Moxibustion (Artemisia Plant at Acupuncture Point) as Alternative Therapy in Hypertension: A Promising Approach

Mohammad Jamshed Siddiqui, Mohamad Fadly Bin Kamarudin, Abdul Kareem Mohammed Al-Shami, Siti Zaiton Mat So’ad, Shazia Qasim Jamshed

Hypertension is a pathological condition in which the blood pressure is higher than under normal physiological conditions, i.e., 140/90 mmHg or higher. Blood pressure is measured as the force exerted by the blood pumped by the heart against the walls of arteries (aorta) and distributed throughout the body.高血压 is measured as the force exerted by the heart against the walls of arteries (aorta) and distributed throughout the body. Use of complementary and alternative medicine as a cure for hypertension is a common phenomenon because of the high risk of cardiovascular complications and kidney diseases caused by conventional Western medicine. It is reported that high blood pressure causes ~49% of myocardial infarction and 62% of strokes. Effective treatment of hypertension is restricted by adverse effects and cost of the medication. Moxibustion is the application of heat by burning a small bundle of tightly bound moxa, to targeted acupoint, and sometimes it is used along with acupuncture. Encouraging results have been reported on randomized trials indicating the efficacy of moxibustion. But more controlled clinical trials are required to further establish the potential efficacy of moxibustion approach in hypertension.

Keywords: CAM, efficacy, hypertension, moxibustion, randomized trials

INTRODUCTION

Hypertension is a pathological condition in which the blood pressure (BP) is higher than under normal physiological conditions, i.e., 140/90 mmHg or higher. BP is measured as the force exerted by the blood pumped by the heart against the walls of arteries (aorta) and distributed throughout the body. A number of modern standard treatments with different mechanism of actions such as diuretics, beta-blockers, and calcium channel blockers, are used to lower BP. But these treatments have many side effects. Therefore, many people prefer complementary and alternative medicines (CAMs) to treat this disease.

Hypertension is a huge challenge to the society because of its risks and complications such as cardiovascular disease (CVD) and kidney disease. CVD is the most common cause of mortality. It is estimated that 10% and 30% of all disabilities and deaths, respectively, are caused by CVD. It is also reported that high BP causes ~49% of myocardial infarction and 62% of strokes. On the other hand, ~972 million adults are affected by hypertension.

The objective of antihypertensive treatment is to prevent the emergence of CVD, which means absolute control of BP. However, most patients with hypertension remain untreated or uncontrolled. To obtain the optimum level of BP is a hard task to achieve and till 2008 it was reported that only 25% of patients met the desired level. Effective treatment of hypertension is restricted by adverse effects, availability, and cost of medication. Thus, because of these limitation factors and concerns, people start using CAM as an alternative. One of the examples of CAM

Address for correspondence: Dr. Mohammad Jamshed Siddiqui, Department of Pharmaceutical Chemistry, Kulliyyah of Pharmacy, International Islamic University Malaysia, Indera Mahkota, Jalan Istana, Kuantan 252200, Pahang, Malaysia. E-mail: siddiquijamshed@hotmail.com

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for hypertension is moxibustion. Moxibustion is the application of heat by burning a small bundle of tightly bound moxa, to targeted acupoint, and sometimes it is used along with acupuncture. Moxa is a bundle of dried mugwort or wormwood plant leaves that have been formed into a small cone or cigar-like shape.

CAMs comprise of therapies used in the treatment of hypertension, both as solo therapies or either in combination with conventional medicines. They are categorized into herbs, therapies, traditional medicines, and so on. Standard treatments are based on scientific evidence from research studies, whereas CAM only has a claim that the treatment can provide benefits and the efficacy of the medicines is still doubtful. The usage of CAM is increasingly well known and common among patients with CVD but has demonstrated a lack of efficacy and safety.[8] Further research is needed to validate the usefulness of CAM as an adjunct therapy.[7] This study aimed to explore the utility of moxibustion in treating hypertension.

**Moxibustion**

Moxibustion is often used to treat diseases. It is an intervention of traditional Chinese medicine (TCM) that involves the use of ignited mugwort (*Artemisia vulgaris*) directly or indirectly at acupuncture points or other specific parts of the body.[7] The mechanism of action of moxibustion may be related to combining heat (burning pain and heat stress), tar (extract), aroma (fume), and physiological stress.[7] Although there is no conclusive evidence reported for the safety and effectiveness of moxibustion as adjunctive treatment[9] the mechanism of action stated to be heat released which could increase qi circulation and relieve qi stagnation by stimulating acupuncture points.[10]

Moxibustion has received considerable attention and is prevalent worldwide.[7] Previous researches stated that moxibustion may improve health-related fitness, mental and physical, of a person.[11] Recent studies suggested that it may provide a good outcome for patients with hypertension.[7] Moxibustion could help in lowering BP smoothly, regulating circadian rhythm of BP, and also improving symptom and signs.[7] Mechanism of moxibustion could be related to maintaining reactive oxygen species and endocrine function of vascular endothelialocytes.[7] A large number of published case series and randomized trials have confirmed that moxibustion is effective for the treatment of essential hypertension (EH).[9] In addition, it is used alone or in combination with antihypertensive drugs as adjunctive treatment for EH. Currently, there is one published systematic review about moxibustion for EH in English.[13] One of the studies conducted by Wang *et al.*[13] suggested that acupoint response to different stimulation is a comprehensive process that is related to all components of blood perfusion signals. Although different responses at control points were not observed, significantly different coherence values between acupuncture and moxibustion stimulation have been observed.[13]

A randomized controlled trial was conducted by Deng *et al.*[14] to assess the effect of moxibustion on antiacute hypertension. The effectiveness of combined (moxibustion and antihypertensive drug) therapy on systolic BP and diastolic BP was compared to that of the antihypertensive drug alone in 60 patients with hypertension. The baseline BP was measured at the beginning of the study. Moxibustion was performed once on 30 patients whereas no treatment was given to the control patients. Then, the BP was reassessed. After that, antihypertensive drugs were given to all 60 patients without any further moxibustion treatment for 50 days and the BP was measured. Both systolic and diastolic BP were reduced after 30 min of moxibustion treatment (acute effects), and moxibustion combined with drug therapy reduced both systolic and diastolic BP significantly after 50 days of intervention when compared to drug therapy alone.

Zhang *et al.*[15] used indirect moxibustion to test its effect on the patients with BP. Sixty patients were randomized into two groups: first group of 30 patients received moxibustion for 2 h, 2 times weekly for 1 month and the second group received antihypertensive drug alone.[15] This test was similar to the study conducted by Jin *et al.*[16] because this test also used response rate in BP as the outcome. The results showed that the response rates in the moxibustion and control groups were 70% and 80%, respectively. This parameter showed significant difference compared to results shown in another study conducted by Jin *et al.*[16]

A randomized controlled study was conducted by Jin *et al.*[16] to assess the effects of moxibustion on 60 patients with hypertension. These patients were randomly divided into two groups containing 30 patients each. One group received moxibustion for 30 min once daily for 10 days, and the other group received antihypertensive drug alone. The main outcome measure was the response rate of the reduction in BP, which is defined as the percentage of patients whose diastolic BP decreased by >10 mmHg or patients whose systolic BP decreased by >30 mmHg. The results showed that 83% of the patients from the experimental group (moxibustion group) had a reduced BP whereas the control group showed an 80% response rate. Although there were no significant differences between the two groups, there were some differences in the response rate.[16]
In one of the studies performed by Zhang et al., 66 patients with hypertension were randomly divided into moxibustion group (34 patients) and the control group (32 patients). Both groups received routine treatment (antihypertensive drugs), but patients in the moxibustion group received additional moxibustion treatment. BP changes in both the groups were compared before and after the treatment. The results showed that the total effective rate of moxibustion group was 70.59% whereas that of the control group was 6.25%. The differences between the two groups were significant. The differences of systolic and diastolic BP between the two groups were significant after the treatment. Moxibustion was found to show a certain immediate effect in the treatment of hypertension, which needs further investigation.

A study was conducted by Wang et al. to compare the effect of moxibustion with antihypertensive drugs for treating hypertension, and the results showed similar beneficial effects. Moreover, moxibustion in combination with antihypertensive drugs was found to show more beneficial effects than using antihypertensive drugs alone. However, because of some limitations such as small sample size and poor methodological qualities of included trials, no firm conclusion could be made on the effectiveness and safety of moxibustion as an adjunctive treatment for hypertension.

**Conclusion**

In conclusion, the study about the efficacy of moxibustion on hypertension is still in progress and a study protocol for a pilot randomized controlled trial was conducted by some researchers to investigate this further. The available studies about moxibustion are likely to be biased by many factors due to poor methodological qualities. Hence, a definitive conclusion about the effective role of moxibustion in hypertension cannot be made because the trial is still underway. To create a more reliable and evidence-based clinical practice, future rigorously designed randomized trials must overcome these limitations and full attention should be given to the aforementioned methodological issues to create more convincing clinical evidence-based study.

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**Conflicts of interest**

There are no conflicts of interest.

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