



## Commentary

# Long-term effect of cupping for chronic neck pain

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### ARTICLE INFO

#### Article history:

Received 27 August 2014

Received in revised form

27 September 2014

Accepted 30 September 2014

Available online 14 October 2014

#### Keywords:

cupping

long-term effect

neck pain

Focal article: Lauche R, Cramer H, Langhorst J, Dobos G. Cupping for chronic nonspecific neck pain: a 2-year follow-up. *Forsch Komplementmed* 2013;20:328–33.

## 1. Aim

To investigate the long-term effects of cupping therapy in patients with chronic neck pain.

## 2. Design

Three two-armed randomized waitlist-controlled trials (RCTs) were followed up 2 years after the completion of each of the three studies. Assessments were conducted by researchers prior to and after the cupping therapy.

## 3. Setting

The study was conducted at the Department of Internal and Integrative Medicine, Kliniken Essen-Mitte, Faculty of Medicine, University of Duisburg-Essen, Essen, Germany.

## 4. Participants

Study participants included patients aged 18–75 years who had experienced nonspecific neck pain with a pain intensity of > 40 mm on a 100-mm visual analogue scale (VAS) for at least 3 months for a minimum of 5 days per week. Patients who had received acupuncture or cervical surgery within the previous year were excluded.

A total of 133 patients who received the prescribed cupping treatment were invited to participate in a 2-year follow-up

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<http://dx.doi.org/10.1016/j.imr.2014.10.001>

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after the treatment. Eighty-two patients filled out the questionnaires 2 years after treatment, whereas 51 patients were lost to follow-up.

## 5. Intervention

In each RCT, the researchers randomized 50 patients into two groups. The RCT1<sup>1</sup> participants underwent five dry-cupping sessions over 2 weeks or delayed treatment (waitlist control). The researchers used 4–10 double-walled glass cups. The treatment lasted about 15 minutes and was repeated every 3–4 days.

The RCT2<sup>2</sup> participants underwent a single wet-cupping treatment or delayed treatment (waitlist control). The skin was superficially incised prior to cup application, which resulted in blood being sucked out through the incisions.

The RCT3<sup>3</sup> participants underwent five pneumatic pulsation treatments over 2 weeks with a mechanical device or delayed treatment (waitlist control). A Pneumatron® 200S (Pneumed GmbH, Idar-Oberstein, Germany) was used to generate pulsating electromechanical suction to glass or silicone cups (diameter, 6–130 mm). Reduction of pressure and atmospheric pressure were alternated with a standard frequency of 200 cycles/min. The treatment lasted 15 minutes and was repeated every 3–4 days;

## 6. Main outcome measures

The findings of the preintervention assessment and follow-up assessment after 2 years were compared.

The main outcomes included: (1) pain intensity measured on a 100-mm VAS, (2) functional disability according to the neck disability index (NDI), and (3) quality of life according to the Short Form (36) Health Survey (SF-36).

Global improvement was measured using a 5-point Likert scale, and duration of treatment effect was recorded.

## 7. Main results

- (1) Neck pain intensity: There was no change in VAS scores.
- (2) Functional disability: NDI decreased significantly by 3.15 points, which equals an effect size of  $d = 0.32$ .
- (3) Health-related quality of life: SF-36 increased on the subscales bodily pain (14.53; 95% confidence interval, 9.67–19.39) and physical component summary (2.97; 95% confidence interval, 0.97–4.97); this represents effect sizes of  $d = 1.06$  and  $d = 0.41$ , respectively.
- (4) Patients reported their health status compared to that 2 years previously. Health status was rated as very much improved by 18 patients (22%), somewhat improved by 21 patients (25.6%), and unchanged by 33 (40.2%) patients.
- (5) The VAS scores for pain intensity were reduced in 28 and 20 patients (34.1% and 24.4%) by at least 30% and 50%, respectively, and increased in 21 and 17 patients (25.6% and 20.7%) by at least 30% and 50%, respectively, compared to baseline.

- (6) The average duration of treatment effect was  $8.9 \pm 8.7$  months. Sixteen patients (19.5%) reported that they still had treatment effects.

## 8. Authors' conclusion

Cupping treatments were not effective in terms of long-term neck-pain intensity. However, cupping treatments had sustainable effects on physical function and quality of life for up to 2 years in patients with chronic neck pain. Because of the single-group design and the considerable dropout rate, further RCTs with long-term follow-up are needed.

## 9. Address

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## 10. Commentary

Several studies exist on cupping therapy during chronic pain conditions. In the systematic review by Kim et al,<sup>4</sup> cupping was found to be effective for treatment in patients with lower back pain, cancer pain, trigeminal neuralgia, and brachialgia. Cervical spondylosis is one of the degenerative conditions that result in chronic nonspecific neck pain. Therefore, by considering only those conditions associated with neck pain, cervical spondylosis was treated more effectively with cupping combined with another medical intervention technique, such as acupuncture or traction, than with other interventions alone.<sup>5</sup> However, it has yet to be ascertained that cupping therapy has indeed long-term effects on neck pain in patients as no clear evidence exists.

Romy Lauche's research team has conducted various meaningful clinical research studies and reviews on the effectiveness of cupping for neck pain.<sup>1–3</sup> One of their interesting research topics involves minimal clinically important differences in chronic nonspecific neck pain. They used an anchor-based approach to determine minimal clinically important difference measures, and VAS, NDI, SF-36 bodily pain subscale (SF-36-BP), and SF-36 physical component summary (SF-36-PCS) were selected using receiver operating characteristic analysis.<sup>6</sup> The results of this meaningful study can be applied in integrative medicine research.

In this study, participants were followed up to investigate whether cupping has long-term effects. After 2 years, 34.1% of the participants reported a reduction in pain intensity of > 30%. In a previous study, decrease in pain intensity of > 30% was considered to be a moderately important difference in patients.<sup>7</sup> Meanwhile, 25.6% of the patients reported an increase in pain of at least 30%. Therefore, it cannot be concluded that cupping influenced neck pain intensity in the long term.

Nevertheless, cupping had sustainable effects in terms of physical function and health-related quality of life. Effect sizes based on Cohen's categories were 0.32 (NDI), 1.06 (SF-36-BP),

and 0.41 (SF-36-PCS). Therefore, the effects ranged from small to large. The perceived treatment effect of cupping in patients was approximately 8.9 months, and some patients reported that the effect of cupping persisted throughout the 2 years following their treatments.

The results of this study suggest that some patients with neck pain might experience long-term effects after the cupping treatment. However, this finding cannot be generalized to all patients. Although certain participants, particularly men and those in the wet-cupping group, experienced treatment effects after 2 years, this was not statistically significant. Therefore, further confirmatory clinical trials are needed.

This study has several limitations. First, I cannot exclude the effect of “regression to mean” or “natural history of the disease” as I cannot compare the two groups. Second, the dropout rate was high, and the bias that only responders of the treatment were followed up cannot be ignored. Therefore, the data should be interpreted carefully.

Further interesting research based on this study may involve confirmation of whether cupping has long-term effects and determination of which subgroup would benefit more from cupping therapy. The subgroup can be defined based on the treatment methods such as cupping type, location, number of treatments, and frequency of treatments; or by participant characteristics such as sex, age, risk factors, and cause.

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### Conflict of interest

None declared.

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