL, the Cochrane Library, six Korean medical databases (Korean Studies Information, DBPIA, Korea Institute of Science and Technology Information, Korea Education and Research Information Service, KoreaMed, and Korean National Assembly Library), and Chinese Databases (CNKI and Wangfang) without restrictions of time or language (up to October 2010). In addition, our extensive departmental files were searched by hand. The search terms used were based on the keywords “systematic review” or “meta-analysis” and terms for the concept of cupping. Articles were included if they related to a formal SR or meta-analysis on any type of cupping as a treatment for any type of condition. Reviews, comments, and overviews without systematic methods were excluded.

To be included, a SR had to be concerned specifically with the effectiveness of cupping and include evidence from more than one clinical trial. SRs evaluating cupping together with other types of complementary medicine and no separate evaluation of each approach were excluded.

Data were extracted independently by two authors (M.S. Lee & J.I. Kim) according to predefined criteria, including conditions, number of primary studies, methodological quality of the primary studies and conclusion of each SR. Disagreements were resolved by discussion between the authors. Judgment about the quality of the primary studies was adopted from the respective SRs. The Overview Quality Assessment Questionnaire (OQAQ) was used to evaluate the methodological quality of all included SRs [3]. The score ranged from 1 to 7; a score of 3 or less was considered as indicative of extensive or major flaws and a score of 5 or more suggested only minor or minimal flaws. The two authors assessed the OQAQ independently, and discrepancies were settled by discussion.

The direction of the result of each SR was estimated according to the conclusions of each SR. Statements such as “no evidence of benefit” were categorized as “negative” (i.e., fail to show effectiveness); statements such as “acupuncture effectively

relieves pain” were categorized as “positive”; and statements that were neither clearly positive nor clearly negative were categorized as “unclear”. Disagreements were resolved by discussion between the authors.

3. Results

Searches identified five unique SRs (Table 1 [4–8]). These SRs related to five different conditions: any pain syndrome [4], stroke rehabilitation [5], hypertension [6], musculoskeletal pain [7], and herpes zoster [8]. All but one SR [8], had Korean first authors.

Most of the SRs were of good methodological quality, but all had to rely on poor quality primary studies. All first authors were affiliated to academic institutions. One review incorporated a meta-analytic approach. The reviews were based on two to eight primary studies. All but two SRs [4,8] included non-randomized trials.

Three SRs were available for pain-related conditions [4,7,8]. All of these SRs arrived at positive conclusions. For the SRs on stroke [5] and hypertension [6], conclusions were “unclear”.

4. Discussion

Our overview shows that several SRs on cupping have been published. The fact that most of them were recent (2009 and 2010) indicates that the scientific interest in cupping is growing. Even though most of the reviews are of high quality, they are based on few clinical trials that were associated with a high risk of bias.

Positive conclusions were reached for the management for pain in several pain conditions [4,7,8]. Unfortunately, these SRs were based mostly on poor quality primary studies. Thus, some uncertainty persists about the value of cupping as a treatment of pain.

Two SRs relating to stroke [5] and hypertension [6] were of poor quality, and both relied on a small number of flawed studies. Consequently, it seems fair to say that the value of cupping is not well-documented for these conditions.

In essence, this means that the effectiveness of cupping is currently not well-documented for most conditions. This is in sharp contrast to the many claims made by the proponents of this therapeutic modality, including those practicing traditional Chinese medicine or complementary and alternative medicine.

All five systematic reviews relied on primary studies from China. Several groups have demonstrated

Table 1 Systematic reviews on cupping for health care [4–8]

Study	Condition	Type of cupping	No. of primary studies	Methodological quality of primary studies*	Quality of SR OQQA [†]	Conclusion (quote)*	Authors' result [‡]
Kim et al (2010) [4]	Any pain	Dry and wet	7 RCTs	Variable	5	... some suggestive ...	+
Lee et al (2010) [5]	Stroke rehabilitation	Dry and wet	5 studies (3RCTs and 2 UOSs)	Poor	6	... insufficient evidence ...	+/-
Lee et al (2010) [6]	Hypertension	Dry and wet	2 studies (1RCT and 1 UOS)	Poor	5	... not sufficiently convincing ...	+/-
Kwon & Cho (2007) [7]	Musculoskeletal pain	Wet	5 studies (2 RCTs and 3 CCTs)	Poor	4	... effective ...	+
Cao et al (2010) [8]	Herpes zoster	Wet	8 RCTs	Poor	7	... effective ...	+

*Relied on the original authors' judgment; [†]the overall score of OQQA was from 1 to 7: OQQA ≤ 3 means having extensive or major flaws, OQQA ≥ 5 means having minor or minimal flaws; [‡]a plus sign indicates it is overall positive, and minus sign indicates that it fails to show effectiveness; plus/minus sign indicates it is unclear. SR=systematic review; OQQA=overview quality assessment questionnaire; RCT= randomized controlled trial; CCT= nonrandomized controlled trial; UOS=uncontrolled observational study.

that nearly 100% of all acupuncture studies from China generate positive results [9,10]. This finding raises considerable doubts about the reliability of these data. Table 1 also shows that the quality of the primary studies is often poor. Trials of poor quality tend to produce false positive results. Collectively, these facts limit the conclusiveness of SRs on cupping, thereby leaving a level of uncertainty. SRs have been criticized for being often unable to provide specific guidance. Yet, even if uncertainty prevails, SRs have the important function of mapping areas of doubt. Thus, as pointed out above, our overview highlights areas of research in which investment in further clinical trials would be fruitful.

Thus, our overview of SRs suggests that future cupping-research should consider all necessary measure to minimize bias including development of possible sham or placebo cupping. We recommend following the CONSORT guidelines when designing clinical trials of cupping [11]. Similarly, SRs of cupping should abide by the preferred reporting items of systematic reviews and meta-analyses guidelines to reduce the risk of bias [12].

Our overview has several important limitations. Even though our search strategy was thorough, we cannot completely exclude the notion that relevant articles were missed. By evaluating SRs rather than clinical trials, important details of the primary studies may have been lost. Most importantly, the poor quality of the primary data and the SRs is regrettable. Collectively, these limitations hamper the conclusiveness of our findings.

In conclusion, this overview of SRs suggests that cupping may be effective for reducing pain. The evidence is insufficient for other indications. All SRs are based on primary studies with a high risk of bias. Therefore, considerable uncertainty remains about the therapeutic value of cupping.

Acknowledgments

M.S. Lee and J.I. Kim designed the review, performed searches, appraised and selected trials, extracted data, contacted authors for additional data, carried out analyses and interpretation of the data, and drafted this report. E. Ernst reviewed and critiqued the review protocol in this report and assisted in designing the review. All authors read and approved the final manuscript. M.S. Lee was supported by KIOM (K10251).

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