Original Article

Effects of wet cupping on chronic pain: A retrospective study

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Abstract

Introduction: Pain is considered a major clinical problem and is a source of social and economic burden for many people.

Problem Statement: Many patients experiencing pain find conventional treatments to be moderately effective; however, they often experience adverse side effects, leaving them to seek complementary and alternative therapeutic approaches. The aim of this study was to assess the effects of wet-cupping therapy (WCT) for the treatment of several chronic pain conditions and additionally to evaluate whether these effects differ according to the time of application during any lunar month in the Islamic lunar calendar.

Material and Methods: A retrospective review was conducted using data from the records of patients who attended the Hijama Clinic of King Abdulaziz University Hospital from January 2017 to December 2017. In total, 347 patients visited the clinic during 2017; 231 of these patients experienced pain, and 117 of these patients met the inclusion criteria for participation. Scores from the Visual Analog Scale (VAS) were used to evaluate the effect of wet cupping on pain intensity.

Results: A Wilcoxon signed-rank test demonstrated that the median (Mdn) VAS scores at 1 month postintervention (Mdn = 5) were significantly lower than the Mdn VAS scores at baseline (Mdn = 7, $P = 0.000$). Results from a Mann–Whitney U-test revealed that the difference in Mdn VAS scores of patients with headaches and migraines who received WCT during the second half of the lunar month (Mdn = 3) was significantly higher than the difference in Mdn in VAS scores of patients who received WCT during the first half of the lunar month (Mdn = 0, $P = 0.005$).

Conclusion: A single application of WCT appeared to effectively treat several chronic pain-related conditions for at least 4 weeks. In addition, the improvement in pain severity may be enhanced when WCT is performed during the second half of the lunar month.

Keywords: Complementary, Hijama, lunar month, pain, wet cupping

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INTRODUCTION

Pain is considered a major clinical problem and is a source of social and economic burden for many people. As per the International Classification of Diseases, pain can be classified as acute or chronic and physiologically as skeletal, neuropathy, or inflammatory.[1] A recent review reported

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that the prevalence of chronic pain is estimated to be 24.8% in developing countries and 28% in developed countries.[2]

Pain has a negative impact on health, and severe chronic pain can have psychological and social consequences, including decreased work performance and sleep disturbances. Furthermore, the impact of pain may affect the patient's quality of life and lead to a high financial burden.[3,4] Many patients experiencing pain find conventional treatments to be moderately effective; however, they often experience adverse side effects such as risk of abuse and misuse or risk of renal failure, and other serious complications, which cause many people to seek complementary and alternative therapeutic approaches as they are traditionally less likely to cause unwanted side effects.[3,5]

Cupping is a well-known complementary remedy in many parts of the world. Cupping therapy can be divided into two major categories: dry cupping and wet-cupping therapy (WCT). Dry cupping is the process of using a flaming heat source to achieve suction without performing incisions to the skin. This study focused on the effects of WCT, which is defined as the process of utilizing a vacuum at various points on the body but with incisions to the skin in order to remove blood.[6]

In the Middle East and most Arab countries, WCT is known as Hijama, which is an Arabic word that means sucking, and is a popular treatment because of its religious significance[.7] Within recent years, researchers have become more interested in WCT, and there is growing evidence suggesting that it may be effective in relieving pain associated with various conditions.[6-14]

In China, researchers conducted a systematic review that evaluated the efficacy of WCT for the treatment of pain and included studies from nine English and four Chinese databases, regardless of their publication status. Overall, 16 randomized controlled trials that included a total of 921 participants were analyzed, and the majority of these trials used WCT (11/16). Results from this review suggested that WCT may have a short-term analgesic effect for several pain conditions.[6]

However, the duration of the analgesic effect of WCT varies among studies.[8-10,13,14] For example, Michalsen *et al*.[8] reported that a single WCT session effectively reduced pain associated with carpal tunnel syndrome and neck pain for at least 1 week. In addition, Lauche *et al*.[13] demonstrated that WTC effectively reduced pain and improved quality of life for patients with chronic neck pain for about 4 days after therapy. Lüdtke *et al*.[14] measured the effect of a single WCT session on patients diagnosed with brachialgia and found that it produced short-term analgesic effects that lasted for 1 week. Although those studies demonstrated the pain-relieving effects of a single WCT session, their sample sizes were small, and the follow-up interval was short. Therefore, the present study investigated whether the analgesic effects of a single WCT session lasted for longer than 1 week and if WTC effectively treated chronic pain associated with different conditions.

The Islamic calendar consists of 12 lunar months. A lunar month has 29.5 days on average. Each lunar month in the Islamic calendar starts with the first sighting of the crescent moon in the evening after a new moon.[15] Traditionally, the 17th, 19th, and 21st which fall in the second half of each lunar month in the Islamic lunar calendar are the days recommended for application of WCT. Moreover, this time of application of cupping therapy is similar to that in Chinese traditional medicine which recommends the middle of the lunar month.[11,16,17] Accordingly, Benli and Sunay[11] reported that the severity of pain associated with migraine headaches was significantly decreased when WCT was performed during the second half of the lunar month compared to when it was performed during the first half of the lunar month.[11] Thus, further evidence is needed to assess the effects of wet cupping on other types of pain during certain days of the lunar month.

The aim of this study was to assess the effects of a single session of WCT on pain severity at 1 month postintervention and to determine if the time of application during any lunar month according to the Islamic lunar calendar influenced these effects. The effects of WCT were assessed in this current study for patients who were referred to the Hijama Clinic with chronic pain as their main complaint in King Abdulaziz University Hospital (KAUH) during the year 2017.

MATERIALS AND METHODS

Place of study

The study was conducted in the Hijama Clinic of KAUH in Jeddah, Saudi Arabia. Patients were referred to the Hijama Clinic from other clinics to receive WCT for various medical conditions.

Ethical considerations

This study was approved by the Institutional Review Board of KAUH (Reference No: 213-18). Medical records were reviewed only by the principal author and co-authors. No copies of the records were obtained, and no medical records were taken outside the clinic. For confidentiality,

the collected data were kept secured and were used only for the study purpose.

Study design

This was a retrospective study that reviewed data from the records of patients who attended the Hijama Clinic.

Sample size and study population

A total of 347 patients visited the clinic from January 2017 to December 2017. We reviewed the medical record of 231 patients who were referred to the Hijama Clinic for pain, and patients who met the inclusion criteria were included in this study. The records of adult patients who experienced chronic pain for more than 3 months and who were referred to the Hijama Clinic with pain as their chief complaint were used in this study. A total of 123 patients experienced chronic pain for more than 3 months, and 108 patients were without chronic pain (duration of pain less than 3 months). Inclusion criteria required that they had performed at least one WCT session and had baseline Visual Analog Scale (VAS) scores and VAS scores from 1 month posttreatment. Patients with incomplete VAS score records were excluded from this study. Based on these criteria, 117 patients were included in this study. Patients excluded were 4 patients with missing VAS scores and 2 patients who had not undergone WCT.

Data collection

A data collection sheet constructed by the main investigator was used to review the medical records and included four sections: (1) sociodemographic information; (2) medical history; (3) date of WCT sessions; and (4) pain evaluation, including the VAS scores that were recorded before the first cupping session and 1 month after treatment.

The pain evaluation form in the medical records included two sections that were completed during every visit for each patient with pain as the main reason for referral. The first section included information about the site and characteristics of the pain, and the second section included a scale for pain assessment, such as the VAS. The physicians in the Hijama Clinic were required to assess the severity of pain using the VAS, which is a validated ratio measure of pain that ranges from 0 (no pain) to 10 (worst pain).[12] Usually, patients undergo two to three WCT sessions at the KAUH Cupping Clinic. Each session lasts for about 1 h, and there is typically a period of at least 1 month between sessions.

Study outcomes

This study evaluated the differences in pain severity pre- and posttreatment. Baseline VAS scores were determined immediately before the wet-cupping session during the first clinic visit. Pain severity was assessed again at 1 month posttreatment using the VAS, and these scores were used to determine changes in pain severity from baseline. We also investigated the effect of WCT on pain severity based on whether treatment was provided during the first or second half of the lunar month according to the Islamic calendar. Patients were divided into groups based on this. One group consisted of patients who received WCT during the second half of any lunar month and the other group consisted of patients who received WCT during the first half of any lunar month. Changes in VAS scores from baseline to 1 month after treatment were evaluated in each group. Moreover, the differences in VAS scores between the two groups were evaluated.

Statistical analysis

The data were statistically analyzed using SPSS software version 23 (IBM, Armonk, NY, USA). For ensuring accuracy of data, we randomly selected a sample of 20% of the cases from the completed data set in the SPSS file and compared each cell entry with the original data in the data collection sheet to check if they were identical. Continuous variables are presented as the mean ± standard deviations and categorical variables are presented as the frequency and proportion. Data that were not normally distributed were presented as median (Mdn) and interquartile range (IQR). For all analyses, $P < 0.05$ was considered statistically significant (95% confidence interval). A Shapiro–Wilk test was conducted to evaluate the normality of that data. Results from this test revealed that the VAS scores were not normally distributed. Therefore, a Wilcoxon signed-rank test was used to compare the VAS scores before and 1 month after WCT, and a Mann–Whitney *U*-test was conducted to determine differences in VAS score between patients who received WCT in the second half of the lunar month and patients who received WCT on other days.

RESULTS

Sociodemographic characteristic of the patients

The majority of patients were women (85.5%), and the mean age was 47.78 ± 10.97. The most common education level was university school graduate (38.8%), and the least common was intermediate school (7.8%). The percentage of patients married was 72.8%, and more than half of the patients were Saudi (59%). The vast majority of patients were nonsmokers (88.3%) [Table 1].

Reason for referral among patients attending Hijama Clinic

Table 2 shows the types of chronic pain that were experienced by the patients who were referred to the Hijama

Table 1: Sociodemographic characteristics of the patients referred to the Hijama Clinic for chronic pain (*n*=117)

Variables	Frequency‡ (%)
Age (years) (*n*=117), means	47.78±10.97
Gender (*n*=117)	
Male	17 (14.5)
Female	100 (85.5)
Nationality (*n*=117)	
Saudi	69 (59.0)
Non-Saudi	48 (41.0)
Marital status (*n*=114)	
Single	15 (13.2)
Married	83 (72.8)
Divorced/widow/separated	16 (14)
Level of education (*n*=116)	
Illiterate	11 (9.5)
Primary school	12 (10.3)
Intermediate school	9 (7.8)
Secondary school	21 (18.1)
University school	45 (38.8)
Postgraduate	18 (15.5)
Occupation (*n*=114)	
Student	2 (1.8)
Homemaker	45 (39.5)
Governmental employee	45 (39.5)
Private sector employee	8 (7.0)
Retired	6 (5.3)
Not working	6 (5.3)
Other	2 (1.8)
Residency (*n*=114)	
Owner	41 (36.0)
Rent	73 (64.0)
Smoking status (*n*=111)	
Yes	13 (11.7)
No	98 (88.3)

‡The variables with frequency <117 are missing values. SD: Standard deviation

Table 2: Types of chronic pain experienced by patients who were referred to the Hijama Clinic (*n*=117)

Main complaint	Frequency (%)
Back pain	58 (49.6)
Neck and joint pain	37 (31.6)
Headaches and migraines	22 (18.8)

Clinic between January 2017 and December 2017. Back pain was most commonly reported by patients (49.6%), followed by neck and joint pain (31.6%) and headaches and migraines (18.8%).

The effects of wet cupping on pain severity

The VAS scores of 81 patients were reduced from baseline to 1 month posttreatment. Twenty-one patients showed no reduction in VAS scores, and the VAS scores of 15 patients increased from baseline to 1 month posttreatment. Further, the VAS scores at 1 month posttreatment (Mdn = 5, IQR = 4) were significantly lower than the VAS scores at baseline (Mdn = 7, IQR = 4, $P = 0.000$) [Table 3].

When the effect of wet cupping on pain was classified according to the type of chronic pain, the statistically significant reduction in VAS scores from pre- to posttreatment was maintained in all groups of pain, including patients with back pain ($P = 0.000$), neck and joint pain ($P = 0.001$), and headaches and migraine ($P = 0.011$) [Table 3].

Thirty patients received WCT during the second half, and 87 patients received WCT during the first half. VAS scores were compared at preintervention and 1 month postintervention for each group. The difference in Mdn VAS scores (pre- and postintervention) of patients with headaches and migraines who received WCT during the second half of the lunar month (Mdn = 3, IQR = 3) was significantly higher than the difference in Mdn VAS scores of patients with headaches and migraines who received WCT during the first half of the lunar month (Mdn = 0, IQR = 3, $P = 0.005$) [Table 4]. The difference in Mdn VAS scores for other types of pain were not significantly different between patients who received WCT during the second half of the lunar month and patients who received WCT during the first half of the lunar month [Table 4].

DISCUSSION

This study assessed the effects of WCT for the treatment of several chronic pain conditions and evaluated whether these effects differ according to the time of application during the lunar month. Results from this retrospective study showed that WCT effectively reduced the severity of pain experienced by patients with various chronic pain conditions, including back pain, neck pain, joint pain, and migraines and headaches for at least 1 month. The findings also indicated that the improvement in pain severity for migraines and headaches was enhanced when the therapy was conducted during the second half of any lunar month according to the Islamic calendar.

The findings of this study are consistent with previous studies reporting the efficacy of WCT for treating back pain, neck and shoulder pain, headaches, and other musculoskeletal pain conditions.[6-14] Similar to our findings, the results of a systematic review conducted by Cao *et al*.[6] reported that WCT was found to reduce VAS scores by two points. Some studies revealed that a single WCT session effectively reduced pain for at least 1 week.[8,13,14] However, in this study, WCT showed to be effective for 1 month posttreatment, indicating that the effects of a single WCT session may last from 1 to 4 weeks after application.

The change in efficacy of WCT with lunar phases in this study is congruent with the findings reported by Benli and Sunay[11] who stated that there was a greater reduction in

Table 3: Comparison of Visual Analog Scale scores before and after wet-cupping therapy according to the type of pain (*n*=117)‡

Groups	VAS scores, median (IQR)			*n*	*Z*	*P**
	Before WCT	One month after WCT	Median difference			
Back pain	7.5 (4)	5 (4)	2 (4)	58	5.607	0.000
Neck and joint pain	6 (3)	5 (4.5)	2 (3)	37	3.449	0.001
Headaches and migraine	7 (3.25)	5.5 (3.25)	1 (3)	22	2.547	0.011
All pain	7 (4)	5 (4)	2 (3)	117	7.021	0.000

‡Wilcoxon signed-rank test, **P* value is significant. IQR: Interquartile range, WCT: Wet-cupping therapy, VAS: Visual Analog Scale

Table 4: Comparison of Visual Analog Scale scores pre- and postwet-cupping therapy according to whether the treatment was carried out in the first or second half of the lunar month among different types of pain‡

Group	The difference in median VAS scores, median (IQR)		*n*	*U*	*Z*	*P*
	WCT performed during the second half of the lunar month (*n*=30)	WCT performed during the first half of the lunar month (*n*=87)				
Back pain	2 (3)	2 (4)	58	298.00	−0.439	0.660
Neck and joint pain	2 (4.25)	2 (3)	37	119.00	0.112	0.911
Headaches and migraine	3 (3)	0 (3)	22	13.000	−2.815	0.005*
All pain	2 (3)	1 (3)	117	1063.5	−1.521	0.128

‡Mann–Whitney *U*-test, **P* value is significant. IQR: Interquartile range, WCT: Wet-cupping therapy, VAS: Visual Analog Scale

the severity of pain experienced by patients with migraines when WCT was applied during the second half of the lunar month, although they only included patients with migraines, and our study included patients with several pain conditions. However, in our present study, there was a significant difference in pain severity between patients with migraines and headaches who received WCT during the second half of the lunar month and patients with migraines and headaches who received WCT during the first half of the lunar month, but there were no significant differences for other types of pain. This suggests that WCT should be performed during the second half of any lunar month for patients with headaches and migraines.

The mechanism of WCT in relieving pain is still not fully understood, and many theories have been suggested to explain this mechanism. The Taibah theory states that WCT has excretory function similar to the kidney.[18] This theory hypothesized that WCT causes increased capillary filtration and retention of filtered interstitial and lymph fluid inside the cupped skin area. This may result in decreased pain through the dilution of inflammatory mediators and other chemical substances or bathing the nerve ending and breaking tissue adhesions.[18]

Lunar phases have been associated with the appearance of different health conditions. For instance, some health conditions, such as cases of nonaffective psychotic disorders, depression, and gastrointestinal hemorrhage, all increase during the phase of the full moon. In addition, cases of spontaneous abortion, birth defects, and attacks of atrial fibrillation were reported to be associated with lunar periodicity.[19] In contrast, Komann *et al*.[20] found that lunar phases have no impact on postoperative pain. Although researchers reported that pain interference with sleep is highest on the full moon day and lowest on the new moon day, and during the waning phase, they concluded that this was a small difference that was not clinically important.[20] In contrast, Tokgöz *et al*.[21] found that the shock wave lithotripsy-related pain scores on the VAS were significantly lower in the first quarter than the mean VAS scores in the waning crescent and waning gibbous phases.[21] Therefore, the effects of lunar phases on pain is still controversial and may vary according to the type of therapy that is investigated.

The biological effects of lunar cycles on human physiological processes may be clarified by one of the three mechanisms: (1) lunar gravity, (2) lunar light, or (3) magnetotail and magnetosphere electromagnetic fields (EMFs). EMFs affect Ca^{2+} ions in the pinealocytes and calcium flux at ion cyclotron resonance that are involved in the regulation of cyclic adenosine monophosphate synthesis and accordingly affect the production of melatonin, neural cells, and cryptochrome.[19] Moreover, there are studies suggesting that melatonin plays a role in the etiology of migraine and that melatonin levels are low in migraine patients. Therefore, EMFs may be a more adequate and acceptable mechanism for explaining the biological effects of lunar cycles primarily in headache patients.[11,19]

This study has several limitations that must be considered. The generalizability of this study is limited to patients with chronic pain who have been referred to clinics by physicians in tertiary health care. Because this study was retrospective in nature, we had no control over the data in the records; therefore, some groups, such as male patients, patients who

received WCT during the second half of any lunar month in the Islamic calendar, and subgroups of pain types, had small sample sizes. We chose the first WCT session in the clinic to avoid the effect of any previous WCT conducted before the pain assessment. Although almost all the patients included in the study had no history of WCT outside the clinic within the last 3 months before attending the clinic, we could not verify if any of the patients conducted WCT during the follow-up period. We recommend that a randomized, placebo-controlled trial be conducted to overcome these limitations and confirm these findings.

CONCLUSION

A single WCT session effectively managed the pain of patients with different chronic pain-related conditions for at least 4 weeks. This improvement in pain severity was enhanced when WCT was performed during the second half of any lunar month in the Islamic lunar calendar. This study provides evidence that WCT can be used as a complementary or alternative therapy for several pain conditions and will help clinicians and patients know the recommended time for applying WCT and the recommended interval between sessions.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. World Health Organization. International Statistical Classification of Diseases and Related Problems, Tenth Revision. World Health Organization; 2012. Available from: http://www.dimdi.de/static/de/klassi/icd-10-gm/ind. [Last accessed on 12 Feb 2020]
2. Elzahaf RA, Tashani OA, Unsworth BA, Johnson MI. The prevalence of chronic pain with an analysis of countries with a Human Development Index less than 0.9: A systematic review without meta-analysis. Curr Med Res Opin 2012;28:1221-9.
3. Simon LS, Green A. Individual patient treatment use of unapproved drugs: A new option for the seriously ill. J Pain Palliat Care Pharmacother 2010;24:19-22.
4. Henschke N, Kamper SJ, Maher CG. The epidemiology and economic consequences of pain. Mayo Clin Proc 2015;90:139-47.
5. Cauffield JS. The psychosocial aspects of complementary and alternative medicine. Pharmacotherapy 2000;20:1289-94.
6. Cao H, Li X, Yan X, Wang NS, Bensoussan A, Liu J. Cupping therapy for acute and chronic pain management: A systematic review of randomized clinical trials. J Tradit Chinese Med Sci 2014;1:49-61.
7. Al Bedah AM, Khalil MK, Posadzki P, Sohaibani I, Aboushanab TS, AlQaed M, *et al*. Evaluation of wet cupping therapy: Systematic review of randomized clinical trials. J Altern Complement Med 2016;22:768-77.
8. Michalsen A, Bock S, Lüdtke R, Rampp T, Baecker M, Bachmann J, *et al*. Effects of traditional cupping therapy in patients with carpal tunnel syndrome: A randomized controlled trial. J Pain 2009;10:601-8.
9. AlBedah A, Khalil M, Elolemy A, Hussein AA, AlQaed M, Al Mudaiheem A, *et al*. The use of wet cupping for persistent nonspecific low back pain: Randomized controlled clinical trial. J Altern Complement Med 2015;21:504-8.
10. Ahmadi A, Schwebel DC, Rezaei M. The efficacy of wet-cupping in the treatment of tension and migraine headache. Am J Chin Med 2008;36:37-44.
11. Benli AR, Sunay D. Changing efficacy of wet cupping therapy in migraine with lunar phase: A self-controlled interventional study. Med Sci Monit 2017;23:6162-7.
12. Firoozabadi MD, Navabzadeh M, Roudsari MK, Zahmatkash M. Comparative efficacy trial of cupping and serkangabin versus conventional therapy of migraine headaches: A randomized, open-label, comparative efficacy trial. J Res Med Sci 2014;19:1134-9.
13. Lauche R, Cramer H, Hohmann C, Choi KE, Rampp T, Saha FJ, *et al*. The effect of traditional cupping on pain and mechanical thresholds in patients with chronic nonspecific neck pain: A randomised controlled pilot study. Evidence Based Complement Alternat Med 2012;2012:429718.
14. Lüdtke R, Albrecht U, Stange R, Uehleke B. Brachialgia paraesthetica nocturna can be relieved by "wet cupping" – Results of a randomised pilot study. Complement Ther Med 2006;14:247-53.
15. Rashed MG, Moklof MG, Hamza AE. Investigation the arithmetical or tabular Islamic calendar. NRIAG J Astron Geophys 2018;7:20-1.
16. Gao X, Chen B, Chen Z, Yu W, Xing L, Li N, *et al*. Analysis of the characteristics of Al-Hijamah bloodletting therapy in Arab region. World J Acupunct Moxibustion 2018;28:59-60.
17. El-Wakil A. Observations of the popularity and religious significance of blood-cupping (Al-Ḥ-ijāMa) as an Islamic medicine. Contemp Islamic Stud 2011;2011:1-12. [doi.org/10.5339/cis. 2011.2].
18. Mahmoud HS. Medical and scientific bases of wet cupping therapy (Al-Hijamah): In llight of modern medicine and prophetic medicine. Altern Integr Med 2013;122:1-30. [doi.org/10.4172/2327-5162.1000122].
19. Bevington M. Lunar biological effects and the magnetosphere. Pathophysiology 2015;22:211-22.
20. Komann M, Weinmann C, Meissner W. Howling at the moon? The effect of lunar phases on post-surgical pain outcome. Br J Pain 2014;8:72-7.
21. Tokgöz H, Yalçınkaya S, İslamoğlu E, Karamık K, Tokgöz Ö, Savaş M. Lunar cycle may have an effect on shock wave lithotripsy related pain outcome. Ghana Med J 2017;51:181-6.