

The role of manual therapy/practices (dry cupping, wet cupping, leech therapy, venesection, or phlebotomy) in lung diseases

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Abstract

Background: Manual therapy/ practices (dry cupping, wet cupping, leech therapy, venesection or phlebotomy) are one of the three pillars of Traditional Persian Medicine (TPM) and has been used for thousands of years. Various studies have shown that these methods are effective in treating or reducing the symptoms of many diseases, including several pulmonary diseases and various types of pain, diseases of the stomach and gastrointestinal tract, skin diseases, and so on. In the present review, we have dealt with the role of manual therapy on common lung diseases (Asthma, Cough, Hemoptysis, Chest pain and pleural pain, Pneumonia, Pleurisy) by reviewing (TPM) books and international and national scientific studies conducted in this area.

Method: To investigate the role of manual therapy in lung diseases, traditional medicine books, and databases (PubMed, Scopus, ISI), and a database of Persian articles (SID) in this field were searched. Initially, 30 books and 348 international and national records (Appendix 1) were found and ultimately 20 books (Appendix 2) and 13 articles (Appendix 3) were included for our study.

Result: In traditional medicine references, the management for all kinds of respiratory ailments with their specific methods is explained (Appendix 4). However, studies in this field have only examined the effect of cupping on asthma, pneumonia, and cough. Our review article has collected and presented some of the available resources on the use of manual therapy/ practices alone or in combination with other therapies in the treatment of common lung diseases such as Asthma, cough, and pneumonia.

Conclusion: The results of this systematic study indicate that different methods of blood sampling in traditional medicine have been repeatedly recommended for various lung diseases, especially asthma, pneumonia, and cough.

Keywords: Dry cupping, air trapping, cupping therapy, Wet cupping, Hejamat, Hijama, Cupping.

1. Introduction

TPM is a set of knowledge and skills in the diagnosis, prevention, and treatment of diseases from ancient times to the present (1). Today, many patients in developing and even developed societies have turned to complementary and traditional therapies for treating their illnesses. About 80% of the population of developing countries use traditional medicines to maintain their health (2). The World Health Organization for Public Health encourages developing countries to use traditional medicine (3).

Manual therapy/practices are one of the three pillars of TPM. Some of the existing treatments that the TPM scholars have emphasized include dry *cupping*, *wet cupping*, leech therapy, venesection or phlebotomy, the effectiveness of which has been determined in many diseases (4-8). The effectiveness of a large number of manual therapy/ practices performed in TPM in the treatment and prevention of many diseases has been confirmed and its knowledge and capability are increasing every day (9).

Phlebotomy is a way of puncturing a vein to withdraw blood, which is also done in modern medicine commonly. However, the procedure is different from that of TPM. In TPM the practice is done by making an incision on the vein.

In leech therapy, blood is drawn by leeches in specific areas of the body. Leech saliva contains a substance called Hirudin, which dilutes the blood and causes blood to flow out (10). *Dry Cupping*, which has different types, is performed by creating suction by cups in the position and one of its mechanisms is to increase the blood flow to the position (11).

In wet cupping, after using cupping on specific and known positions in the body, an incision would be made (12). These interventions have been mentioned in various books of traditional medicine as a complementary approach for various ailments, including lung diseases. In addition, much research is being done to find complementary and alternative methods for several lung diseases (13).

Recently, many studies have shown the effectiveness of these practices in the treatment of lung diseases. The advantages of manual therapy/ practices include simplicity, rapid response, lack of interference with other therapies, low cost, high efficiency and lack of severe side effects. These facts urge the medical community to conduct more research in this field (14).

In the present review study, we discuss the role of manual therapy/ practices on common lung diseases by reviewing TPM books and scientific national and international studies conducted in this field.

2. Material and method

To investigate the role of manual therapy/ practices in lung diseases, 30 books in the field of traditional medicine and databases (PubMed, Scopus, ISI (Appendix 5), and a database of Persian articles (SID) were searched.

The following sets of key terms were used for searching international databases: 1) Dry cupping, air trapping, cupping therapy, Wet cupping, Hejamat, Hijama, Cupping, leech therapy, hirudotherapy, phlebotomy, venesection, bloodletting; 2) Asthma, Cough, Hemoptysis, Chest pain and pleural pain, Pneumonia, Pleurisy. The Persian equivalents were used to search the national databases (Appendix 5).

The inclusion criteria were assessment of any use of manual therapy/ practices for the treatment of lung diseases. We excluded studies if: 1) the type of manual therapy was not defined; 2) the procedure was not defined; 3) data were reported in combination with modern medications.

For TPM we included all books from all centuries and from well-known traditional physicians, we excluded second-based studies which were mostly from recent centuries.

A variety of clinical trial, experimental and case report studies were included for data extraction. (The sources used in the review studies were reviewed to extract those studies that are not indexed in the above-mentioned database).

A researcher did the screening of titles and abstracts of all records, screening of the eligible full texts, and data extraction and quality evaluation of the included studies. A second researcher reviewed the extracted data. Disagreements were resolved via discussion and consultation with another reviewer. Type of study, disease studied, interventions performed, sample size, and age ranges of the subjects were extracted from the selected studies.

After deleting duplicates, 348 articles from the PubMed, Scopus, ISI databases were screened. An article with the relevant keywords was not found in the Persian Database (SID).

30 books were reviewed and 20 books were entered in the study and Out of 348 articles that were screened, 13 articles were included in the study, and the full text was reviewed. Of the 13 articles included, 7 were related to asthma, 3 were related to pneumonia, 3 were related to cough, and 1 was related to both cough and asthma (Appendix 3).

We did not find any study on the intervention of manual therapy in practices on hemoptysis, chest pain, pleural pain and pneumonia.

3. Results

Asthma:

In traditional medicine textbooks, asthma is divided into Fume (Dukhany (15): due to congestion of heart leading to shortness of breath), tumefactive (Varamy (15): due to the inflammation of lungs and air passages), phlegmatic (Balghamie (15): A type of temperament caused by the predominance of Balgham (phlegm) in the body. It is cold and moist), Pneumatic (Reyhy (15): Due to gases arising from different organs in their pathological state), Participatory (Mosharekaty (15): As a complication of another systemic disease) and catarrhal (Nazly (15): The flow of catarrhal fluids from the brain towards the nose and throat. Some physicians have differentiated them by saying that while the flow of these fluids towards the nose is known as *Zukam* the flow towards the throat is known as *Nazla*.) based on the cause.

The necessary intervention has been suggested for each of these cases (Appendix 4 Table, Asthma).

In Fume asthma, venesection of the left Basilic vein, or the Cephalic vein, or the dorsal metacarpal vein, strong cupping in the chest and back along with relieving the heat of the heart are mentioned (16-18).

In tumefactive asthma, repeated venesection of Basilic vein and medicated enema are suggested (19).

In phlegmatic asthma, venesection of the Basilic vein, or median anteBrachial vein, or dorsal metacarpal vein are recommended and if necessary, the shoulders are considered for wet cupping (16).

In pneumatic asthma, venesection has been recommended for treatment without mentioning the relevant vessel (16).

In participatory asthma, venesection of the Basilic vein and dry *cupping* to divert the substance, evacuation of the humours (Akhlal (15): The fluids of the body that serve the functions of

nutrition, growth and repair of the organs. Its possible English equivalent is *humour*.) and strengthening of the lungs are suggested (16, 17, 19).

In catarrhal asthma, venesection of the Basilic vein or Median cubital vein and elimination of the cause are the proposed solutions (16, 17, 19).

International articles have generally recommended cupping in the treatment of patients with asthma (Appendix 3).

In a 2012 experimental study in China of 50 Patient with asthma (34 to 72 years old), dry cupping was used with acupuncture for two weeks, each day for 10 minutes, completely improving symptoms of 35 patients. Symptoms improved in 13 patients, no improvement in 2 patients, 96% reported efficacy, 34 patients had other treatments used, where the type of treatment was unknown (20).

In 2011, a clinical trial was performed on 50 patients with asthma (25 in the intervention group and 25 in the control group) where wet cupping was performed on three points of the body (on the seventh cervical vertebra between two shoulders, and two-point between the two shoulders). This improved pulmonary function and clinical signs in the intervention group compared to the control group (21).

In 2010 in Egypt, a clinical trial study examined the role of cupping on the clinical symptoms of 30 children with asthma and 30 children in the control group between the ages of 7-16 years. Using cupping twice a week for 5 weeks on the chest below the clavicle (on both sides and the sternum) improved pulmonary function and quality of life in patients (22).

In China in 2006, a clinical trial was performed on 77 adults with asthma (40 in the intervention group and 37 in the control group). Using cupping with or without traditional Chinese medicine improved clinical symptoms compared to the control group. It also increased levels of CD4 cells, IL-2 cytokines, IFN- γ , complement proteins, Ig G, Ig A, Ig M antibodies (23).

In a 2006 experimental study in China, 75 children with asthma between the ages of 6 and 15 were treated with Semi-slip cupping to improve their clinical symptoms. In this study, no other treatment was used before, during, and after the intervention. Out of all, 33 patients with mild asthma fully recovered. In 28 patients with moderate asthma, clinical symptoms improved significantly, and in 14 patients with severe asthma, no improvement was observed (24).

In a 2004 case report in China, three adults with asthma and cough recovered by performing a wet cupping with acupuncture (25).

In 1982, in a case report in Russia, two Patient with asthma recovered by cupping (26).

Cough:

In traditional medicine books, cough is divided according to the cause and clinical picture with different types of cough due to warm matter (Garm maddy (15): Due to presence of warm humour or matter), tumefaction Basorat (15) (Tumefaction: Eruptions on lungs which lead to heaviness of chest without fever. It causes severe cough and congestion of chest), warm catarrh (Nazly har: due to flow of warm catarrhal fluids from the brain downwards), pulmonary roughness (Khoshunat rieh (15): Roughness of trachea leading to cough), dry and hotness of the lungs (Yubusat wa garmy riyeh (15): due to the predominance of *Yubusat* (dryness. in the lungs. Its possible English equivalent is fibrosis of the lungs), pharyngitis, airborne diseases (vabaie (15): Due to outbreak of the infectious disease in a wide geographic area of the world. Its possible English equivalent is pandemic), foreign body, and chronic cough, for which the necessary advice and treatment are given (Appendix 4 Table cough).

In cough due to the presence of warm matter, venesection of Basilic vein or wet cupping of the inter-scapular area along with the use of laxatives can be performed (17, 27, 28).

In tumefactive cough, venesection of the Cephalic vein, wet cupping, and purgation of due to Chole (Bile) can be performed (16, 17, 27).

In cough due to warm catarrh, venesection of Cephalic vein followed by elimination of the cause, wet cupping, and purgation of due to Chole (Bile) are suggested (16, 19, 29).

In pulmonary roughness, venesection of Brachial or Basilic vein and evacuation of the dominant humour is suggested (16, 19).

In dryness and warmth of the lungs, venesection of the Cephalic vein, as well as cooling and moistening interventions, are used (30).

In pharyngitis: venesection of the Brachial vein or wet cupping instead of a venesection can be performed (19, 30).

In cough due to airborne diseases, venesection of the Brachial vein and in cough due to the presence of the foreign body, cupping of the occipital region is recommended (19).

In chronic cough, venesection of Basilic vein, wet cupping of the inter-scapular region, extensive dry cupping from the back towards the feet, and inter-scapular leech therapy are mentioned (19).

In 2013 in Iran, a randomized clinical trial was performed on 110 patients with chronic cough due to heavy smoking with an average age of 55 years, one stage of venesection followed by general wet cupping in 3 or 4 stages significantly improved pulmonary function and clinical symptoms (31).

In 2009 in China, in an experimental study of 60 children with a cough (5 months to 7 years old), performed cupping should be done twice and (10 times each) with a spine massage based on the Tuina method. It treated 40 cases and improved symptoms of 20 cases. The therapeutic effect of this method was reported to be 100% (32).

In 2004 and 2010, two case report studies conducted in China and India, respectively, showed that wet cupping was performed on 4 adults with cough (1 with chronic COPD and concomitant polycythemia and 3 with Asthma and cough) improved the clinical symptoms and pulmonary function (25, 33).

Hemoptysis:

Hemoptysis is categorized according to the place of origin to palatal and oral hemoptysis, hemoptysis of laryngeal and pleural origin, parenchymal hemoptysis, hemoptysis of chest origin and Internal hemorrhage (17).

For palatal and oral hemoptysis, venesection of the Cephalic vein, wet cupping of inter-scapular, lumbar, or leg regions, dry cupping of occipital area and back area are advised (17, 27, 30, 34).

For hemoptysis of laryngeal and pleural origin, venesection of the Basilic and Saphenous veins, wet cupping of lumbar or leg regions, dry cupping and other anti-hemorrhagic interventions are mentioned (17, 18, 35).

In parenchymal hemoptysis, venesection of the Basilica or Saphenous veins, wet cupping of legs or lumbar region, purification of the body, elimination of the cause, firm bondage or massage of the arms and legs and observing silence is recommended (17, 18, 27, 34).

In hemoptysis of chest origin, venesection of the Basilica, wet cupping of legs and lumbar region along with evacuation of the warm humor and laxatives are suggested (17, 19, 27, 34).

In Internal hemorrhage, venesection of Brachial or Basilic or Saphenous or popliteal veins, wet cupping of legs or lumbar region, dry cupping of legs or liver or spleen as well as massage and firm bondage of hands and feet are useful (19, 34, 35).

Venesection of the Basilic and Saphenous veins are also mentioned for the prevention of hemoptysis (19, 29).

It is worth mentioning that we found no other study regarding the use of manual therapy in the prevention and treatment of hemoptysis in our database search.

Chest pain and pleural pain:

According to the cause of chest pain and pleural pain (Sanguine, Black Bile, Pneuma originated from Sanguine or Pneuma originated from black Bile), the interventions are different (16, 19).

In the case of chest pain and pleural pain from Sanguine humour and Pneuma originated from Sanguine, venesection of Basilic vein and use of laxatives are recommended (16, 19).

In the case of chest pain or pleural pain due to the presence of black Bile, after concoction of the humour, venesection of Saphenous or Basilic or dorsal metacarpal veins are recommended (16, 19).

In the case of chest pain or pleural pain due to Pneuma originated from black Bile, after concoction of the humour, we can perform venesection of Saphenous or Basilic or dorsal metacarpal veins while another approach can be the use of concoctive and purgative of black Bile (19).

Meanwhile, we found no other study regarding the use of manual therapy in the prevention and treatment of chest pain and pleural pain in our database search.

Pneumonia:

Different types of pneumonia such as Sanguine, participatory, and pediatric type have various managements.

In Sanguine type, venesection of the Saphenous vein of the side of inflammation and Basilic vein of the opposite side, a combination of venesection of popliteal vein followed by Basilic vein and then wet cupping of the inter-scapular or inter-mammary region and finally, using purgatives and medicated enema are advised (18, 29, 36, 37).

For participatory type, venesection is prohibited but wet cupping is recommended (16, 19, 38).

In pediatric pneumonia, warm and wet cupping of the side of the chest at the time of diagnosis, leech therapy over the chest, or in the site of cupping are advised (19, 36).

A limited number of studies have been performed on the role of manual therapy/ practices in pneumonia.

In Russia (2018), in an experimental study of 14 children with severe pneumonia, cupping was capable of improving clinical symptoms, where no control group was applied (39).

In a case report (2006) in Germany, a 43-year-old man who refused to receive any modern medical treatment interventions improved by using cupping and herbs, and signs of improvement appeared on his chest x-ray (40).

In 2006 in China, a clinical trial study of 100 adults with pneumonia (50 in the intervention group and 50 in the control group) showed that the use of cupping improved the clinical symptoms of the intervention group compared to the control group (41).

Pleurisy:

In traditional medicine references, pleurisy can be due to Sanguine (Damavie (15): A type of temperament caused by the predominance of Dam (Sanguine) in the body. It is hot and moist), humor, Due to chole(Bile) (Safravie (15): A type of temperament caused by the predominance of Safra' (yellow Bile) in the body. It is hot and dry), Due to black Bile (Sawdavie) (15): A type of temperament caused by the predominance of Sawda' (black Bile) in the body. It is cold and dry), phlegmatic (Balghamie (15): A type of temperament caused by the predominance of Balgham (phlegm) in the body. It is cold and moist), airborne diseases, or even Costochondritis (ghayre haghghy (15): Pain of the lateral aspect of chest due to accumulation of Riyah (gases) in

the rib cage or inflammatory condition of the intercostal muscles), based on the cause and appropriate treatment is listed for each.

In the Sanguine type of pleurisy, venesection of Basilic vein of the opposite side of the body followed by the same side after 3-7 days, venesection of Saphenous vein, inter-scapular wet cupping, wet cupping of the leg of the same side, use of laxatives and body detoxification are advised (16, 18, 19, 34, 36, 37).

In pleurisy due to yellow Bile, venesection of Basilic vein of the same side after 5-6 days, common wet cupping, use of concoctive and purgative agents until the 5-6th days or mild medicated enema are recommended (18, 34, 35).

In phlegmatic pleurisy, venesection of Basilic vein and evacuation of phlegm with concoctive and purgative agents are suggested (16, 17, 36).

In pleurisy due to black Bile, venesection of the Basilic of the opposite side on the 7th day followed by venesection of the same side on the 9th day or use concoctive and purgative agents in the first week followed by enema on the 8th day are advised (16, 17, 36).

In costochondritis, venesection of a dorsal metacarpal vein of the same side and purgation of phlegm is recommended (17, 19).

In pleurisy due to airborne diseases, venesection of Basilic vein of both sides and medicated enema are advised (19).

In our database search, we found no other study regarding the role of manual therapy in the prevention and management of pleurisy.

4. Discussion

In this study, 20 books in (TPM) and 13 international and national scientific studies on the application of manual therapy/ practices in common lung diseases were reviewed. In traditional medicine books, a suitable treatment for all different types of common lung diseases and its treatment methods are mentioned. However, studies in this field have only examined the role of wet cupping on asthma, pneumonia, and cough.

Our review article showed that *dry cupping*, *wet cupping* therapy (Hijama), leech therapy, venesection or phlebotomy alone or in combination with other treatments such as traditional remedies or modern medicine are recommended in the treatment of lung diseases such as asthma, cough, and pneumonia. The use of these therapies is also generally safe based on long-term clinical use and the results reported in the trials reviewed (42).

Manual therapy/ practices are one of the three pillars of TPM and have been used for thousands of years. Various studies have shown that these treatments are used to relieve various types of pain, muscle cramps, and to treat or reduce the symptoms of many diseases such as gastrointestinal diseases, hemorrhoids, skin diseases, gynecological problems, endocrine problems (e.g., diabetes) (4, 43, 44). The therapeutic effects of these methods are largely due to changes in the biomechanical properties of the skin, muscle relaxation, changes in local tissue structure and increased blood circulation by the release of nitric oxide, immune effects and hormonal adjustments, the release of toxins, and elimination of waste and heavy metals (45, 46). These methods eliminate toxins and wastes that have increased in the blood, thus balancing the fourfold humours. Dry and wet cupping therapy also increases oxygen uptake, improves body hemodynamics, and significantly increases tissue oxygen levels (7, 47).

Furthermore, many studies have been done on the effect of these blood draws, especially cupping, on the immune system and have shown that cupping balances different helper T cells,

decreases the serum level of inflammatory cytokines, increases the serum level of protective cytokines, activates immune factors, Including macrophages and neutrophils (48).

Based on some researchs, it can be said that different types of blood sampling, especially cupping, is a regulatory factor of the immune system and leads to the strengthening of the phagocytosis and has a significant effect on specific defense responses (49, 50). As a result, these methods can be effective in treating many lung diseases that are caused by inflammation or a foreign factor (such as asthma, cough, pneumonia, pleurisy, chest pain).

In traditional medicine books, Basilic vein venesection is frequently used as the preferred treatment for various types of (asthma), cough due to warm matter, pulmonary roughness, chronic cough, hemoptysis of laryngeal origin, chest and pulmonary origin, Internal hemorrhage and prevention of hemoptysis, chest pain, pleurisy and Sanguine type of pneumonia.

Brachial vein venesection is a common therapeutic measure for catarrhal type of asthma, pulmonary roughness, cough due to airborne diseases, Internal hemorrhage, Sanguine type of pneumonia while Cephalic vein venesection is recommended in tumefactive cough, warm catarrh, warmness and dryness of lung, swelling of pharynx and hemoptysis of oral origin.

Venesection of the Saphenous vein is a common approach in pulmonary hemoptysis, internal hemorrhage, chest pain, and pleurisy due to thick Pneuma from black Bile, Sanguine type of pneumonia, and Sanguine type of pleurisy.

Cupping between the two shoulders has been used frequently to treat phlegmatic asthma, different types of cough, different types of pneumonia, pleurisy while cupping of lumbar area and leg is recommended frequently for the treatment of different types of hemoptysis. Dry cupping is also effective in treating asthma, cough, and hemoptysis, according to TPM books (16-19, 21, 27-30, 34-38, 51-57).

The results of this systematic study indicate that different methods of blood sampling in traditional medicine have been repeatedly recommended for various lung diseases, especially asthma, pneumonia, and cough. Similarly, for the conclusion, it is necessary to conduct other randomized clinical trials with higher quality and larger sample sizes in this field.

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