

Efficacy and Safety of Gentle Moxibustion Combined with Western Medicine in Treating Carotid Atherosclerotic Plaque

Jiefang Li, Dan Wu, Jun Liu, Xi Li, Chan Hu, YuKun Xiao*

Abstract

The main pathological mechanism of heart, brain and blood diseases is arteriosclerosis. The deposition of blood lipids on the arterial wall is caused by risk factors such as the elderly, high blood pressure, diabetes, dyslipidemia, and smoking, which are traditionally thought to be related to arteriosclerosis. However, in the past 20 years, more and more studies have shown that atherosclerosis is a chronic inflammatory disease. Chronic inflammation plays an important role in the occurrence and development of atherosclerosis, and even in the development of inflammation. Most acute ischemic cardio-cerebrovascular events are caused by arteriosclerosis. In response to people's concerns, this study mainly discusses the effectiveness and safety of mild moxibustion combined with Western medicine in the treatment of patients with carotid atherosclerotic plaque. Due to people's concerns, the experiment is part of the affected part of the meridian or moxibustion, two to three centimeters from the skin. Usually, every 10 to 15 minutes, a local warmth without scalding is appropriate. Carotid ultrasound examination for skin redness All patients underwent carotid ultrasound examination before and after moxibustion, before and 6 months after medication. The effective rate was 6.7%, the western medicine group was 83.3%, and the mild moxibustion group was 93.3%. Experimental studies have shown that Western medicine combined with mild moxibustion treatment improves the effectiveness of carotid atherosclerosis treatment, significantly reduces carotid artery thickness, improves vascular stenosis, and other quantitative indicators of effectiveness are more important.

Keywords: Carotid Atheromatous Plaque, Western Medicine, Gentle Moxibustion, Carotid Artery Intima.

1. Introduction

The cardiovascular and cerebrovascular diseases caused by arteriosclerosis (AS) are the first causes of death in humans. The rupture of unstable blood vessels (fragile Prague) caused by arteriosclerosis (AS) is the main internal cause of cardiovascular and cerebrovascular emergencies such as acute coronary syndrome (ACS) and acute cerebral infarction. Therefore, stabilizing AS is of great value in preventing and treating acute coronary syndrome (ACS) and other cardiovascular and cerebrovascular emergencies, as well as improving the prognosis. The study of the stability of AS plastics is a hot topic at the forefront of AS research. In this study, the effectiveness and safety of mild moxibustion were investigated. It is of great

significance to get rid of carotid atherosclerosis at an early date.

Carotid atherosclerosis is a systemic atherosclerotic symptom of the carotid artery. This usually occurs in more than 10 years of age, and will gradually deteriorate with age. The purpose of the Sun X F study was to use contrast ultrasound (CEUS) to determine the stability of carotid arteriosclerosis plastic (CAP) (1). The CEUS images of 93 patients were evaluated to observe the new blood vessels in the CAP. Transcranial Doppler (TCD) was used to detect microembolism signals (MES) (2-3). 34 patients with hyperechoic plaques were evaluated as a control group. 80% (75/93) of the plaques showed contrast enhancement on CEUS, including 50.7% (38/75) of low echo plaques and 49.3% (37/75) of mixed echo plaques (4-6). No plaque in the control group showed CEUS enhancement (7-9). When using TCD, 35.5% (33/93) of the patients

* Department Chinese of Medicine, The Fourth Hospital Of Changsha, ChangSha, China

*Corresponding Author: YuKun Xiao, Email: xiongsha3854@163.com

were positive for MES (10-11). CEUS enhanced grade 2 or grade 3 plaque has a higher positive rate for MES. 41 patients with CEUS-enhanced grade 2 or 3 showed fresh infarction. Studies have shown that the level 2 or level 3 contrast enhancement observed on CEUS indicates that it is a vulnerable plaque (14-15).

The combined treatment of Chinese and Western medicine and Chinese medicine has always had very good results. Xiong P X explores the effectiveness of optimized traditional Chinese and western medicine treatment of chronic atrophic gastritis (CAG) by labeling biopsy specimens (16). Methods: The study included 155 CAG patients, including 125 (including 33 CAG) liver and stomach disharmony, 31 cases of spleen and stomach damp-heat type, 32 spleen and stomach deficiency cold type, and 29 stomach yin deficiency type) received conventional Western medicine plus optimized traditional Chinese medicine treatment (Treatment group) 30 was assigned to receive conventional Western medicine treatment only (control group) (17-18). A targeted biopsy was performed to compare the pathology before and after treatment (19-20). Results: 12 weeks after treatment, the total effective rate was 81.8% (27 patients), the spleen and stomach damp heat subgroup was 83.9% (26 cases), the spleen and stomach deficiency syndrome subgroup was 78.1% (25 cases), and the stomach yin deficiency group was 86.2% (25 cases) ciency subgroup, the control group was 53.3% (16) (21-23). The results of the study showed that the clinical symptoms of the patients in the treatment group and the symptoms found by gastroscopy were greatly improved (24-25).

In this study, mild moxibustion combined with Western medicine is used to treat patients with carotid atherosclerotic plaques. In terms of safety and effectiveness, gentle moxibustion is used to treat patients with carotid atherosclerotic plaques. Western medicine is used to treat carotid atherosclerotic plaques. The three sets of experiments, in which patients combined with mild moxibustion and Western medicine to treat patients with carotid atherosclerotic plaque, further study the pathogenesis of patients with carotid atherosclerotic plaque.

2. Materials and Methods

Subject

The subjects of the experiment were 62 patients from the Department of Medicine of Sun Yat-sen University. 32 cases and 30 cases in the control group. The treatment team had 17 men and 15

women. Age: 38-74 years old, average: 56.0 years old. The course of the disease averages 50 years in the range of 1 month to 20 years. There were 10 cases of hyperlipidemia, 19 cases of hypertension, 5 cases of coronary heart disease, and 8 cases of diabetes. There are 16 males and 14 females in the comparison group. 40-77 years old, with an average age of 60.5 years. The course of the disease is from 1.5 months to 18 years, with an average of 4.8 years. There were 9 cases of hyperlipidemia, 16 cases of hypertension, 4 cases of coronary heart disease, and 9 cases of diabetes. The general data between the two groups was not significantly different ($P>0.05$), showing the possibility of comparison.

Basis for Selecting Points with Gentle Moxibustion

From the point of view of physics, moxibustion belongs to the method of body surface stimulation. It uses heat, light or medicine to act on the skin, acupuncture points and meridians near the moxibustion point. Among them, Zhongwan, Spleu and Weishu belong to the near-curative effect, reflecting the idea of using acupuncture points as "where the acupoint is located and where it is the main treatment"; Zusanli acupoint belongs to the distant treatment function and exerts the principle of "the meridians are connected and the main treatment is within reach" Therapeutic effect: Guanyuan point is selected for empirical treatment. Warm moxibustion of these five points, to reduce turbidity and lead stagnation, adjust the central focus, dispel stasis and disperse knots, moisturize the spleen and stomach and yang, supplement the qi and blood of the spleen and stomach, and promote the dissipation of physical and evil.

Routine Treatment Group

Routine Western medicine treatment, gastrosporin injection, 0.6g per day (Yuekang Pharmaceutical Group Co., LTD. Beijing, approval number: H20083789); 5 mg orally per day.

Acupoint selection with mild moxibustion: According to the law of qi deficiency and blood stasis syndrome, acupoint selection is unified.

Qi Deficiency and Blood Stasis Syndrome Selection: Cervical Jiaji Point + Fengchi + Fengfu Recombination with Ganshu, Spleen Shu and Zusanli.

Ganshu Point: It belongs to the foot bladder meridian. Back Shu point of the liver. On the back, when the 9th thoracic spine spinous process, open 1.5 inches. Tilt direction 0.5~0.8 inches.

Zusanli: Zusanli, on the front and outer side of the lower leg, when the calf is 3 inches below, a

cross finger (middle finger) from the front edge of the tibia. It has the functions of regulating the body's immunity, enhancing disease resistance, regulating the spleen and stomach, replenishing qi, replenishing qi and menstruation, clearing away dampness and dampening the wind, and helping to eliminate evil. Directly smoked at 1~2 inches.

Operation: From the front edge of the horizontal finger (middle finger) to the front side of the calf that is less than 3 inches, the front of the calf is all 3 Li. It has the functions of adjusting body immunity, strengthening disease resistance, adjusting spleen and stomach, replenishing air in the body, activating meridians, weathering and removing moisture, and supplementing the nutrition of disease causes.

Precautions During Treatment

- (1) For patients and children who are distracted or have low local sensation, they need to place food and middle finger on both sides of the moxibustion site to determine the degree of local heat, adjust the distance of moxibustion at any time, master the time of moxibustion, and prevent it.
- (2) When moxibustion, pay attention to the need to maintain a certain distance between the moxibustion stick and the skin. Then, it will get enough heat. Please pay special attention to the differences between various syndromes and patients.
- (3) Acute severe illness and chronic illness are not suitable.

Detection Method

① Carotid ultrasound examination All patients underwent carotid ultrasound examination before and after moxibustion, before taking medicine and after 6 months. The GEvid7 high-resolution color Doppler ultrasound device made in the United States completely exposed the lateral neck along the lateral thoracic chain mastoid examination, detected the carotid artery with 10MHZ, and measured the carotid artery branch again. The end of the heart is 1.0 cm, and the proximal and distal carotid artery intima is 1.0 cm thick. The average of the three parts of the IMT is taken.

② The carotid artery contact plastic combined with the improved Crouse scoring ring method is used as plastic to form IMT>1.2mm, including the long axis image including the short axis image, and the thickness measurement, which are the same

side of the common carotid artery, internal The carotid artery and the external carotid artery are branched. The maximum value is the result of separating the thickness (mm) of the arteriosclerotic plastic. The carotid plastic is integrated. The scores on both sides of the carotid plastic score are the sum of the total scores.

③ Homocysteine determination. The patients were collected before taking the medicine and in the 6th month after taking the medicine. The high animal protein diet was avoided on the day before the specimen was collected, fasting for more than 12h, and 3ml of venous blood was collected and placed in the EDTA anticoagulation tube. , Centrifuged plasma at 4C, and detected by automatic fast analyzer.

Statistical Methods

SPSSI 9.0 software is used for statistical processing, and the measured data is described statistically using the average and standard deviation. Initially, a decentralized analysis between multiple groups was carried out. After statistically significant differences, the differences between the two groups were analyzed. The StudentNewmanKeuls (SNK) method was used for comparison between the two groups. $P < 0.05$ is considered statistically significant.

3. Result

Treatment Results

Effectiveness = (cure + effective effect + effective) / total number of cases in this group, the effective rate in the traditional group is 6.7%, the effective rate in the Western treatment group is 83.3%, and the mild moxibustion group is 93.3%. After the test, the Western treatment group and traditional Group, $X = 7.531$, $P < 0.05$, statistically significant difference. The ratio between the mild moxibustion group and the previous moxibustion group was 29.624, $P < 0.05$, and the gap between the two was statistically significant. The ratio of the mild moxibustion group to the Western medical treatment group, $x = 9.496$, is also statistically significantly different. The combined treatment effect of mild moxibustion and western medicine is shown in Figure 1. Western medicine treatment group (83.3%) and mild moxibustion group (93.3%) were significantly more effective than traditional treatment groups, and the effective rate was significantly higher than that of mild moxibustion group.

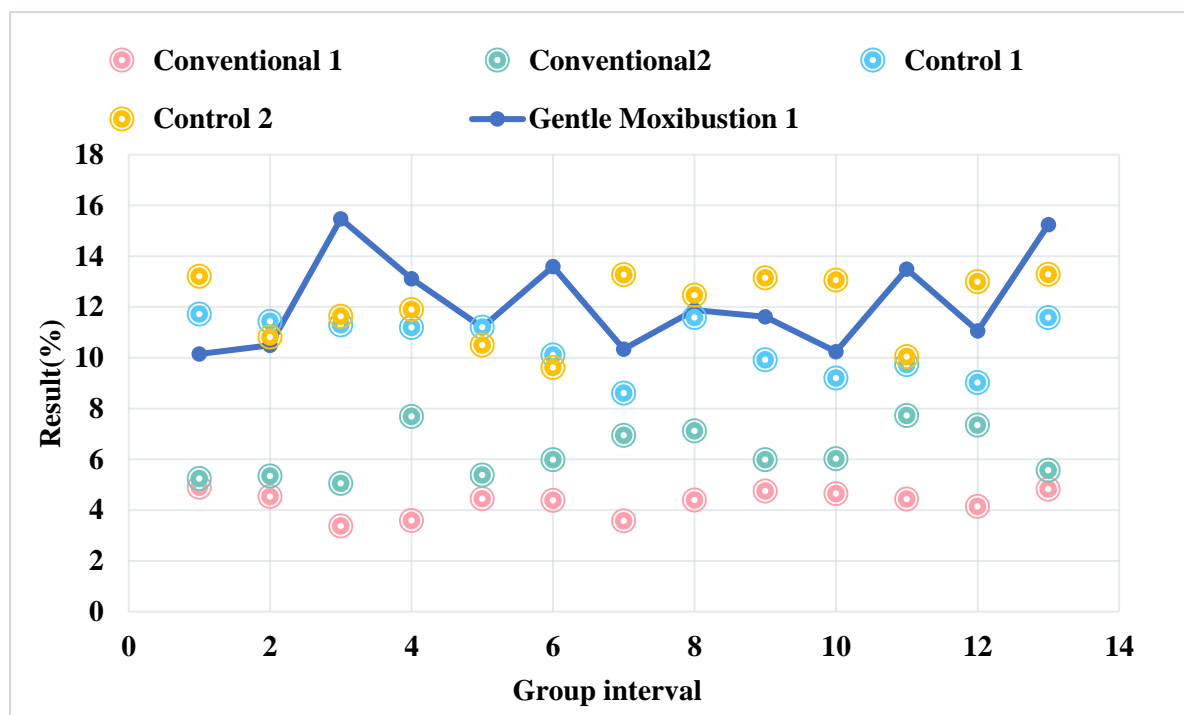


Figure 1. Combined treatment effect of mild moxibustion and western medicine

Table 1 shows the comparison of Bragg volume between the two groups before and after treatment and the pre-arterial IMT. Comparing the lipid distribution between the two groups before and after treatment, the ldl-c before and after the acupuncture treatment group was statistically significantly different from the treatment ($P < 0.05$), but TG, TC and hdl-c between the two groups before and after treatment There was no

statistically significant difference ($P > 0.05$). The difference between tcdl-c in the drug group before and after treatment was statistically significant ($P < 0.05$), but the difference between TG and hdl-c was not statistically significant ($P > 0.05$). There was a statistically significant difference in ldl-c between the two groups after treatment ($P < 0.05$), and there was no statistically significant difference in other lipid indicators ($P > 0.05$).

Table 1. Plaque volume and pre-arterial IMT before and after treatment in both groups after treatment

Groups	Case	Plaque volume		Carotid artery IMT	
		Before treatment	After treatment	Before treatment	After treatment
Observation group	30	87	36	1.52	1.04
Control group	30	88	45	1.60	1.37
t	-	0.61	7.01	0.16	2.7
p	-	0.54	0.00	0.87	0.008

Mild Moxibustion Treatment Mechanism

The mechanism of mild moxibustion treatment is shown in Figure 2. Compared with the treatment of carotid atherosclerosis with Bragg formation using only Western medicine combined with mild moxibustion, this study can improve the effectiveness, significantly reduce the thickness of the carotid intima, and show that the effect of improving quantitative indicators such as blood vessel stenosis is more important. There are many studies on IMT and carotid artery stenosis diameter in diabetic patients. Type 2 diabetes has a significantly higher level of IMT than people of the

same age, generally more than 0.7mm, a high positive rate of IMT, accompanied by carotid artery stenosis or severe stenosis, insufficient intracranial perfusion, and a high risk of ischemic cerebrovascular disease. In this study, the average value of the patient's IMT exceeded 0.78 mm, and the average value of the smallest diameter of the narrowed portion was about 3.5 to 3.6 mm. Even diabetics should note that the diameters and lengths of the plaques involved are significantly different. These are all related to age, disease progression, and the quality of disease management.

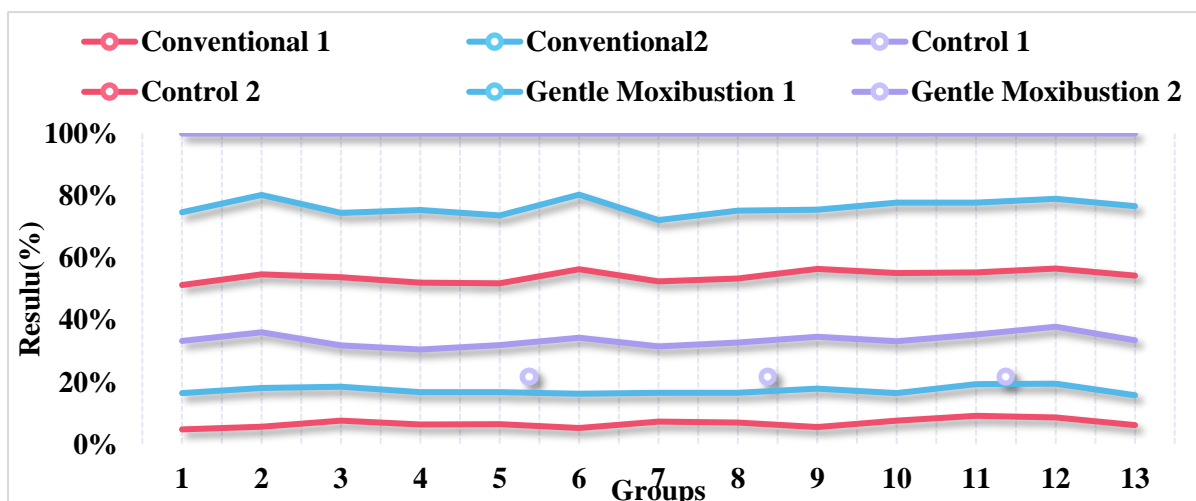


Figure 2. The mechanism of mild moxibustion treatment

Western Medicine Treatment Mechanism

Comparison of symptom scores on the ICIQ-SF scale: Before and after 2 weeks or 18 weeks of treatment, there was a significant difference between the two groups of patients ($P < 0.05$). This shows that both projects are equally effective in the short and long term. After two weeks of treatment, there was no significant difference between the two groups ($P > 0.05$), indicating that the two programs were equally effective in the short term. After 18 weeks of treatment, the gap between the two groups was significant ($P < 0.05$). The treatment mechanism of Western medicine is shown in Figure 3. It shows that in the long run, in the improvement

of this index, mild moxibustion has better curative effect on the improvement of SUI in patients with carotid atherosclerotic plaque than warm needle therapy. Recent bleeding (week I-VI), obsolete bleeding (week 2VI); if the blood cells are intact, they will be classified into two categories. Type I blood cells are not ruptured, and the T2 weighting of the magnetic resonance shows an equal low signal, T1 weighting. 3D-TOF imaging showed a high signal: Class II blood cells were lysed, and each signal on the magnetic resonance scan showed a high signal. The disease followed by blood accelerated the evolution of the disease and promoted the occurrence of lipid cores.

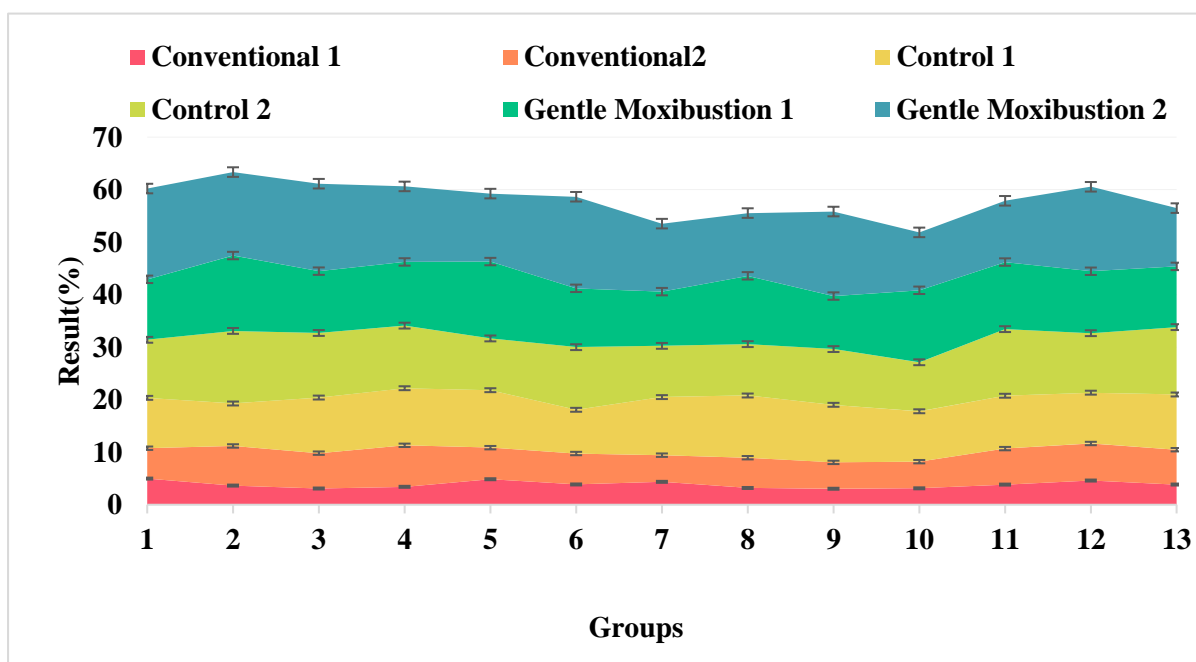


Figure 3. Western medicine treatment mechanism

Treatment Analysis of Mild Moxibustion Combined with Western Medicine

The average optical density of IL-10 in the measured tissues: Compared with the blank control group, the IL-10 expression in the model group was significantly reduced ($P < 0.01$); compared with the model group, the mild moxibustion group and the Western medicine group IL-10 The expressions were significantly increased ($P = 0.01$), but the mild moxibustion group was superior to the Western medicine group in increasing IL-10 ($P = 0.01$). The treatment process of mild moxibustion combined

with western medicine is shown in Figure 4. Gentle moxibustion can regulate the lipid metabolism, protect the vascular endothelium, delay the progression of AS plaque, reduce the expression of the inflammatory factor IL-8, increase the expression of the anti-inflammatory factor IL-10, and inhibit the inflammatory reaction in the plaque, thus exerting anti-AS Plaque effect. By inhibiting the expression of CD105 in AS plaques and reducing the pathological angiogenesis in plaques, it may be one of the mechanisms that mild moxibustion exerts to stabilize AS plaques.

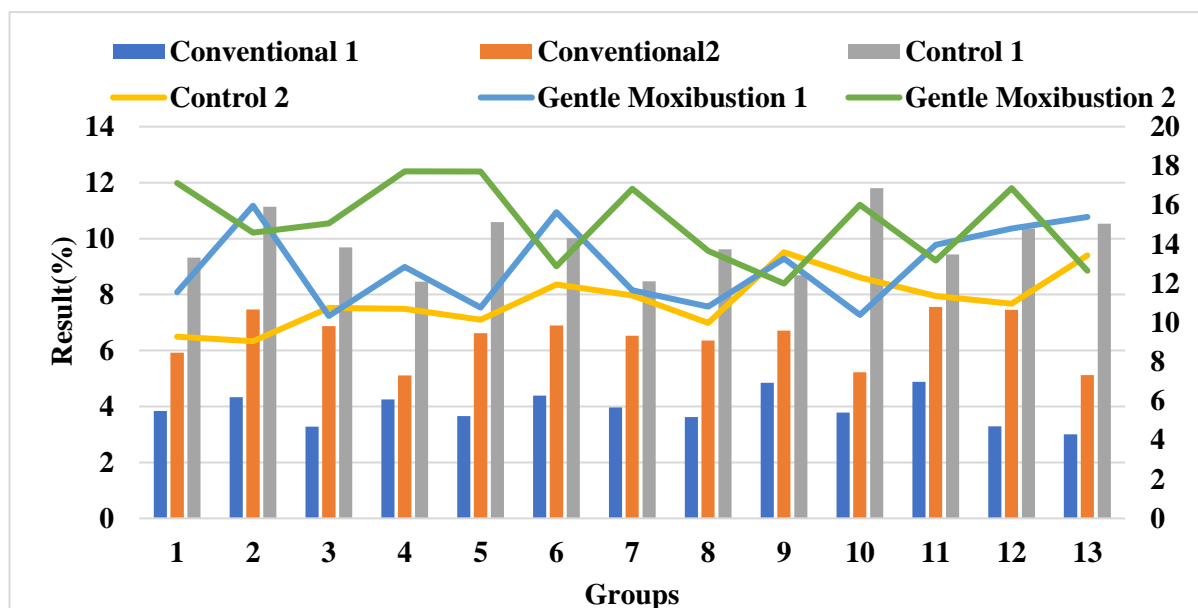


Figure 4. The treatment process of mild moxibustion combined with Western medicine

Security Analysis

Among the patients, liver and kidney functions were normal before and after treatment. In the Western medical control group, 3 patients showed an increase in liver function and kidney function index after taking Shu Health, and gradually recovered after the drug was detached. No abnormal reactions were observed in the mild moxibustion treatment group. In the treatment of patients with carotid atherosclerosis, mild moxibustion combined with Western medicine has shown that it is basically not a safe and reliable clinical application.

4. Discussion

Clinically, most of the carotid plaques are older than 40 years old, and are closely related to the aging of the human body, which may cause damage to blood vessels, kidneys, brain, heart and other organs. Ancient medicine did not have the concept of carotid plaque, but the records of obesity,

dizziness, etc. are in good agreement with the clinical manifestations of carotid plaque.

This study also found that people with phlegm and dampness are susceptible to carotid atherosclerotic plaque, and as the degree of plaque increases, cognitive impairment becomes more severe. Deficiency of the spleen cannot transform the subtle Mizutani, and the phlegm stagnate in the blood vein. Or because of addiction to fat and sugar, lack of exercise, metabolic phlegm, hinder blood circulation, in addition, people with phlegm and phlegm constitution, high blood lipids, which is also an important pathological factor leading to the formation of atherosclerotic plaque. In different plaques, plaques with uneven echo and irregular shape are unstable, easily detached from the arterial blood vessel wall to form a thrombus, and enter the microvessels with the blood flow, causing multiple resting cerebral embolism in the brain, and may also increase cognitive function Risk of damage.

This study is a clinical experiment, taking patients who meet the diagnosis of vulnerable plaque as the research object, and mild moxibustion as a positive control drug to observe the impact of Western medicine capsules on carotid artery IMT, CRP, blood lipid levels and TCM syndromes. Combining traditional Chinese medicine and western medicine to treat patients with carotid atherosclerotic plaque is of great value for the further development of medicine.

Funding:

The sixth batch of science and technology plan projects of Changsha Science and Technology Bureau in 2017(: kq1706006)

References

- [1] Sun X F , Wang J , Wu X L , et al. Evaluation of the stability of carotid atherosclerotic plaque with contrast-enhanced ultrasound. *Journal of Medical Ultrasonics*2016;43(1):71-76.
- [2] Levente Péter. Letter to the Editor. Atheromatous Plaque Vulnerability — the Neglected Vulnerable Carotid Plaques. *Nephron Clinical Practice*2017;3(3):144-145.
- [3] A. González Fajardo, N. Zamora González, B. Aguirre Gervás, et al. La osteopontina como biomarcador de riesgo neurológico en la enfermedad carotídea. *Angiología*2016;68(6):459-464.
- [4] Huang XW, Zhang YL, Meng L. The relationship between HbA_{1c} and ultrasound plaque textures in atherosclerotic patients. *cardiovascular diabetology*2016;15(1):98.
- [5] Bischetti S , Scimeca M , Bonanno E , et al. Carotid plaque instability is not related to quantity but to elemental composition of calcification. *Nutrition Metabolism & Cardiovascular Diseases*2017;27(9):768.
- [6] Ali A A , Downey P , Zalewski A , et al. Hypoxia Inducible Factor 1 Alpha Mediates Apoptotic Cell Death in the DCD Heart Following Prolonged Exposure to Warm Ischemia. *The Journal of Heart and Lung Transplantation*2017;36(4):S68.
- [7] A J R , A F A , B A B , et al. Estudio hemodinámico mediante simulación numérica para completar el diagnóstico en estenosis carotídeas tributarias de endarterectomía. *Revista Internacional de Métodos Numéricos para Cálculo y Diseño en Ingeniería*2016;32(2):125-130.
- [8] Kafi O , Khatib N E , Tiago J , et al. Numerical simulations of a 3D fluid-structure interaction model for blood flow in an atherosclerotic artery. *Mathematical Biosciences and Engineering (Online)* 2017;14(1):179-193.
- [9] Yıldız Arslan, İlker Burak Arslan, Yeliz Pekçevik. Matrix Metalloproteinase Levels in Cervical and Intracranial Carotid Dolichoarteriopathies. *Journal of Stroke & Cerebrovascular Diseases*2016;25(9):2153-2158.
- [10] Color Duplex Sonography Findings of the Carotid Arteries and Associated Risk Factors in Patients with Transient Ischemic Attack. *Nephron Clinical Practice* 2016;70(1):35-38.
- [11] Jang H W , Lee H J , Lee J , et al. Voxel-based Histographic Analysis of the Basilar Artery in Patients with Isolated Pontine Infarction. *Magnetic Resonance in Medical Sciences*2016;15(4):355-364.
- [12] Bacteria of leg atheromatous arteries responsible for inflammation. *Vasa*2016;45(5):379-385.
- [13] Deng Y , Zeng L , Bao W . Experience of integrated traditional Chinese and Western medicine in first case of imported Zika virus disease in China. *Zhonghua w zhong bing ji jiu yi xue*2016;28(2):106-109.
- [14] Ming-Ming Z , Yu Z , Liu-Sheng L , et al. Efficacy and safety of Danggui Buxue Decoction in combination with western medicine treatment of anemia for renal anemia: a systematic review and meta-analysis. *Annals of Translational Medicine*2017; 5(6):136-136.
- [15] Berger-Gonzalez M , Gharzouzi E , Renner C . Maya Healers' Conception of Cancer as Revealed by Comparison With Western Medicine. *Journal of Global Oncology* 2016;2(2):56-67.
- [16] Ho M J , Gosselin K , Chandratilake M , et al. Taiwanese medical students' narratives of intercultural professionalism dilemmas: exploring tensions between Western medicine and Taiwanese culture. *Advances in Health Sciences Education*2017; 22(2):429-445.
- [17] Xiong P X . Evaluation of efficacy of optimized combined Chinese-Western medicine therapy for chronic atrophic gastritis by marking targeting biopsy. *world chinese journal of digestology*2016;24(7):1082.
- [18] Langevin H M , Schnyer R N . Reconnecting the Body in Eastern and Western Medicine. *Journal of Alternative & Complementary Medicine*2017;23(4):238-241.
- [19] LI Lin, SUN Yu-xia, MA Jia-yi. Effect of Mild Moxibustion with Different Terms at Different Acupoints on Renal Functions and Renal Pathological Changes in Focal Segmental

- Glomerulosclerosis Rats. Zhen Ci Yan Jiu 2016;41(6):521-527.
- [20] Ma L , Li X Z , Yao T W , et al. Warm needle moxibustion, mild moxibustion and electroacupuncture interventions have an anti-aging effect possibly by regulating hypothalamus-pituitary-testis axis in aged male rats. Zhen ci yan jiu = Acupuncture research / [Zhongguo yi xue ke xue yuan Yi xue qing bao yan jiu suo bian ji] 2019;44(3):200-204.
- [21] Tian Y F , Zhai C T , Gao H N , et al. Effect of moxibustion on the nailfold microcirculation of young and middle-aged people in sub-health status. World Journal of Acupuncture - Moxibustion, 2017;27(4):1-7.
- [22] Yulei Liang, Weihua Li, Xiaokang Xu. [Control observation between mild moxibustion and TDP for obsolete collateral ligament injury of interphalangeal joints]. Chinese Acupuncture & Moxibustion, 2016;36(1):21.
- [23] He L , Wang C , Hu L , et al. Impacts of mild moxibustion on immune indices and nailfold microcirculation in the subhealthy group. Chinese Acupuncture & Moxibustion 2017;37(2):115-119.
- [24] Wang L , Ma S , Zhao Y , et al. A Randomized Controlled Clinical Trial for Treatment of Shoulder-back Myofascial Pain Syndrome with Mild Moxibustion at Trigger Points. Acupuncture Research 2016;41(4):334-337.
- [25] Cai R L , Hu L , Li Z H , et al. Effect of mild-warm moxibustion on fatigue, immune state and quality of life in sub-health population. Journal of Acupuncture and Tuina Science 2016;14(2):82-86.