Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
Case of professor Xu ZOU’s acupuncture technique for “benefiting kidney and strengthening anti-pathogenic qi” in promoting the absorption of COVID-19

邹旭教授“益肾扶正”针法促进新型冠状病毒肺炎吸案例一则

Lan-ting TAO (陶兰亭), Tao-liang HUANG (黄涛亮), Dan-wen ZHEN (郑丹文), Xu ZOU (邹旭)*

Second Clinical School, Guangzhou University of Chinese Medicine, Guangzhou 510405, China (广州中医药大学第二临床医学院, 广州510405, 中国)

A R T I C L E   I N F O

Article history:
Available online 23 July 2020

Keywords:
Benefiting kidney and strengthening anti-pathogenic qi
Acupuncture
Chinese herbal granules
Corona virus disease 2019 (COVID-19)

A B S T R A C T

A case of the absorption of corona virus disease 2019 (COVID-19) promoted by professor Xu ZOU’s acupuncture technique for “benefiting kidney and strengthening anti-pathogenic qi” is introduced. A female patient suffered from COVID-19, 64 years old, had been treated with acupuncture and Chinese herb granules for 10 days on the base of the oral administration of moxifloxacin. In the re-examination, the chest CT image indicated that the absorption of COVID-19 was obvious as compared with before, the nucleic acid test of novel corona virus was negative and the patient narrated no obvious discomfort. Acupuncture therapy plays its active adjuvant effect in the whole process of the treatment of COVID-19.

© 2020 Published by Elsevier B.V. on behalf of World Journal of Acupuncture Moxibustion House.
drome of it is kidney yang deficiency and pathogen infection. In pathogenesis, kidney yang deficiency results in dysfunction of warming and transformation and the pathogen infects the lung. In this case, the immunity decreased in the elderly, and she lives in the epidemic area, according to the symptoms, signs and medical history, the case meets the diagnostic criteria of COVID-19 in WM and pestilence in TCM [1].

Treatment methods: since February 20, 2020, the patient was treated with acupuncture, moxibustion and Chinese herbal granules in Leishenshan Hospital and since February 21, in modern medical treatment, we only took moxifloxacin for the patient, oral administration, 0.4 g once a day. Professor Xu ZOU adopted acupuncture therapy [2] at Tài (大関KI3), Dàixìè (代側Extra) and Zhíchuí (止側Extra). All the acupoints were selected bilaterally. Dàixìè (代側Extra) is an empirical point, located in the midline of the medial aspect of the leg, 8 cun above the tip of the medial malleolus, at the posterior border of the medial aspect of the leg, crossing with the liver meridian of foot-jueyin. Zhíchuí (止側Extra) is also an empirical point, located on the palm side of the forearm, on the line between Qízé (曲泽PC3) and Dàlíng (大陵PC7) and on the upper 1/3 of the line between the transverse crease of the wrist and the transverse crease of the elbow. Manipulation: the 0.25 mm × 40 mm disposable filiform needles were selected. The patient was in supine and the treatment was given after routine sterilization at the local skin of acupoints. At KI3 on the left side, the needle was inserted obliquely, with the needle tip toward the proximal. At KI3 on the right side, the needle was inserted obliquely, with the needle tip toward the distal so that qi could be regulated by ascending on the left and descending on the right. At Dàixìè (代側Extra) and Zhíchuí (止側Extra), the needles were inserted perpendicularly and the depth of insertion was 12.5 mm to 25 mm. The strong stimulation was given by lifting, thrusting, and twisting technique. The needles were removed without retaining after manipulation.

Additionally, professor Xu ZOU has the experiences in the intervention with Chinese herbal granules to strengthen the anti-pathogenic qi and restore the lung functions. The ingredients:

Zhífúzi (制附子Radix Aconiti Lateralis Praeparata) 10 g, Gānjiāng (干姜Rhizoma Zingiberis) 15 g, Zhígāncǎo (炙甘草Radix et Rhizoma Glycyrrhizae Praeparata cum Melle) 20 g, Jǐn yínhuā (金银花Flos Lonicerae Japonicae) 10 g, Zhùjiǎo (皂角刺Sperma Gleditsiae) 10 g, Wūzhíbōlóng (五更龙Ipomoea Cairica) 20 g, Chénpí (陈皮Pericarpium Citri Reticulatae) 5 g and Huòxiàng (藿香Herba Agastachis) 10 g. The granules were infused with warm water, once a dose was taken in two separate times, once in every morning and the other is in evening. On February 23, after acupuncture, the patient felt better. Cough was alleviated, with little sputum. Shortness of breath on exertion was relieved and the conditions of pulse and tongue were the same as before. The same treatment regimen continued. On March 1, in the re-examination, the patient narrated that she was recovered and could have a daily activity, without shortness of breath and cough. Tongue was slight red with thin and white coating. The pulse was getting forceful as compared with the previous. The novel corona virus nucleic acid test was negative and the lesions were absorbed obviously in the chest CT image as compared with the condition before treatment (Fig. 2). The patient met the discharge criteria. During the whole process of treatment, starting from February 20, combined with western medication (moxifloxacin, from February 20 to 29), acupuncture therapy was given consecutively for 10 days, once a day and the Chinese herbal granules were taken orally for 10 doses, one dose a day, taking in two separate times, once in every morning and the other is in the evening.

Note

In recent years, TCM has been applied as a common complementary therapy in clinic [3,4]. Many clinical trials [5–8] show that acupuncture is effective in the prevention and treatment of the epidemic. The combination of acupuncture and Chinese herbal medication may enhance the therapeutic effect. Professor Xu ZOU led Guangdong Chinese Medical Team, the 4th batch of the medical aid team to Hubei province and has discovered that in clinical practice acupuncture-moxibustion and Chinese herbal medication achieve a certain of effect in relieving the symptoms and promoting the prognosis during the whole process of intervention in COVID-19 patients. Specially, for the middle-aged patients and the elderly with COVID-19, such intervention may transfer the severe condition to be mild, delays the deterioration and promotes the lesion absorption and the negative conversion of novel corona virus nucleic acid so that the satisfactory complementary effect of TCM is achieved. Professor Xu ZOU believes that COVID-19 is caused by kidney yang deficiency, dysfunction of warming and transforming and the upward invasion of pathogen to the lung. Hence, the treatment principle should be benefiting kidney qi, tonifying the spleen and the spleen and preventing the deterioration.

In this case, since January 26, 2020, the patient had fever, 38.2°C at maximal without clear inducing factor, combined with cough, no expectoration, lassitude, no chills, no abdominal pain and diarrea, no chest pain and oppression, no shortness of breath and no frequent, urgent, and painful urine. CT image suggested that the multiple “hazy” and “ground glass” shadows were scattered throughout the lungs and nucleic acid test of novel corona virus
was positive. TCM syndrome differentiation: the patient is aged over 60 years, and she has the syndrome of kidney yang deficiency and pathogen infection. Kidney yang deficiency leads to dysfunction of warming and transformation and the pathogen affects lungs. Besides, during one-month treatment, the symptoms presented repeatedly, which indicates the excess of pathogens and the decline of anti-pathogenic qi. As a result, qi, blood, and body fluid are consumed in the body, leading to the impairment of kidney yang, the failure to the mutual promotion of the metal (lung) and the water (kidney), as well as the damage of lung qi eventually. Hence, the symptoms could not be relieved obviously, such as little cough, white sputum, difficulty in expectoration, chest oppression and short breathing on exertion. According to professor Xu ZOU’s opinion, in pathological mechanism of TCM, COVID-19 is caused by yang deficiency and dysfunction of warming and transformation, as well as the upward invasion of pathogen to lung. Therefore, the patched “hazy” shadows are visible in the lung CT image.

It is pointed out in the Chapter 4 of Siwen (《素问》Basic Questions) that “essence is the root of the body and the well storage of it may keep away pestilence in spring” “the well storage of the anti-pathogenic qi may prevent from the pathogen invasion, and whenever the pathogens invade the body, qi must be deficient” [9]. It means that the adequate kidney essence and the anti-pathogenic qi may prevent from the febrile disease and pestilence in spring. Based on the theory of febrile disease in TCM, infectious disease refers to “warm pathogens received from the external environment first attack the lung”. It is recorded in Wenyilun (《温疫论》Treatise on Warm-Heat Pestilence) that the patient with pestilence is caused by the epidemic factors [10]. The etiology of COVID-19 is the pestilence pathogen, i.e. novel corona virus in this case. In the theory of febrile disease, “pathogen hidden in shaoxin” is mentioned. Shaoxin refers to kidney. TCM thinks that “the lung is the host of qi and the kidney is the root of qi”. The respiration of human body is mainly related to the functions of the lung and kidney. The epidemic factors impair the lung, resulting in dyspnea, cough, asthma, and shortness of breath. When the kidney is invaded or impaired, kidney yang is consumed in a long term. For the person aged over 60 years, kidney essence is declining, resulting in yin failing to control yang. Eventually, kidney yang deficiency is aggravated. Hence, in treatment of epidemic disease, whether kidney qi is deficiency or not, and the infection of pestilence are the recognition of modern TCM and the two important aspects in treatment. Professor Xu ZHOU believes that kidney yang deficiency, dysfunction of warming and transformation, as well as the upward invasion of pathogen to the lung are the essential pathogenesis of COVID-19. In treatment of COVID-19 with TCM, the treating principles of acupuncture-moxibustion include strengthening the anti-pathogenic qi, benefiting the kidney, tonifying kidney yang, enhancing the spleen, the stomach, qi and blood and cultivating kidney qi so as to prevent from the transmission of the epidemic. Hence, the acupoints are selected in terms of “benefiting kidney qi, tonifying the spleen and stomach and preventing disease transfer”. Additionally, in the whole process of disease, acupuncture-moxibustion has been used till the relief of the symptoms. KI3 is the acupoint for rescuing yang, on the kidney meridian of foot-shaoxin. The Chinese name of KI3 means the great stream of kidney water. This acupoint acts to tonifying the primary qi, strengthening yang for water metabolism, receiving qi to relieve asthmatic breathing, tonifying the lung and benefiting the kidney, as well as promoting the lesion absorption [2]. Dàixiè (代謝Extra) is located on the running course of the spleen meridian of foot-taiyin, acting on regulating the spleen and stomach, tonifying qi and blood and cultivating kidney qi. Zhīchūān (止喘Extra) is located on the running course of the pericardium meridian, acting on receiving qi, relieving asthma, protecting lung qi and blocking the pathogen transmitted reversely to the pericardium. In treatment, professor Xu ZOU thinks that “warm pathogens received from the external environment first attack the lung”. Hence, Zhichuān (止喘Extra) is used with strong stimulation to block the route of the pathogen transmission. Besides, the other two acupoints were taken as the reacting points and stimulated strongly to regulate zangfu organs, qi and blood of the spleen and stomach, tonifying kidney qi, promoting qi and blood circulation, eliminating the pathogens out of the body, and enhancing the absorption of pneumonia so as to cure this disease.

All the acupoints selected by professor Xu ZOU are located on the relatively thick muscles, thus, a certain of depth of needle insertion is required to ensure the therapeutic effect. Generally, after strong manipulation at the acupoints, the patient should feel strong sensations such as soreness, distention, pain and numbness, as well as the radiating sensation to the four limbs and the whole body among meridians. Such a strong stimulation may be taken as the indicator to determine the accuracy and effectiveness of acupuncture manipulation. In order to minimize the fear of patient induced by the strong needling stimulation, the needles are not retained. Additionally, the acupoints are distributed in the four limbs, easily located, close to the thick muscles and far from the important organs. Hence, manipulation at these acupoints are relatively safe. The researches by Zhang et al. [11,12] indicate that acupuncture relieves the clinical symptoms, promotes the absorption of patched “hazy” shadows and inflammation on CT image, improves blood pressure and blood oxygen concentration, regulates the defensive qi and enhances the immunity.

Other researches [13,14] show that acupuncture effectively reduces the levels of various of inflammatory factors, including interleukin-6 (IL-6), activates the anti-inflammatory factors in the body and increases the reactions of anti-inflammation. Acupuncture intervention obviously shortens the apyretic time, cough relief time, the relief time of white and dilute sputum and the relief time of pale complexion. Besides, acupuncture reduces obviously the levels of C-reactive protein (CRP), IL-6, interleukin-10 (IL-10)and tumor necrosis factor-α (TNF-α), which proves that acupuncture can promotes the prognosis of pneumonia [15,16] and there is no report showing the obvious adverse reactions induced by acupuncture-moxibustion in treatment of pneumonia. During the treatment of COVID-19 with acupuncture therapy, no side effect is found in patients. In this case report, acupuncture presents a rapid onset in the whole clinical treatment. Such result is different from the understanding of some physician that TCM may not be effective significantly in the treatment of acute and critical cases. However, further studies are required in future.

The empirical Chinese herbal formula administered by professor Xu ZOU is summarized based on the inheritance of the experiences of senior eminent Chinese medicine physician, the study of ancient literature and clinical practice, as well as the treating principles as benefiting kidney qi, tonifying the spleen and stomach and preventing transmission. The treatment for COVID-19 focuses on regulating kidney qi, tonifying the acquired qi and blood from the spleen and the stomach to cultivate kidney qi. When the kidney qi is promoted, the metal and the water may be mutually generated, thus, the lung qi is produced and protected, the nutrient and the defensive are harmonized, the pathogens are eliminated and the epidemic transmission is blocked so that the anti-pathogenic qi is strengthened and the lung is rescued. Therefore, on the base of the treating principle mentioned above, the Chinese herbs are added to protect and moisten the lung to prevent from the impairment of the lung by the pathogens. In compliance with the same treating principle, Chinese herbs focus on repairing kidney yang, regulating kidney qi balance, tonifying qi and blood and improving body immunity in treatment. In this case, the treatment with acupuncture at regular interval is combined with Chinese herbal medication. After treatment, the clinical symptoms were relieved and the patched
shadows of pneumonia in CT image absorbed gradually. Besides, the novel corona virus nucleic acid was converted to be negative. It is indicated that acupuncture, as a complementary therapy, benefits the treatment of COVID-19 in patients.

In Diagnosis and Treatment Plan of Corona Virus Disease 2019 (Tentative Seventh Edition), it is pointed that this disease is in the category of “pestilence” in TCM [1] and COVID-19 can be treated with TCM, as a complimentary therapy in terms of the diseases condition, local climatic characters and body constitution. With the combination of acupuncture therapy and the regular Chinese herbal medication, the outcomes of the patients at the critical stages may be improved ultimately. The combination of acupuncture and Chinese herbal medication relieves clinical symptoms and promotes the absorption of the patched “hazy” shadow in CT image and the negative conversion of novel corona virus nucleic acid. It is proved that the combined treatment with acupuncture and Chinese herbal medication is acceptable in COVID-19 patients. Such a combined treatment plays a proactive adjuvant effect in the whole process of treatment of COVID-19. It is worth exploring a complimentary approach of TCM to solve the difficulties in acute and critical stage of disease. However, the evidence level is relatively low in case report. In order to provide the high-quality evidence for the effectiveness of acupuncture and Chinese herbal medication in treatment of COVID-19, randomized controlled trials should be conducted so as to provide proofs of the evidence-based medicine for the effective intervention of the combination of acupuncture and Chinese herbal medication for COVID-19.

References

[1] General Office of the National Health Commission, Office of National Administration of Traditional Chinese Medicine Diagnosis and treatment of novel coronavirus infection pneumonia. Chin Edq Gener Prac 2020;18(02):100–5.
[2] Yao CZ, Zou X, Thinking on clinical treatment with Taixi [KI3]. J Clin Acupunct Moxibust 2010;26(09):49–50.
[3] Xu Q, Rauer R, Hendry BM. The quest for modernisation of traditional Chinese medicine. BMC Complement Altern Med 2013;13:132.
[4] Teschke R, Larrey D, Melchart D. Traditional Chinese Medicine (TCM) and Herbal Hepatotoxicity: RUCAM and the Role of Novel Diagnostic Biomarkers Such as MicroRNA. Med (Basel) 2016;3:31.
[5] Wu J, Hu Y, Zhu Y, Yin P, Litscher Gerhard, Xu SF. Systematic Review of Adverse Effects: a Further Step towards Modernization of Acupuncture in China. Evid Based Complement Alternat Med 2015;42467.
[6] Shan GM, Li FL, Wang S. Effect observation of acupuncture and moxibustion in influenza. Shanghai J Acupunct Moxibust 2003;22(04):26.
[7] Kawakita K, Shichidou T, Inoue E, Nabeto T, Kitakeji H, Atsawa S, et al. Do Japanese style acupuncture and moxibustion reduce symptoms of the common cold? Evid Based Complement Altern Med 2008;5(4):481–9.
[8] Liu B, Wang H, Zhou ZY, Chang XR, Zhang W, Liu BY. Analysis on the theory and clinical ideas of acupuncture and moxibustion for the prevention and treatment of coronavirus disease. Chin Acupunct Moxibust 2020;40(06):571–5.
[9] Shandong University of Traditional Chinese Medicine. Collation and annotation of Huangdi Neijing Suwen. Beijing: The People’s Medical Publishing House; 2009.
[10] Wu T. Doctrine of epidemic febrile disease, 124. The People’s Medical Publishing House; 2005.
[11] Zhang K, Guo XM, Yan YW. Applying statistical and complex network methods to explore the key signaling molecules of acupuncture regulating neuroendocrine-immune network. Evid Based Complement Alternat Med 2018:926630.
[12] He W, Shi XS, Zhang ZY, Su YS, Wan HY, Wang Y, et al. Discussion on the effect pathways of preventing and treating coronavirus disease 2019 by acupuncture and moxibustion from the regulation of immune inflammatory response. Chin Acupunct Moxibust 2020. https://doi.org/10.13703/j.j.2055-2930.20200305-0001 [2020-05-28].
[13] Zhou XY, Zhong Y, Zhang L, Lin XH. A meta-analysis of randomized controlled clinical researches on defervescence with acupuncture and moxibustion. J Clin Acupunct Moxibust 2015;31(08):56–8.
[14] He YJ, Song BQ, Yang YL, Zhang YL, Liu WA. Discussion on scientific basis of acupuncture prevention and treatment of novel coronavirus pneumonia from “inflammatory storm” theory. Modern Tradit Chin Med Materia Medica-World Sci Technol 2020. http://kns.cnki.net/kcms/detail/11.5699.R.20200331.0856.012.html [2020-05-28].
[15] Huang YM. Observation on the effect of holographic acupuncture in the adjunct treatment of ventilator-associated pneumonia in ICU. Med Inform 2010;5(05):1173–4.
[16] Liang LN. Efficacy of acupuncture prevention for stroke associated pneumonia in patients with cerebral infarction with dysphagia. Chin Med Pharm 2015;5(05):64–5.