



## RESEARCH ARTICLE

# EFFECT OF HIJAMA (CUPPING) AND BLOOD LETTING THERAPY IN MANAGEMENT OF NON-DISCOGENIC LOW BACK PAIN

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### ABSTRACT

**Background:** Hijama (wet cupping) is not a conventional therapy for post-stroke complications, but it might have some additional benefits on early rehabilitation. **Aim of the work:** to test if wet cupping had an effect in management of early post-stroke complications. **Methodology:** One hundred twenty subjects presented with acute stroke, were asked to participate in the study. They divided into two equal groups: the first received conventional post-stroke care; and the second received conventional post-stroke care plus wet cupping. Then patients were assessed by the national institute of health stroke scale (NIHSS) index for neurologic deficit evaluation; the Fugl-Meyer assessment (FMA) scale for motor functions, the rate of recovery based on the bedside swallowing assessment (BSA), the mini-mental state examination (MMSE) and Montreal cognitive assessment (MoCA) for cognitive function, and adverse reaction of wet cupping were documented for safety evaluation. **Results:** There was statistically significant decrease in pain intensity in both wet and dry cupping. But the results were better with wet cupping technique. **Conclusion:** Significant use of cupping technique as a therapeutic model in treatment of disco-genic low back pain

## INTRODUCTION

Stroke is the main cause of disability in different countries worldwide and it had a high incidence and prevalence (Feigin *et al.*, 2009; Mozaffarian *et al.*, 2016). One of the major topics is the post-stroke compromised functions as it was reported in approximately 90% of stroke survivors (Arene and Hidler, 2009). Measures to reduce this impact including providing adequate follow-up and to assist patients in recovering their health and function, to prevent further diseases and disability, and to promote health and function (Young and Forster, 2007; Ottawa *et al.*, 2006). Early comprehensive rehabilitation intervention in stroke patients is said to have a favorable outcome. Stroke patients received early intervention are more likely to be alive, independent and have better functional outcomes (Chan *et al.*, 2013). Cupping therapy is one of the traditional medical technologies practiced for thousands of years. It is an important class of complementary and alternative medicine in the world. It is practiced very often in many countries, especially China, Korea, Japan and Saudi Arabia (Chen *et al.*, 2015). Cupping is a physical treatment that done by a plastic, bamboo, or glass cups to create a negative suction on the skin over an acupuncture point or painful area. It has been said to be effective in reduction of pain as well as other symptoms (Kim *et al.*, 2009; Michalsen *et al.*, 2009; Yoo and Tausk, 2004). It consisted of wet or dry cupping. In dry cupping, the skin is pulled into the cup without drawing blood, negative pressure acts on the skin and irritates subcutaneous muscles; while in wet cupping the skin is scratched by sterilized scalpel so that stagnant blood is drawn into the cup (Lee *et al.*, 2010).

Cupping as a whole is defined by WHO as a therapeutic method (Code 5.3.2) involving the application of suction by creating a vacuum. This is typically done using fire in a cup or jar (Code 5.3.7) on the dermis of the affected part of the body (World Health Organization, 2007). Different mechanisms were proposed to explain effect of cupping. it has been claimed that cupping – either dry or wet- drains excess fluids, loosens adhesions and lifts connective tissue, brings blood flow to stagnant skin and muscles, and stimulates the peripheral nervous system. In addition, cupping is said to reduce pain and high blood pressure and modulate neuro-hormone and immune systems (Yoo and Tausk, 2004). In addition, cupping is used to improve subcutaneous blood flow circulation and to stimulate the autonomic nervous system (Chirali, 2007). Cupping played multiple therapeutic functions which include: warming the channels to remove cold, promoting qi and systemic circulation, relieving swelling, accelerating healing, adjusting body temperature, control fibromyalgia (Cao *et al.*, 2011), used in stroke rehabilitation, decreased hypertension, musculoskeletal pain, and cure herpes zoster (Lee *et al.*, 2011; Cao *et al.*, 2010), treat facial paralysis, acne, and cervical spondylosis (Cao *et al.*, 2012), and alleviating different types of pain (Huang and Cao, 2006), including chronic neck pain (Kim *et al.*, 2012; Lauche *et al.*, 2012; Yuan *et al.*, 2015), shoulder pain (Broadhurst *et al.*, 2006), and low back pain (Yuan *et al.*, 2015; Huang *et al.*, 2013). The topic of use of cupping in rehabilitation in patients after stroke is under investigated. Thus, the present study was designed to examine if cupping had any effects on post-stroke complications.

## MATERIALS AND METHODS

The study conducted and included 120 subjects who were randomly allocated into two equal groups:

**First group:** included those who received standard post-stroke rehabilitation care, without additional cupping.

**Second group:** included those who received standard post-stroke rehabilitation care with additional cupping.

Randomization was done by closed envelope method, where 60 papers were assigned to number 1 and the second 60 papers were assigned to number 2 and each was included in an envelope. Then the envelope was closed and kept by a nursing staff. At presentation of eligible subject, a random envelope was opened and patient was randomized to either group 1 or 2.

**Inclusion criteria:** patients who fulfilled the following criteria will be included in the present study:

- Age between 30–60 years of age hospitalized for acute ischemic stroke and/or hemiplegia,
- Patients with recent onset of stroke (two to seven days beforehand),
- NIHSS score between 5 and 14,
- Clear consciousness and stable vital signs
- First attack of stroke (not recurrent)

**Exclusion criteria:** patient who had any of the following were excluded from the study:

- Recurrent stroke
- Severe stroke (the NIHSS score between 15 and 24)
- Heart, liver, and kidney-related diseases,
- Blood coagulation dysfunction,
- Patients unable to complete the MMSE test or bedside swallowing assessment (BSA).
- Congenital disabilities.
- Pregnant or breast-fed mothers

## METHODS

Both groups received conventional stroke rehabilitation care according to stroke rehabilitation treatment guidelines. This care was started as soon as the diagnosis of stroke established and life-threatening conditions under control. The basic conventional rehabilitation care included normal limb posture, passive motion with hemiplegia side, bedside rehabilitation (Bobath technique, overturning movement, bridge movement), neuromuscular electrical stimulation, and/or swallowing training for dysphagia, and/or cognitive training for cognitive impairment. The rehabilitation program will be conducted for two hours per day, six days per week. The second group will also receive wet cupping once a week for 4 successive weeks.

**Outcome measurements:** Participants were assessed at week 0 (baseline), and one week after each wet cupping session. In addition, an additional assessment was done at 3 and 6 months after the last wet cupping session. The national institute of health stroke scale (NIHSS) index for neurologic deficit evaluation was used as the primary outcome measurements. Secondary outcomes included the Fugl-Meyer assessment (FMA) scale for motor functions, the rate of recovery based on the bedside swallowing assessment (BSA), the mini-mental state examination (MMSE) and Montreal cognitive assessment (MoCA) for cognitive function, and adverse reaction of wet cupping were documented for safety evaluation.

**Ethical considerations:** Ethical approval was taken under no. (IRB VCR-12- 2023), as the protocol of the study was explained for each patient, and an informed consent was obtained. Confidentiality and right for withdrawal at any time of the study was guaranteed.

**Statistical analysis of data:** The collected data were documented and statistically analyzed with appropriate software statistical package (SPSS) Version 22.

## RESULTS

The aim of this work was to record the effect dry and wet cupping therapy on patients suffering from non-discogenic low back pain (lumbar spondylosis). Sixty patients with low back pain were enrolled in the present study. There were 30 females and 29 males. They were divided into two groups.

### Acute non discogenic low back pain, to be treated with

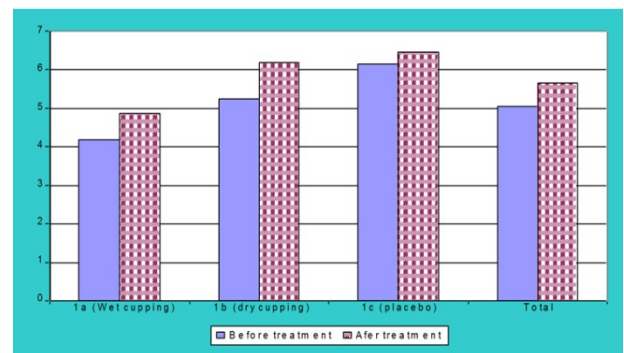
- Wet cupping therapy (cupping and bloodletting)
- Dry cupping therapy (cupping without bloodletting)
- Placebo (cupping without suction)

### Chronic non discogenic low back pain, to be treated with

- Wet cupping therapy
- Dry cupping therapy
- Placebo

In group 1 (30 cases), there were 18 males (60.0%) and 12 females (40.0%) and there was no statistically significant difference between subgroups in group 1 as regard sex distribution. As regard sex distribution in group 2, there were 11 males (36.7%) and 19 females (63.3%) and there was no statistically difference between subgroups as regard sex distribution.

**serum uric acid:** As regard serum uric acid, there was statistically significant variance between studied subgroups before and after treatment in groups 1, and there was statistically significant increase in serum uric acid after treatment in subgroup 1a and 1b in comparison to their values before treatment.



Comparison between subgroups in group 1 as regard serum uric acid before and after treatment. In group 2, there were statistically significant differences between subgroups before and after treatment. In addition, there was statistically significant increase in serum uric acid in group 2 b and in placebo after treatment in comparison to their values before treatment.

### C-reactive protein

- As regard C-reactive protein, there was statistically significant decrease in positive cases in subgroup 1a (wet cupping) after treatment (0 cases) in comparison to before treatment (5 cases; 35.7%). Unfortunately, in subgroup 1b (dry cupping), no cases were positive before or after treatment.
- In group 2, there was no statistically significant difference between cases after treatment in comparison to their values before treatment in any subgroup as regard CRP. In subgroup 2a, only 2 positive cases (14.3%) were found before treatment, and after treatment, there were no positive cases.

**Table 1. Sex distribution in group 1 (Acute non-discogenic pain)**

Groups	Group 1 A		Group 1 B		Group 1 C		Total	
	Wet Cupping		Dry cupping		Placebo			
Sex	NO.	%	No.	%	No.	%	No.	%
Male	9	64.3%	3	50%	6	60%	18	60%
Female	5	35.7%	3	50%	4	40%	12	40%
Total	14	100%	6	100%	10	100%	30	100%
Statics	Chi <sup>2</sup> = 0.35, p = 0.83 (NS)							

**Table 2. Sex distribution in group 2 (Chronic non-discogenic pain)**

Groups	Group 2 A		Group 2 B		Group 2 C		Total	
	Wet Cupping		Dry cupping		Placebo			
Sex	NO.	%	No.	%	No.	%	No.	%
Male	3	21.4%	3	50%	5	50%	11	36.7%
Female	11	78.6%	3	50%	5	50%	19	63.3%
Total	14	100%	6	100%	10	100%	30	100%
Statics	Chi <sup>2</sup> = 2.62, p = 0.26 (NS)							

### Hemoglobin concentration

- In group 1, as regard hemoglobin concentration, there was no statistically significant difference in subgroups after treatment in comparison to their values after treatment.
- In group 2, as regard hemoglobin concentration, there was no statistically significant difference in subgroups after treatment in comparison to their values after treatment.

### β-endorphins

- In group 1, before treatment, there was no statistically significant difference between subgroups as regard levels of β-endorphins, while after treatment there was statistically significant variance between studied subgroups as regard β-endorphin.
- In addition, there was statistically significant increase in β-endorphins in both group 1a, group 1b after treatment in comparison to their values before treatment. The increases levels of β-endorphins were marked in group 1a than group 1b.

## DISCUSSION

Low back pain is among the most debilitating, most expensive and most common complaint patients raise during routine physical examination worldwide (Mozaffarian D *et al.* 2016). Western medicine typically treats low back pain with combination of physical therapy, activity modifications and rest, pain relief and anti-inflammatory medications, and in extreme cases: surgery. These treatment options demonstrate mixed efficacy and success. In many cases, an acceptable amount of pain is relieved enough typical western medical treatment techniques. However, in other cases some pain remains; in some cases, typical western treatments are completely in-effective. (Huang C-Y *et al.* 2013). Despite use in many cultures both historical and today, the effectiveness of wet cupping to treat non-specific low back pain is still to some extent unknown. Thus, the aim of this work was to record the effect of dry and wet cupping therapy on patient suffering from non-discogenic low back pain (lumbar spondylosis). It included sixty patients with low back pain that divided into two groups as mentioned in methodology section. Results of this study revealed that there was no statistically significant difference between studied groups as regard gender and age. Similar results were reported by (Lauche R 2012) who reported that base line descriptive data for the intervention and control groups were quite similar in age, sex, duration of pain and previous surgeries. After treatment, results of this study revealed that there were no significant changes in studied groups as regard ESR in the first and second hours, hemoglobin concentration, platelet count and total leucocytic count. On the other hand, there was statistically significant decrease in group A1 (wet cupping) of acute pain as regard CRP. In addition, serum uric acid showed statistically significant variance before and after treatment.

In groups 1a, 2a and 2b, there was statistically significant decrease in pain intensity after treatment in comparison to their values before treatment. While no statistically significant difference was obtained from groups 1b, 1c and 2c. The decrease in pain intensity was more marked in group 2a than 2b. Thus, wet cupping with either acute or chronic low back pain is associated with better outcome than dry cupping although the dry cupping is also effective. This result is in agreement with (Cao H *et al.* 2012) but is disagree of findings of (Lauche R *et al.* 2012). The physiological mechanism through which wet cupping might function remain unknown. It has been suggested that the effect of wet cupping may be divided into several component, including neural, hematologic, immune and physiological effects. (Kim T-H *et al.* 2012)

## CONCLUSION

In conclusion, results from the present study suggest that both wet- and dry cupping are associated with greater short term clinical benefit (reducing pain intensity) for either acute or chronic non- discogenic low back pain, but wet cupping is associated with better results.

## RECOMMENDATIONS

**At the end of this study, it is recommended to:**

- Design future, large scale studies to shed more light on the effect of cupping on different diseases.
- The use of cupping as a therapeutic model in treatment of non-discogenic low back pain.

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