

Review Article

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Methods of Wet Cupping Therapy (Al-Hijamah): In Light of Modern Medicine and Prophetic Medicine

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Abstract

Cupping therapy is a simple, effective and economic treatment. Cupping therapy is a formal treatment in Chinese hospitals and in some European countries. Here, we review history of wet cupping therapy and its two distinct methodologies. First method is puncturing and cupping (PC) method that includes five steps: skin demarcation, sterilization, puncturing, cupping and sterilization. Second method is cupping, puncturing and cupping (CPC) method that includes six steps: skin demarcation, sterilization, first cupping, puncturing, second cupping and sterilization. CPC method predominates in the Arabic world, while PC method has a worldwide distribution. We report here that our detailed evidence-based analysis of both methods reveals many novel advantages in the CPC method over the PC method. CPC method has a better analgesic effect and benefits more from the viscoelastic nature of the skin. During the first cupping step in the CPC method (not present in the PC method), a fluid mixture containing causative pathological substances (CPS) is collected inside skin uplifting due to the effect of negative pressure of sucking cups. CPS differs from disease to disease according to disease etiology and pathogenesis. That fluid mixture contains collected interstitial fluids with CPS, filtered fluids (from blood capillaries) with CPS, hemolyzed blood cells (hemolysed RBCs, WBCs and platelets). That fluid mixture does not contain intact blood cells as their sizes are much bigger than sizes of pores of skin capillaries and cannot be filtered. The fluid mixture is totally excreted in next steps. We review here that wet cupping therapy is a highly recommended treatment in prophetic medicine, medicine related to Prophet Mohammad peace be upon him who said: "The best among what you use in therapy is Al-hijamah (CPC method of wet cupping therapy)".

In conclusion, CPC method is better than PC method in clearing blood and interstitial spaces from CPS. Standardization of methodologies of cupping therapy seems essential to gain optimal outcomes.

Keywords: Cupping therapy; Prophetic medicine; CPC method; PC method; Boyle's law; CPS

Abbreviations: PC Method: Puncturing and Cupping Method; CPC Method: Cupping, puncturing And Cupping Method; CPS: Causative Pathological Substances; GIT: Gastrointestinal Tract; ITP: Idiopathic Thrombocytopenic Purpura; RBCs: Red Blood Cells; TCM: Traditional Chinese Medicine; WBCs: White Blood Cells

Introduction

Cupping therapy is a simple procedure in which negative pressure is applied to the skin through sucking cups (dry cupping therapy) [1]. Many types of cupping therapy are described in the literature including dry cupping therapy, wet cupping therapy, medicinal cupping therapy, moving cupping therapy and others [2]. The most important type of wet cupping therapy seems to be Al-hijamah (method of wet cupping therapy practiced in prophetic medicine). Unlike most conventional treatment modalities, wet cupping therapy is an excretory form of therapy not an introductory one i.e. wet cupping therapy uses negative pressure suctioning and skin pricking to open the skin barrier and excrete a bloody mixture of fluids with soluble wastes and causative pathological substances (CPS). Second negative pressure suctioning completes the process of waste excretion. Unfortunately, medical research related to cupping therapy does not cover its importance. Cupping therapy is practiced officially in hospitals in China [3] and is considered very familiar in some European countries [4,5]. Current methodologies used for cupping therapy differ according to the type of cupping therapy e.g. dry cupping method differs from medicinal cupping method [6]. In this review article, we shed light on the two

methods of wet cupping therapy reported in the literature to discuss which is more beneficial to be standardized in practicing cupping therapy in treating so many diseases as we will mention later in this article.

History of cupping therapy

Cupping therapy is being practiced nowadays in many countries all over the world including Germany, Norway, Denmark, Saudi Arabia, Egypt, India, China and other countries. German people are familiar with cupping therapy [4] and so are Danish and Norwegian peoples where those European societies already have a shift in attitude to include complementary medicine within the conventional health care system [5].

The exact origin of cupping therapy is a matter of controversy. Chinese scientists report in their literature that cupping therapy is a

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part of the traditional Chinese medicine (TCM) dating back to at least 2,000 years [2].

In the middle east, Arabic writers report that cupping therapy dates back to 3500 B.C. (5500 years ago), where Assyrians were the first Arab population to use primitive tools as animal horns and bamboo wood for cupping therapy then the Chinese physician, Jee Hong (381-281 B.C.) was among the leaders in that art. Arabic civilization termed cupping therapy, Al-hijamah therapy (which means in Arabic: to restore to the original size), where it was used in treating hypertension, polycythemia, headache, migraine and drug intoxication. They diagnosed polycythemia whenever there was an exaggeration of the pink color of the skin [7]. Interestingly, venesection (phlebotomy) is still being used currently in hospitals for treating polycythemia, where blood is drawn out and is replaced by saline infusion [8].

Ancient Egyptians were reported to practice cupping therapy earlier than many old civilizations, where cupping therapy was one of the oldest known medical therapies in ancient Egypt. The first report of using cupping therapy in ancient Egypt dates back to 1550 B.C. (more than 3500 years ago) where drawings on the famous Egyptian papyrus paper (Ebers paper) and ancient Egyptian temples showed that Egyptians were advanced in treatment using cupping therapy. Cupping therapy was also used in ancient Greek medicine [9,10].

In 400 B.C., Herodotus (a Greek historian) recorded that the ancient Egyptian physicians who recommended the application of sucking cups to the body already used both wet cupping therapy and dry cupping therapy. Diseases treated by cupping therapy included headache, lack of appetite, maldigestion, fainting, abscess evacuation, narcolepsy (repeated sleepy desires) and others [11].

In 3300 BC, in Ancient Macedonia, cupping therapy had been used since prehistoric times to treat diseases and health disorders [12,13].

In the United States, there is a progressive increase in the use of cupping therapy and other types of complementary medicine [14]. In a recent report from Harvard medical school about pediatric patients suffering from chronic severe pain, authors reported that cupping and acupuncture treatment were pleasant and helpful for pain treatment [15].

Currently, most widely used practice for cupping therapy is in China. Cupping therapy is considered by Chinese to be part of the traditional Chinese medicine (TCM). Chinese hospitals recognized cupping therapy as a formal modality of treatment since 1950 [3]. Currently, medical practitioners in China and Mongolia are practicing cupping therapy for treating hypertension, neck pain, headache, chronic hepatitis, ophthalmic diseases, skin diseases and infectious diseases [16].

Loukas et al. recently reported that knowledge gained from religious texts (Qur'an and Hadeeth) may guide attention of researchers to start research and get some benefits when comparing such knowledge with modern medical knowledge. Prophetic medicine is the medical knowledge gained from sayings, advices and teachings of Prophet Mohammad peace be upon him, [17,18] which recommended many lines of treatment as cupping therapy: (If there is a benefit in any of your treatment modalities, benefit will be in the blade puncture in cupping therapy, a gulp of honey and cauterizing, but I do not like cauterization) [17,18].

Cupping therapy is effective in treatment of incurable medical conditions

Cupping therapy was reported to treat medical conditions as herpes zoster [19], vitiligo [20], hypertension [1,21,22], rheumatoid arthritis [23,24], headache and migraine [13,25]. Cupping therapy was reported to relieve pain of dysmenorrhoea [26], acute trigeminal neuralgia [27], chronic osteoarthritis [10], carpal tunnel syndrome [4], fibrositis [28], firomyalgia [6,29-31], cervical spondylosis, lumbar disc herniation [3], brachialgia paraesthetica nocturna [32], chronic non-specific neck pain [33-35], persistent non-specific low back pain [36] and pain of acute gouty arthritis [37].

Wet cupping therapy (Al-hijamah) has solid scientific and medical bases according to Taibah theory suggested by Salah M. El Sayed. Wet cupping therapy is as an artificial surgical excretory procedure that clears blood and interstitial fluids from CPS. It opens skin barrier, enhances natural excretory functions of the skin, enhances immunity and increases filtration at both capillary ends to clear blood from CPS to restore physiology and homeostasis. Moreover, it was reported that compression pressure exerted on the skin for more than few seconds (as that exerted by the outline of sucking cups during Al-hijamah) may benefit patients through the occurrence of reactive hyperemia phenomenon. In this phenomenon, vascular compression causes a decrease in blood supply to the skin for few minutes resulting in accumulation of vasodilator chemicals. As soon as vascular compression is removed, blood flow to skin dramatically increases, which is called hyperemia [38]. This may bring more blood to the skin circulation to be filtered and cleared during next steps of Al-hijamah.

Interestingly, Hany Salah was the first to report the best anatomical sites in human body for doing cupping therapy in treating different diseases [39].

As there are several methodologies to practice cupping therapy, proper choice and selection of best methods of cupping therapy for treating diseases seems mandatory.

Dry cupping therapy may be less beneficial than wet cupping therapy due to lack of excretion of CPS in dry cupping therapy (Table 1). Wet cupping therapy needs proper discussion of its available methodologies to optimize its therapeutic outcomes.

Technical Methods Used for Performing Cupping Therapy

Before discussing the benefits or hazards of cupping therapy, it is strongly advisable to know types of cupping therapy and to revise the steps of wet cupping therapy to standardize the optimal protocol for cupping therapy. Taking Chinese cupping therapy as an example, many different types of cupping therapy are being practiced nowadays in official Chinese hospitals [3,6] as summarized in table 2.

Concentrating on methods of wet cupping therapy is the aim of this article. Although this issue is vital, it did not receive enough attention when discussing the results of wet cupping treatment. Interestingly, when we reviewed the cupping methodologies reported in the literature, we found minor but important differences among the methodologies used for wet cupping therapy. Two distinct wet cupping methodologies were reported in the literature. Both methods are in agreement with each other as regard the starting steps, which include demarcation of skin points to which cupping therapy should be applied, followed by sterilization at these sites and as regard the last step, which is sterilization. They differ in the order and number of the steps of

	Dry cupping therapy	Wet cupping therapy
Distribution	Most commonly practiced type of cupping therapy in China. Used in many parts of the world.	Most commonly practiced type of cupping therapy in the Arabic and Islamic world e.g. CPC method prevails in Saudi Arabia, while PC method prevails in China and in many parts of the world.
Types	One type	2 types: CPC method and PC method.
Dry cupping therapy	Can be done as a single treatment	Included as the first part of wet cupping therapy in the CPC method but not included in the methodology of the PC method of wet cupping therapy.
Skin puncturing	Not done	Done
Number of technical steps	One step (only cupping)	2 steps in PC (puncturing and cupping) method and 3 steps in CPC (cupping, puncturing and cupping) method
Excretion of excess fluids and wastes	Not done i.e. retention of fluids and wastes. Only dilution and redistribution of noxious soluble substances may occur away from pain receptors and pain-sensitive structures.	Done i.e. excretion of fluids and excretion of wastes after being diluted and redistributed in collected fluids inside skin upliftings (better in the CPC than in the PC method)
As a prophetic medicine recommendation	. Dry cupping therapy was not done as a single treatment in prophetic era. . Done as first part of the recommended wet cupping therapy in prophetic medicine (CPC method=Al-hijamah)	CPC method (Al-hijamah) was recommended and done in prophetic era and continues to be done until now in Saudi Arabia and other Islamic countries.
Treating pathological causes	Palliative (as causative excess fluids with soluble CPS are not excreted).	Curative when done properly (CPC method better than PC method)
Other names	Retained cupping therapy	Bleeding cupping therapy, Al-Hijamah.

Table 1: Differences between Dry Cupping Therapy and Wet Cupping Therapy.

Type of cupping therapy	Description
1. Retained cupping (dry cupping therapy)	The most commonly used type of cupping therapy in Chinese clinics in which no blood comes out and hence no excretion of excess vascular fluids containing soluble CPS
2. Bleeding cupping (wet cupping) therapy	Composed of two steps: performing small skin incisions then suction of blood using the cups. Practitioners need tapping the bleeding points firmly for a short time to induce bleeding
3. Moving cupping	Practitioner gently move cups in one direction
4. Empty cupping therapy	Cups are removed immediately after suctioning
5. Needle cupping	A combination of both acupuncture needles and cupping
6. Medicinal (herbal) cupping	Herbal medicine is boiled in water inside bamboo cups for 30 minutes followed by the application of cup suctioning on specific points using emitted steam instead of fire
7. Water cupping therapy	Warm water inside bamboo cups is dispersed over skin surface immediately

Table 2: Different Types of Chinese Cupping Therapy.

cupping treatment itself i.e. what comes first: cupping step (negative pressure suctioning) or puncturing skin step. The difference in the two methods may reflect different historical origins in both methods of cupping therapy based on the known standard protocols in their countries of origin.

In a Korean review of literature for databases of cupping therapy and also in a Korean study, wet cupping therapy was effective in treating many disease conditions of variable etiologies and pathogenesises [37,41]. Authors mentioned steps of wet cupping therapy exactly as it is done in Chinese clinics in which the five steps of wet cupping therapy are: demarcation (marking cupping points by pen), sterilization, puncturing (lanceting skin in 2 mm-depth), cupping (with manual pump suction for few minutes) and sterilization [19]. This method is better to be abbreviated to PC (puncturing and cupping) method. In another Chinese report for treating 140 cases of fibrositis [28] and another Chinese study for treating gouty arthritis using wet cupping therapy, the authors reported the same steps of the PC method [39].

In a German study for treating carpal tunnel syndrome with wet cupping therapy, authors mentioned same steps reported by the previous Chinese studies [4], which give the impression that German physicians got their cupping method from Chinese medicine. Other European peoples use mainly the PC method of wet cupping therapy [2,5].

In the Arab literature, a different six-step method of wet cupping therapy is reported in prophetic medicine which includes an extra step (cupping step before skin puncturing) i.e. steps of

the Arabic methodology for wet cupping therapy (Al-hijamah) are skin demarcation, sterilization, cupping, puncturing, cupping and sterilization [41]. This method is better to be abbreviated to CPC (cupping, puncturing and cupping) method. Interestingly, a Chinese report described steps of the currently practiced wet cupping therapy method in Saudi Arabia [42], which is exactly the CPC method as reviewed early in prophetic medicine [41]. Same CPC method was reported by a research group from Iran in a recent article describing cardio protective effects of cupping therapy in experimental animals [43].

Recently, the same CPC method was reported in an Iraqi report, where CPC method of cupping therapy was quite a safe procedure in treating a variety of diseases e.g. back pain, sciatica, joint pain, hypertension, polycythemia and other diseases with reversible skin changes with no side effects [44]. CPC method was also reported also by an Egyptian research group who reported a high beneficial effect of wet cupping therapy in treatment of rheumatoid arthritis [23]. CPC method was reported to treat hypertension by another Iraqi research group [1]. Same CPC method was reported in a study to treat headache and migraine by a research group from Iran [13]. In a study about cupping therapy done recently in Pakistan, authors investigated the differences between venous blood and blood that comes out during wet cupping therapy. Authors practiced CPC method of wet cupping therapy [45]. This may give the impression that the historical root of CPC method in wet cupping therapy may be of an Arabic origin.

The most important question that arises soon is which methodology

	CPC (cupping, puncturing and cupping) method =Prophetic wet cupping therapy =Al-hijamah	PC (puncturing and cupping) method =Chinese wet cupping therapy
Distribution	Only method of wet cupping therapy practiced in Saudi Arabia, middle east and some Islamic countries.	Mainly in China and in other parts of the world
Vacuum pressure (cupping)	Applied twice	Once
Cupping method	Equals dry cupping+PC cupping (2 cupping processes)	Equals one cupping process (PC cupping only)
After 1st step (Cupping step)	Only fluids collect containing fragmented blood cells and causative pathological substances (due to pressure suctioning) and become trapped under increased pressure and may bulge through skin surface but cannot escape due to skin barrier Benefits from the phenomenon of skin reactive hyperemia	Does not occur Does not
After 2nd step (skin puncturing step)	Beginning of escape of trapped fluids mixed with blood at puncture sites	Escape of fresh blood due to puncture trauma (as occurs in wounds) mixed with little tissue fluids.
After 3rd step (Cupping step)	Pressure suctioning causes all collected fluids+some blood to come out through traumatic punctures	Pressure suctioning helps bleeding to continue and blood to come out+some tissue fluids to be excreted.
Hindering effect (difficulties that may face excretion of tissue fluids through skin punctures)	No. (As collected tissue fluids are nearer to skin surface than blood capillaries and accumulate under effect of suction pressure applied to skin. Continuous accumulation of fluids increases pressure inside skin upliftings leading to immediate escape of fluids upon skin puncturing and 2 nd cupping step.	Yes (as tissue fluids are collected after skin puncturing and are coming out to skin surface with blood from punctured capillaries. Blood may hinder fluid accumulation inside skin upliftings leading to incomplete escape of fluids upon skin puncturing.
Total time of vacuum application	Long (1 st and 2 nd cupping steps)	Short (1 cupping step)
Pain sensation during puncturing	Mild (analgesic effect of 1 st cupping step)	Moderate to severe (as in wounds)
Fluid extracted in cups	Larger fluid content and less blood	Higher blood content
Tapping puncture site to bleed	Not needed	Usually done
Fluid collection in skin upliftings	Skin upliftings form before skin puncturing step and contain only fluids with fragmented blood cells and causative pathological substances (intact blood cells do not diffuse through capillary fenestrae due to size barrier).	Skin upliftings form after skin puncturing step and contain mainly fresh blood with little fluid (intact blood comes from punctured capillaries)
Sequence of events	1 st cupping creates skin uplifting. puncturing skin causes simultaneous excretion of tissue fluid mixed with some blood, 2 nd cupping causes more extrusion of both.	Puncturing causes blood excretion and suctioning creates skin uplifting with excretion of more blood and some tissue fluids.
Expected blood clearance effect	More due to high fluid content (filtered fluids from capillaries+excreted tissue fluids). CPC method clears interstitial spaces, capillary blood and lymphatics properly during the whole 2 nd cupping step until closure of skin barrier by blood thrombus.	Less. PC method partially clears interstitial spaces, capillary blood and lymphatics until closure of skin barrier by blood thrombus due to lack of prior fluid collection and incomplete transmission of sucking pressure due to antagonizing effect of bleeding, adhesions and intervening fluids
Expected therapeutic effect	Better	Less
Intervening fluid between tissue layers	More (more breaking of tissue adhesions)	Less
Resolving tissue swelling and breaking adhesion	More	Less
Removes blood congestion	More	Less

Table 3: Differences between CPC (Al-hijamah) and PC Methods of Wet Cupping Therapy.

may carry better therapeutic outcomes for wet cupping therapy: PC method or CPC method.

Proper answering of this question needs prior understanding of the differences and expected sequences of events of both treatment methods of wet cupping therapy.

Evidence-based Analysis of Detailed Steps and Events of Wet Cupping Therapy (CPC Method Versus PC Method)

Differences between PC and CPC methods of wet cupping therapy can be of therapeutic importance and studying them may help in standardizing wet cupping therapy (Table 3). Based on our understanding to how wet cupping therapy works, evidence-based steps of wet cupping therapy (CPC method versus PC method) can be analyzed in the next points.

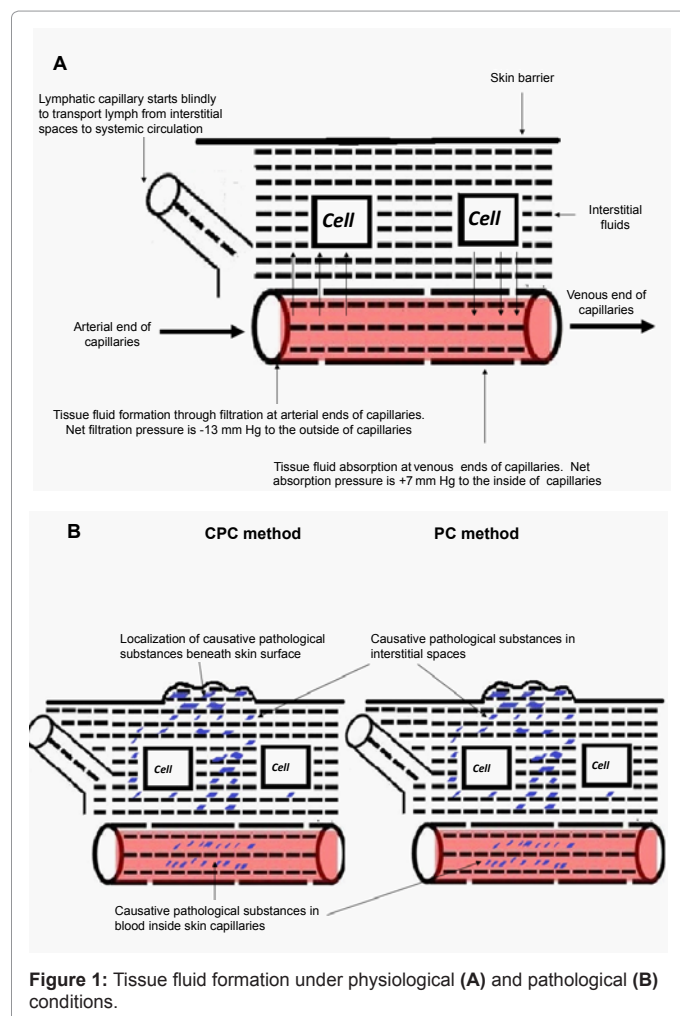
Before application of wet cupping therapy

1- Tissue fluids filtered from the capillary walls cross the interstitial spaces between parenchymal cells to gain access to the lymphatic

capillaries to return to the vascular system [46]. Metabolic byproducts [47] and endogenous free radicals [48] may be continuously formed inside cells and excreted into the interstitial fluids in interstitial spaces. Interstitial fluid is in continuous exchange with intravascular fluid compartment (Figure 1A). The exchange process mainly occurs downstream of arterioles in capillaries and postcapillary venules [49]. Based on that, in physiological conditions, cupping therapy may have a preventive benefit through clearing interstitial spaces from any metabolic waste products, free radicals or xenobiotics in interstitial fluids.

2- In pathological conditions, localization of pro-inflammatory substances [50], inflammatory cells [51], toxins, bacteria and harmful biological or chemical substances [52,53] tends to occur at specific sites that differ according to disease type and pathological stage (Figure 1B). At sites of localization, cupping therapy can be applied to facilitate drainage and removal of the CPS and to decrease the excess fluid volume and hence the pressure exerted by interstitial fluids in interstitial spaces.

3- Factors determining the composition of interstitial fluid and



subsequently the interstitial pressure include the plasma composition, the balance of Starling forces across the capillary wall (principally capillary hydrostatic pressure and plasma protein osmotic pressure), capillary permeability, surface area of capillary endothelium, lymph transport, and the physicochemical properties of the interstitial space matrix. Also, modification, addition or removal of components by peripheral cell metabolism can determine the composition of interstitial fluids [54]. Based on that, cupping therapy may be beneficial in clearing interstitial fluids and restoring normal physiology of interstitial spaces.

4- Pathogenesis of pain includes interstitial hypertension and increased amount of neurotransmitters, such as substance P and its receptor, calcitonin gene-related peptide and other neurotransmitters in afferent nerves [55]. Based on that, cupping therapy at these localized sites may remove localized fluids, clear interstitial spaces, decrease interstitial hypertension and excrete CPS.

5- Substance P is an 11-amino acid peptide that is widely distributed in the nervous system of human and animal species. Substance P is functionally linked to pain [56]. Substance P releases histamine [57] leading to increased cutaneous capillary permeability without any fluid leakage through intact skin barrier. Substance P induces release of antigen-evoked mediators [58], tumor necrosis factor-alpha [59] and leukotrienes [60], which act as inflammatory mediators to enhance pain and tissue swelling. The interstitium plays a role in the development of

edema in burns and in the induction of initial swelling in inflammation [61]. Based on that, pain conditions may benefit from cupping therapy through excretion of fluids containing the above-mentioned CPS (Figure 2).

6-Nerve endings (nociceptors that transmit pain signals) become sensitized during tissue damage or inflammation. Goodwin gave the term inflammatory soup to the mixture of inflammatory cells as macrophages and lymphocytes together with chemical mediators e.g. substance P histamine, serotonin, bradykinin, prostaglandins and cytokines (Figure 2) in the peripheral tissues, that increase in the responsiveness of A delta and C nerve fibres, which conduct pain signals at different rates [62].

7- Excretory functions of the skin depend on its histological structure and its large surface area. Skin excretes many drugs, heavy metals, chemicals and endogenous toxic compounds. Skin has a drug metabolizing function [63], drug biotransformation function [64], antioxidant function [65] in addition to the excretory functions exerted by skin appendages e.g. sweat glands [66-69]. Skin barrier retards excretion of accumulated toxins, while skin injury disturbs skin excretory functions [70] with retention of drugs and endogenous metabolites [71-73]. Based on that, cupping therapy is so beneficial as it opens skin barrier and enhances skin excretory role.

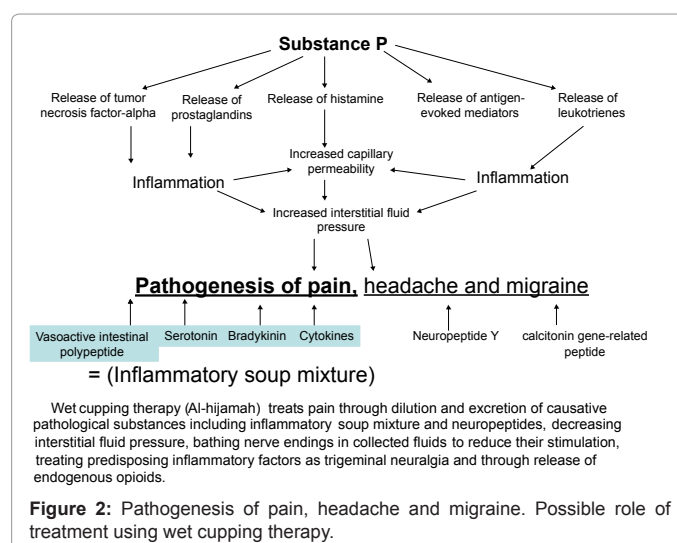


Figure 2: Pathogenesis of pain, headache and migraine. Possible role of treatment using wet cupping therapy.

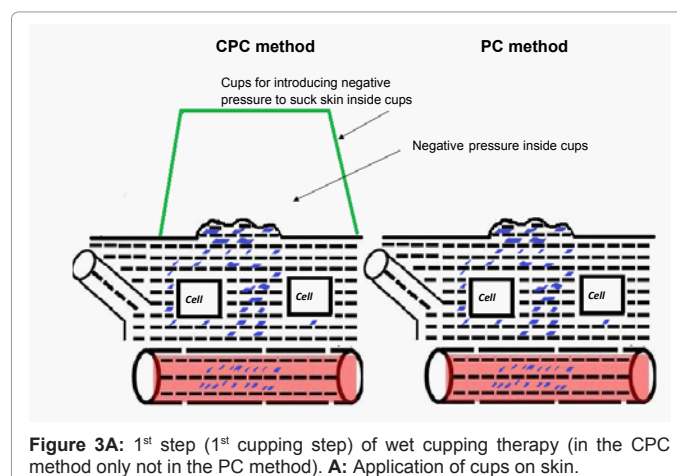


Figure 3A: 1st step (1st cupping step) of wet cupping therapy (in the CPC method only not in the PC method). A: Application of cups on skin.