

Feasibility Analysis of Novel Corona Virus Disease 2019 Convalescent Rehabilitation by Smoky Moxibustion with Herbal Medicine

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Objectives: In order to help Novel Corona Virus(Covid-19) patients return to their families and society as soon as possible, it is necessary to enhance their recovery. This paper aims to summarize and analyze the feasibility of smoky moxibustion with herbal medicine in the recovery period of Covid-19 convalescent rehabilitation. **Methods:** Analyzed the feasibility from four aspects: the function of acupoint itself, the function of herbal medicine, the function of smoky moxibustion and the comprehensive function. **Results:** Smoky moxibustion with herbal medicine is a special therapy of Traditional Chinese Medicine, which integrates the functions of Shenque point, smoky moxibustion therapy, and Chinese herbal medicine as well as other therapies. It is simple operation with huge economic benefit although it requires strong training ability. **Conclusion:** Smoky moxibustion with herbal medicine can facilitate the recovery and rehabilitation treatment for patients with Novel Corona Virus. It has practical value in clinic.

Key words: Novel Corona Virus (Covid-19); Traditional Chinese medicine; smoky moxibustion; rehabilitation

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^{1,2}Novel Corona Virus (Covid-19) is an acute respiratory tract infection with high infectivity and long incubation period. Chest CT of the infected patient indicates multiple ground-glass shadows, which are clinically manifested as fever, cough, fatigue, shortness of breath, chest

tightness, diarrhea and other symptoms. ³In severe cases, patients may cause respiratory distress syndrome pneumonia, septic shock, renal failure, or even death. The pathogen is novel coronavirus (2019 novel coronavirus, 2019-ncov). ⁴The source of infection includes coming into contact with Covid-19 patients and asymptomatic

Feasibility Analysis of Novel Corona Virus Disease 2019 Convalescent Rehabilitation by Smoky Moxibustion with Herbal Medicine infected persons. The virus mainly spreads by respiratory droplets and close contact. The incubation period is 1 to 14 days.

As a novel infectious disease, Covid-19 has no specific curative drug at present.⁵ Its rapid rate of spread, contagiousness, wide epidemic scope and negative impact has attracted undiluted global attention. WHO declared it a Public Health Emergency of International Concern (PHEIC).

Since the outbreak of the pandemic, China adopted the unique application of integrated treatment of Traditional Chinese Medicine (TCM) and Western Medicine. This treatment strategy has achieved remarkable results. Tens of thousands of patients have clinically cured and discharged from the hospital. The overall domestic battle against Covid-19 won and victory has been declared in China. Although many clinically cured patients discharged from the hospital, there are still different degrees of disorders in different aspects such as respiratory function, physical mobility and ability, psychological and social capabilities. They require further rehabilitation treatment during the recovery period in order to improve the quality of life to ensure smooth return to the family and society as a whole.

⁶For the recovery rehabilitation of Covid-19, the comprehensive intervention strategy with traditional non-drug therapy, TCM, psychology and sports skills as the main content recommends in the guidance and suggestions of Chinese medicine rehabilitation (trial).⁷ In the theory of TCM, Covid-19 is a kind of warm disease, which is highly pathogenic.⁸⁻¹⁰ At present, many doctors analyze the etiology and pathogenesis of the disease from different pathogenesis, such as 'cold and wet epidemic virus', 'dampness evil with dryness', 'damp-heat syndrome', 'camp blood disturbed by toxin factor'.¹² According to the current study, Covid-19 is located in the lung, involving the spleen, stomach and kidney viscera.

¹³⁻¹⁵There is no specific treatment for Covid-19 currently. The patients took antiviral and other chemical drugs in the routine treatment.¹⁶ According to the pharmacology theory of TCM, antibiotics and antiviral drugs are cold in property. Long-term and large dose use may

cause sequelae to patients.^{17,18} In current clinical treatment of integrated TCM and Western Medicine for Covid-19,¹⁹⁻²⁴ the use of TCM moxibustion has accumulated some experience, and helped develop a new way of applying moxibustion in the treatment of covid-19. Many doctors summarized the interventional treatment timing, mechanism and clinical application of special moxibustion to prevent and cure the disease.

Smoky moxibustion with herbal medicine is a characteristic moxibustion method of TCM.²⁵ One study showed that acupuncture combined with smoky moxibustion could reduce the expression of TSLP in the sinus mucosa, reduce the inflammatory response and destruction of the tissue structure of the sinus mucosa. Because of application of smoky moxibustion, TSLP can regulate the balance of anti-inflammatory substances and inflammatory mediators to maintain the immune homeostasis of the sinus mucosa. This paper will discuss and analyze its feasibility in the recovery period of Covid-19 in order to provide reference for the current rehabilitation strategy.

APPLICATION OF SMOKY MOXIBUSTION IN EPIDEMIC PREVENTION

Smoky moxibustion is a kind of acupuncture and moxibustion therapy, which is an important part of the TCM method. In many ancient Chinese Medicine books, there are records on the prevention and treatment of moxibustion for epidemic diseases, which presents a distinct advantage in the history of anti-epidemic of China as a nation.

There is a saying in the Chinese ancient masterpiece *Chuang Tzu*, the people in the state of YUE prevented disease with moxibustion. In the prevention strategy of infectious diseases, moxibustion was used first by the Jin Dynasty and the Tang Dynasty doctors. In the epidemic season or areas, doing moxibustion timely can prevent infectious diseases. Ge Hong as a physician of the eastern Jin Dynasty, wrote in his book *Handbook of Prescription for Emergency* that doing moxibustion at the bedside of the patient could prevent infection. Doctor Sun Simiao in Tang Dynasty wrote in the book *Valuable Prescriptions for Emergencies* that before going to the Shu state, doing moxibustion on the body can help guard against the plague. The Song Dynasty medical treatise *Bian Que Xin Shu* also described the application of moxibustion could cure

Feasibility Analysis of Novel Corona Virus Disease 2019 Convalescent Rehabilitation by Smoky Moxibustion with Herbal Medicine malaria fever. In the wide outbreak of plague and cholera in the late Qing Dynasty, many doctors in Lingnan area also used a lot of moxibustion to cure the epidemic disease.

²⁶Modern experimental studies have shown that acupuncture and moxibustion may play a systemic anti-inflammatory effect through cholinergic anti-inflammatory pathways and it can be applied in the prevention and treatment of Covid-19. In the treatment of Covid-19, Chinese acupuncture and moxibustion have been applied clinical practice actively and achieved good results. In the Covid-19 guidelines on acupuncture intervention published by the China association of acupuncture and moxibustion, moxibustion treatment is recommended for patients who are isolated at home and rehabilitated at home after discharge.

THE DEVELOPMENT OF SMOKY MOXIBUSTION WITH HERBAL MEDICINE

The method of smoky moxibustion with herbal medicine is a kind of moxibustion method. It refers to applying different dosage form of medicine (such as powder, paste, pills, paste, etc.) externally on the umbilical cord, and then doing moxibustion above the belly navel Shenque point (CV 8). This therapy can stimulate the meridian qi, dredge the collateral, regulate the balance of Yin and Yang and viscera function of the body. This method has been widely recorded in ancient books of traditional Chinese medicine in the past dynasties. Because of its advantages of simplicity, convenience, replicability and dexterity, it has been widely spread among the people.

In the earliest extant TCM book *Mawangdui Ancient Medicine Book*, there were some records about filling medicine in the navel to treat diseases. In the classic TCM book *Inner Canon of Huangdi*, there were many discussions on the close relationship between the navel, zang-fu organs and channels. Since then, many books of TCM have also recorded the treatment of smoky moxibustion. *Huangfu Mi* of Jin Dynasty used the method of smoky moxibustion to treat infertility, edema and other diseases in

the book *A-B Classic of Acupuncture and Moxibustion*. According to the book of *Handbook of Prescription for Emergency*, the Eastern Jin Dynasty doctor *Ge Hong* filled the medicine into the umbilical cord to treat diseases. For example, he put salt in the umbilicus and then did moxibustion to treat cholera.

Smoky moxibustion was widely used in later dynasties. For example, the TCM book *Valuable Prescriptions for Emergencies* accounts how the Tang Dynasty doctor *Sun Simiao* used this method to treat short breath and weak physique. Song Dynasty book *Taiping Holy Prescriptions for Universal Relief* wrote that smoky moxibustion could treat the patients with fainting. The method of smoky moxibustion has been recorded in the treatment application for acute and chronic diseases to be effective. In the Qing Dynasty, the TCM doctors believed that umbilicus could cure all kinds of diseases.²⁷ Under the continuous summary and promotion of the later generations of doctors, the study on the method of smoky moxibustion with herbal medicine has become more and more extensive and refined, which has been widely used in many medical fields such as internal medicine, surgery, gynecology, pediatrics, health maintenance, rehabilitation and other medical fields and so on.

MECHANISM OF SMOKY MOXIBUSTION WITH HERBAL MEDICINE

At present, operation method of smoky moxibustion with herbal medicine has reached tremendous maturation and its process is as follows. Take proper amount of flour and water into a circle shape dough (Figure 1), fill the navel with Chinese herbal medicine powder (the powder should be prepared beforehand according to the diseases) (Figure 2, 3); put the moxa (Figure 4) above the herbal medicine powder, and then ignite the moxa (Figure 5). The moxibustion duration is 1.5 to 2 hours per time until navel local skin is ruddy. After moxibustion, seal the medicine powder for 1 day in the umbilicus with medical adhesive cloth. Disinfect the acupoint strictly during the treatment. Operate this treatment 2 to 3 times a week.



Figure 1. Flour dough



Figure 2. Chinese herbal medicine powder



Figure 3. Fill the powder in the navel



Figure 4. Moxa



Figure 5 Ignite moxa

According to the TCM theory, the healthy Qi is retained inside the body, therefore, an evil Qi can not invade human body. Chinese medicine pays attention to the balance of nature and human. When some pathogenic microorganisms mutate, it will lead to the loss of relative stability of the balance of the ecosystem and increase the possibility of plague. Under normal circumstances, people have the ability of self-regulation, which is healthy Qi. When the human body's regulation ability declines or environments have drastic changes, people and the environment can't reach a coordination or homeostatic state. If the evil Qi is very strong and the healthy Qi is comparatively weaker, then the body will get a disease. Therefore, supporting healthy Qi and getting rid of evil Qi for the prevention and treatment of epidemic diseases is important. Smoky moxibustion with herbal medicine can adjust the deficiency and excess, fill the healthy Qi, dispel evil Qi and then ensure balance in the human body Qi and blood. According to the summary of the current basic and clinical studies, the mechanism of smoky moxibustion with herbal medicine is mainly composed of the following four factors:

Function of acupuncture point

CV 8 point is the human umbilicus, which connects with the conception vessel, governor vessel, thoroughfare vessel and belt vessel. The umbilicus has close relationship with meridians and Zang-fu organs. From the perspective of medical anatomy, the cuticle of the belly button is weak and the barrier function is poor. The periumbilical blood vessels are rich, without adipose tissue, with strong permeability and rapid drug absorption. Therefore, the external use of medicine at the umbilicus is both safe and effective. It can be absorbed into the human blood

Feasibility Analysis of Novel Corona Virus Disease 2019 Convalescent Rehabilitation by Smoky Moxibustion with Herbal Medicine circulation and then reach the targeted organ affected by the disease directly.

According to Covid-19 clinical symptoms, the involved Zang-fu organs are lung, spleen, stomach, kidney and other viscera. In the face of the outbreak of Covid-19, most of susceptible people suffer from a state of mental dissonance, such as anxiety and restlessness. The acupoint of CV 8 is an important point for the human body's Qi circulation, which can calm the mind. As well as the special anatomical characteristics of the navel, it is feasible to apply herbal medicine and moxibustion above CV 8 point to prevent and treat covid-19.

Function of smoky moxibustion therapy

The smoky moxibustion method can warm the channels and collaterals of Zang-fu organs, harmonize the internal healthy Qi and blood, and then dispel evil Qi. The moxa is flammable and has moderate fire. According to the TCM theory, it can treat all kinds of diseases. The extract from the combustion products of *Artemisia argyi* leaves has an inhibitory effect on some strains and can play a role sterilizing and not sterilizing, which has been proved in modern studies.²⁷ Relevant scholars have made relevant studies that the moxibustion method can adjust the human immune function and enhance the ability of the human body to resist infection. Through the moxibustion treatment for epidemic hemorrhagic fever, it was found that moxibustion indeed has the functions of antipyretic, antiviral and immune enhancement.

²⁸Some studies found the smog products during smoky moxibustion only had relatively low intensities through Py-GC/MS analysis, so it is safe. Moxa can be ignited easily than other herbaceous plants because of its low ignition temperature. Above all, this is the reason why smoky moxibustion has been used for thousands of years. ²⁹Due to the use of fire, attention should be paid to the use of ventilation and filtration facilities during the treatment.

Function of herbal medicine

According to the modern research findings, the external treatment of herbal medicine has the characteristics of micro action, micro

stimulation and microabsorption. Skin has the absorption, secretion and other functions.³⁰ It can participate in the nervous, endocrine and immune regulation, neuroendocrine peptides secreted cytokines and at el. herbal medicine stimulation to the skin can regulate the nerve-endocrine-immune balance through adjusting neural active substances, immune factors, hormone and its receptor activity and secretion.

For external use, we can remove it at any time. It is convenient and flexible. Avoid the intestinal stimulation of oral drugs. It is highly acceptable. The herbal medicine should be used according to syndrome differentiation and combined with the current stage of the disease and the individual constitution of the patients. The herbal medicine mentioned in the Chinese medicine rehabilitation guidance and suggestions for Covid-19 convalescence (trial) issued by the Chinese National Health Commission can be used as a recommendation.

Comprehensive effect of acupoints and herbal medicine

The operation time of the smoky moxibustion with herbal medicine is 1.5 to 2 hours. Compared to the conventional moxibustion technique, the operation time is relatively longer so it can strengthen the absorption of medicine and the CV 8 point stimulation. During the process, the water in the flour can obtain the hydration effect and the medicine penetration. After operation, seal the medicine powder for 1 day with medical adhesive cloth, which can further promote the penetration of the medicine and increase the absorption.

Conclusion

In the process of prevention and treatment of Covid-19, the use of TCM has been used in clinical treatment and achieved significant efficacy. It shortened the stay time in hospital and the time of nucleic acid conversion to negative. For the patients who have just cured and discharged from hospital, the sequelae can't be avoided. In order to relieve the pressure on medical staff in hospitals designated for Covid-19, convalescent rehabilitation of covid-19 patients can perform at home or in primary care facilities. Among the numerous TCM characteristic therapies, the smoky moxibustion with herbal medicine method is simple,

comprehensive and economical. This shows that it can use in the convalescence of Covid-19. While the pandemic situation in other countries globally continues to be on the rise, Chinese pandemic prevention work has achieved positive results and the role of TCM can never be underestimated. It is convenient and easy to obtain materials for the smoky moxibustion with herbal medicine. For the susceptible population, the smoky moxibustion with herbal medicine can also enhance the healthy Qi of the human body, improve immunity and reduce the risk of infection to prevent the disease before it occurs.

³¹Smoky moxibustion can produce smog, but it is different from smoking. Nicotine and other components in tobacco have harmful effects on human health. The products in mugwort have no toxic effects on humans. It should be noted that some people are allergic to moxibustion smoke, and it is necessary to use smoky moxibustion with caution.

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