

A Review on Low Back Pain with Special Reference to Cupping Therapy

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Abstract

Low back pain is discomfort, muscle tension or stiffness localized to the area around the lumbar spine. It is common with 80-90% of people getting it in their lives. It occurs in similar proportions in all cultures, interferes with quality of life and work performance, and is the most common reason for medical consultations. Few cases of back pain are due to specific causes while most of the cases are non-specific. There is specific treatment which can provide complete relief; patients require different manipulative therapies such as cupping therapy. Cupping therapy refers to a Unani regimenal mode of treatment. It is an ancient method which was practically used among the Arabs, Indians, Chinese, Greeks and Egyptians. In fact it is a type of physical therapy which improves the subcutaneous blood flow, stimulates the autonomous nervous system and reduces the pain. Since there is no consensus on the role of cupping therapy in the treatment of low back pain, we reviewed the medical literature in an attempt to test its effectiveness in low back pain and to further examine this method.

Keywords: Low back pain, Manipulative therapies, Cupping therapy, Pain.

Introduction

In Unani system of medicine, *Waja'al Zahar* (low back pain) is described as a disease in which pain remains stationary in lumbar and lumbosacral region and does not radiate downwards. According to Ibn Sina, *Waja'al Zahar* arises from internal and external muscles; ligaments surrounding the lumbar and lumbosacral region due to *sue mizaj*. This *fasaad* in *mizaj* develops because of the surplus *buroodat* and accumulation of raw *phlegm* (*kham balgham*). It may also arise due to accumulation of *ghaleez riyah* in the lumbar and lumbosacral region (Ibn Sina, 2007).

Most of the renowned Unani physicians described the causes of *Waja'al Zahar* under the broad heading of *Wajaul mafasil*. According to Zakaria Razi, the first and foremost cause of *Wajaul mafasil* lies in *hazm e kabdi and hazm e urooqi*; as a result the abnormal chyme (*rutubat e mukhatia*) produces abnormal humours, particularly raw phlegm (*kham balgham*), which gets accumulated in the joints, and causes swelling, tenderness and pain. Thus, it is concluded that the root cause of *Waja'al Zahar* is the derangement in *hazm e kabdi and urooqi*, while accumulation of phlegm in an around the lumbosacral region is the sole cause of pain and inflammation (Razi, 1997).

Low back pain (LBP) is a very common health problem and affects all strata of the population, however, its burden is often considered trivial. Low back pain is defined

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as pain and discomfort below the costal margin and above the inferior gluteal folds, with or without referred leg pain. It may be experienced as aching, burning, stabbing, sharp or dull, well-defined, or vague with intensity ranging from mild to severe. The pain may begin suddenly or develop gradually. Low back pain occurs in similar proportions in all cultures, interferes with quality of life and work performance, and is the most common reason for medical consultations. Few cases of back pain are due to specific causes; most cases are non-specific (Duthey, 20013). Low back pain is normally of medically harmless character and most episodes (about 80%) ends within the first month. The start of a low back pain episode could be the result of a trauma or have a spontaneous onset. Prevalence level ranges from less than 10% to more than 75%; the wide range might be attributed to the differences in methodological approaches such as duration and anatomic site (Ihlebaek *et al.*, 2006).

The diagnosis of low back pain is complicated because of the complex nature of pain and the non standardized approach by physicians to clinical decision making. In approximately 5–15% cases low back pain can be attributed to a specific cause such as an osteoporotic fracture, neoplasm or infection. For the remaining 85–95% of cases, the specific cause of low back pain is unclear (Andersson, 1999).

Unani physicians managed pain with diverse treatment modalities viz., diet, drugs, and regimens. Low back pain is described as *Waja ul zahar* a type of *Waja ul Mafasil*, and treated as per the line of treatment of *Amraze Mafasil* with regimens including diet, drugs, and surgery. More specifically certain regimens like *Tak-meed* (Fomentation), *Zimad* (paste), *Tila* (liniment) of *Roghaniyat* (Oils), *Dalk* (massage), *Hijamah bila Shurt* (dry cupping), *Hijamah bil Shurt* (wet cupping), *Fasd* (ven-esection) etc are advised as treatment modes for Low back pain (Baig and Quamri, 2015).

Hijamah is an Arabic word which means applications of cups while the literal meaning of Hijamah is sucking. It is an ancient traditional Unani therapeutic technique carried out by application of cup shaped glass vessels (2.54-7.26 cm in diameter) on the body surface, creating vacuum by heat or by special suction apparatus, in order to evacuate the morbid materials, to divert the material from the diseased part and to encourage the blood flow to the affected site (Dar *et al.*, 2015).

In the Arab World, especially among Muslims, cupping is considered as a Prophetic Traditional Medicine, where the prophet of Islam (PBUH) encouraged people to practice it by saying: {Healing is in three things: a gulp of honey, cupping, and branding with fire (cauterizing). But I forbid my followers to use branding with fire} (Ismail Bukhari, 2004). Since there is no consensus on the role of cupping therapy in the treatment of low back pain, we reviewed the medical literature in an attempt to test its effectiveness in low back pain and to further examine this method critically.

Types of *Hijamah*

Broadly there are two types of *Hijamah* namely *hijamat-bil-shurt* and *hijamat-bila-shurt*:

- (a) Wet cupping (*Hijamat-bil-shurt*): Cupping with scarification letting of blood i.e. a glass cup is applied to the skin, and a partial vacuum is created inside the cup. After a few minutes, few superficial incisions are made to the skin, and bloodletting is induced through replacement of the cup with vacuum. *Hijamat-bil-shurt* works on the principle of *tanqiya-e-mavad*, i.e. evacuation of morbid matters from the affected area.
- (b) Dry cupping (*Hijamat-bila-shurt*): Cupping without bloodletting i.e. cups are placed without making incision or pricks on the skin of the affected area. Vacuum can be created either by suction or by using fire. *Hijamat-bila-shurt* works on the principle of *imala-e-mavaad* that is diversion of morbid humors from one site to another (Ibn Sina, 1995; Baghdadi, 2005; Kabiruddin, 1954).

Likely mechanism of action

Cupping therapy is a minor procedure. It works via creating specific changes in local tissue as a result of local negative pressure in the cups used which stretches the nerve and muscle causing an increase in blood circulation and autohemolysis. *Hijamah-bil-shurt* (wet cupping) induced skin laceration creates a vacuum on the skin and draws out a small amount of blood. Local damage of the skin and capillary vessels (induced by wet cupping) may cause a nociceptive stimulus that stimulates diffuse noxious inhibitory control in addition to the affective component of low back pain. This may relieve pain associated with the affective component through the limbic response. Therefore, the tactile stimulus of wet cupping may be responsible for the analgesic effect (Sayed *et al.*, 2013). The reductions in pain scores can be attributed to rationale as cupping therapy can elicit the release of morphine like substances such as serotonin, endorphins, or cortisol which can relief pain and alter the physiological status of the individual. At a biological level cupping therapy works by stimulating or activating the immune system; enkephalin secretion; neurotransmitter release, vasoconstriction and dilatation and the gates for pain in the CNS which interpret pain sensation (Ullah *et al.*, 2007).

Cupping therapy increases the activity of the reticuloendothelial system, blood flow through the tissues and organs heightens the immunity of the body (Sheikho, 2011). It also affects the muscles by stimulating the expansion of blood vessels, hence increase blood flow and facilitates the flow of lymph. If there is incursion of coldness (*barudat*) in certain body part, cupping therapy is used to provide heat

to that part by increasing the blood circulation (Masih, 1986). According to Unani system of medicine all pain is due to stagnation of bad humor. This stagnation can be a result of injury, stress, lack of blood supply or invasion of cold in the body and joints. Whatever the cause, cupping application on the specific points provide warmth and helps to release the stagnation of blood and body fluids and ultimately results in reduction of pain (Azam, 2007; Sayed *et al.*, 2013). They relate the principles of *hijamah-bil-shurt* (wet cupping) with the principles governing excretory functions of kidney to the extent that wet cupping may be regarded as an artificial kidney that performs skin capillary filtration. This theory explains the effect of *hijamah* in relieving pain, breakage of tissue adhesions, improving blood and lymphatic circulation and increase in acquired and innate immunity (Sayed *et al.*, 2013).

A number of benefits have been attributed to cupping therapy including boosts blood circulation, relieves pain and swelling, detoxification of superficial tissues, improves tissue mobility, improves lymph drainage, loosen adhesions, move stagnation. (Akhtar and Siddiqui, 2008; Hasan *et al.*, 2014).

Procedure

First of all, palpate the lower back to find the right spots to place the cups the spot sterilized before starting the procedure. Cupping therapy (CT) equipments includes plastic cups, hand suction pump, and anti-septic wipes. The procedure requires about 15-20 minutes to be completed. It involves 5 steps in wet cupping therapy while only one steps in dry cupping therapy. The steps can be described as: 1. Primary sucking. The cup is placed on the selected site. A negative pressure is created by manual suction. The cup clings to the skin and is left for a period of 3 to 5 minutes in case of wet cupping while in dry cupping for 10-15 minutes. 2. Superficial incisions are made on the skin using 15–22 Gauge surgical blades. These incisions must be 0.1 mm in depth and 0.5 cm in length, all made by fully sterilized blades. 3. Bloodletting. The cup is again placed back on the skin. Negative pressure is applied to collect blood in the cup. 4. Removal. The cup is removed, and area is cleaned with an antiseptic. 5. Dressing. It is better to advise the patient to fast 3-4 hr before the procedure and then have some dates and water after the procedure. Immediate skin changes should be recorded and patients should be encouraged to describe their experience. Patients were followed up for 30 days to monitor their skin changes. The sittings are managed and continued according to need and condition of the patient. Usually dry cupping can be performed every alternate day till the patient relieved while the wet cupping sittings are usually repeated after minimum of one week gap till the patient is cured (Ahmedi and Siddiqui, 2014).

Scientific Reports

Though cupping therapy has been used for thousands of years, there has been no systematic summary of clinical research on it. In recent past years, various clinical as well as experimental studies have been conducted globally to evaluate the efficacy of cupping therapy in various ailments using standardized outcome measures. In a study conducted in India, the effectiveness of cupping therapy in osteoarthritis of knee joint was established. The patient (n=75) received a four seating of dry cupping therapy applied on the affected joint for a period of approximately 15-20 minutes. The efficacy of cupping therapy was assessed on the basis of Western Ontario and McMaster University (WOMAC) Score and Visual Analogue Scale (VAS) Score. The results were analyzed statistically by using a Paired Student's t-test. There was a significant reduction in the WOMAC and VAS scores of post treatment group ($P < 0.01$) as compared to pre-treatment group (Dar *et al.*, 2015).

In another study by Ahmed and colleagues was carried out in order to evaluate the efficiency of wet cupping therapy in management of rheumatoid arthritis. To sum up they concluded wet cupping combined with conventional medicinal therapy has several advantages. It significantly reduces the laboratory markers of disease activity and it modulates the immune cellular conditions particularly of innate immune response NK cell % and adaptive cellular immune response SIL-2R (Ahmed *et al.*, 2005).

A randomized controlled trial (RCT) was conducted by Michalsen and their colleague, investigated the effect of the cupping therapy as a treatment for the carpal tunnel syndrome and found that "Cupping therapy may be effective in relieving the pain and other symptoms related to carpal tunnel syndrome " (Michalsen *et al.*, 2009).

Ranaei-siadat and colleagues conducted a study for achieving of relation between some blood parameters and wet cupping, selected statistical samples from the young health male (20-27 years old) and tested some blood parameters before cupping and five times after cupping (one time per month). Interestingly their results showed that cupping can only regulate some blood parameters such as cholesterol, high density lipoprotein (HDL), low density lipoprotein (LDL) and fasting blood sugar (FBS) (Ranaei-siadat *et al.*, 2004).

In another study researchers demonstrate the seroclearance effect of cupping therapy in patients with hepatitis B virus (HBV) infection. The study included two healthy volunteers as control and fourteen patients with HBV infection. Two patients were on no therapy and the other twelve patients were divided into three groups according to their medication. The two volunteer patients, the two pre-therapy

patients and two patients of each therapy group had undergone three sessions of cupping therapy on the upper back. Revision of results demonstrated that patients have shown low detectable and undetectable levels of HBV after cupping therapy. On conclusion, cupping seroclearnce therapy has got a marked therapeutic effect on hepatitis B viral load (Abdullah *et al.*, 2015).

A randomized controlled trial (RCT) was conducted by Firoozabadi and colleagues to determine the efficacy of cupping therapy plus serkangabin syrup in the treatment of migraine headaches. They randomly assigned patients with migraine into cupping therapy plus serkangabin group (30 patients) and conventional treatment group (30 patients). An investigator assessed the severity of headache, frequency of attacks in a week and duration of attacks per hour in 5 visits (at the end of 2 weeks, 1, 3 and 6 months). Generalized estimating equations approach was used to analyze repeated measures data to compare outcomes in both groups. In result Average age for cupping therapy group and conventional treatment group were 31.7 (± 7.6) and 32.6 (± 12.7) years, respectively ($P = 0.45$). After treatment for 2 weeks; and 1, 3 and 6 months, severity of headache ($P = 0.80$), frequency of migraine attacks ($P = 0.63$) and duration of attacks per hours ($P = 0.48$) were similar in conventional and cupping groups but these symptoms were decreased in each group during the study ($P < 0.001$) thus they that there was no significant difference between cupping plus serkangabin therapy and conventional treatment in the treatment and prophylaxis of migraine. The alternative therapy may be used in cases of drug intolerance, no medication response, and in primary care (Firoozabadi *et al.*, 2014).

A randomized controlled trial study was conducted to investigate the effect of wet cupping on some serum biochemical parameters. Total 60 healthy subjects, aged between 18 to 50 years and were randomly assigned and subjected to wet cupping. Venous blood was collected and routine blood biochemical assessment was performed once at the baseline time of blood cupping and then 10 days after cupping. There was significant difference in the reduction of blood pressure 10 days after blood cupping compared with the baseline in both systolic ($p < 0.05$) and diastolic ($p < 0.01$). On the same line, there was a substantial significant decrease in serum total cholesterol ($p < 0.01$), triglycerides (TG) ($p < 0.001$) and LDL ($p < 0.05$) and an enhanced serum HDL cholesterol levels ($p < 0.05$). In addition, serum creatinine levels ($p < 0.05$) and uric acid ($p < 0.01$) were significantly reduced after cupping compared to the baseline levels, meanwhile blood urea and glucose levels were non-significantly decreased by 15% and 7%, respectively. These data suggest that blood cupping is a technique might be associated with decreased risk of cardio-vascular disease, obesity and enhanced and improved kidney function test (Fairouz and Alshowafi, 2010).

Discussion

LBP (low back pain) is the most prevalent musculoskeletal condition and the most common cause of disability in developed nations. Since conventional treatments for low back pain have limited evidence, patients often request complementary therapies. Cupping therapy appears to be beneficial in treating low back pain.

Cupping therapy is indicated in low back pain. It promotes bleeding through the superficial small vessels situated in the muscles to get rid of the local congestion in the body (Razi, 1991).

According to a review done by Chia-Yu Huang (2013), there is an improvement in the number and quality of clinical studies on cupping therapy. Among the top 29 citations there were 20 RCT studies showing wet-cupping have a potential effect in reducing pain associated with persistent non-specific low back pain. While six non-RCT studies showed that the VAS score and the Oswestry disability index in the balance-cupping group were significantly lower than in the group with cupping with retention and diclofenac ($p < 0.05$), but there was no difference between the cupping with retention group and the diclofenac-only group ($p > 0.05$). The other studies individually showed that the effectiveness of cupping in decreasing VAS, 6–9 reducing recurrence rate and improving quality of life was better than Western medication (Huang, 2013). In a systematic review of cupping by Young and Hyeon (2007) shows two trials for bloodletting for LBP one was positive other was neutral. One trial tested the types of dry cupping for low back pain, and Ki-gong cupping therapy was superior to other type of cupping. The effectiveness of bloodletting plus acupuncture for treating patient with low back pain is superior to acupuncture in spite of low quality (Young and Hyeon, 2007).

According to a RCT done by Akbarzadeh and colleague 50 diagnosed primiparous women patient of low back pain were subjected to cupping therapy and the efficacy assessment was done immediately, 24 hours, and 2 weeks after the intervention, respectively, with the help of VAS and short-form McGill pain questionnaire. According to VAS, the mean intensity of low back pain in the cupping therapy group decreased from 7.8 ± 2.7 before the intervention to 3.7 ± 1.8 , 2.5 ± 1.7 , and 1.4 ± 1.4 immediately, 24 hours, and 2 weeks after the intervention, respectively. Besides, these measures were respectively obtained as 31.8 ± 10.8 , 9.0 ± 6.7 , 7.5 ± 6.6 , and 3.6 ± 4.1 in the short-form McGill pain questionnaire. The study results showed cupping therapy to be effective in sedation of pain. Thus, it can be used as an effective treatment for reducing the low back pain (Akbarzadeh *et al.*, 2012).

A Randomized controlled trial with two parallel groups was conducted in Iran to determine the efficacy of wet-cupping for treating persistent nonspecific low back

pain. Patients in the experimental group were offered the option of referral to the wet-cupping service; all accepted that option. The control group received usual care. In total, 98 patients aged 17–68 years with nonspecific low back pain; 48 were randomly assigned to experimental group and 50 to the control group. Patients in the experimental group were prescribed a series of three staged wet cupping treatments, placed at 3 days intervals (i.e., 0, 3, and 6 days). Patients in the control group received usual care from their general practitioner. Three outcomes assessed at baseline and again 3 months following intervention: the McGill Present Pain Index, Oswestry Pain Disability Index, and the Medication Quantification Scale. Wet-cupping care was associated with clinically significant improvement at 3-month follow-up. The experimental group who received wet-cupping care had significantly lower levels of pain intensity ([95% confidence interval (CI) 1.72–2.60] mean difference = 2.17, $p < 0.01$), pain-related disability (95% CI = 11.18–18.82, mean difference = 14.99, $p < 0.01$), and medication use (95% CI = 3.60–9.50, mean difference = 6.55, $p < 0.01$) than the control group (Khosro *et al.*, 2009). Similarly one more study has proved the significant effect of cupping therapy in the treatment of non specific low back pain (Kim *et al.*, 2009).

The present review reveals that cupping therapy is used in treating various ailments. Recent clinical trials have reported the therapeutic values of cupping therapy. This review provides evidence based scientific validation to some of the therapeutic uses and actions described for cupping therapy. In this article, the research results show that cupping therapy has promising results in pain control and improvement of quality of life, and minimizes the potential risks of treatment. Due to the insufficient RCTs of cupping therapy available till date so the beneficial effect of cupping therapy needs to be confirmed in large and rigorously designed RCTs. It is further suggested that not only to scientifically validate therapeutic uses, but adverse effect and compliance also carefully observe and revive the faith and confidence of Unani practitioners in its actions to serve the large strata of the society.

Conclusion

Now days, an increasing number of patients have shown an interest in using cupping therapy for the treatment of low back pain owing to their belief that it is more effective than other therapeutics. Although cupping therapy is considered a safe and cost effective procedure.

It may be concluded that the cupping therapy is an effective and safe regimen in the management of low back pain.

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