Analysis of the Preventive Possibility of COVID-19 Based on TCM Constitution Theory

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INTRODUCTION

The coronavirus disease 2019 (COVID-19) mainly manifests as respiratory symptoms, fever, cough, shortness of breath, and dyspnea. In severe cases, COVID-19 causes pneumonia, severe acute respiratory syndrome, kidney failure, and even death. With the development of the epidemic, although the entire population has been susceptible to infection, deaths in infected patients have mainly been found in the elderly and in patients with underlying diseases. This suggests that an individual’s constitution is closely related to health and disease, including in the case of COVID-19. Constitution represents an individual’s susceptibility to certain pathogens and risk of developing certain diseases. Therefore, the strength of one’s constitution may partially affect the infectiousness and symptoms of COVID-19. Therefore, it may be useful to proactively improve one’s constitution. By reviewing the medical histories and death records of patients with COVID-19 in the Hubei Province, we found that constitution was closely related to the incidence of COVID-19. Here, we discuss the prevention and treatment of patients with COVID-19 under the influence of the geographical environment in the Wuhan area from the perspective of the constitutional theory of traditional Chinese medicine (TCM).

THE CONSTITUTIONAL THEORY OF TCM

Overview of Constitution in TCM

Huangdi Neijing is the source, origin, and precedent of the constitutional theory of TCM [1]. In the chapter Shang Gu Tian Zhen Lun of Suwen, variations in constitution due to different ages are explained [2]. Given that there are differences in internal organ textures and strengths between different individuals, people with different constitutions also have different diseases. Another great classic in TCM literature, Shanghan Lun, mentions six meridians (i.e., three yins and three yangs) for syndrome differentiation, which provides a theoretical basis for the development of the constitutional theory of TCM [3]. The above details suggest that a biased constitution is the root and cause of one’s susceptibility to certain diseases. The modern constitutional theory of TCM states that the specificity, diversity, and variability of constitution leads to individual variability in the susceptibility to disease, nature of disease, disease progression, and response to treatments. Therefore, TCM emphasizes adjusting conditions to best fit the involved individuals, and combines constitutional theory with etiologies, pathogeneses, diagnostics, and health maintenance to guide clinical practice.

Different Types of Constitutions in TCM

Different scholars have different opinions about the major types of constitutions. I Ching divides individuals into
five-elemental types of constitutions, namely wood-type, fire-type, earth-type, metal-type, and water-type individuals. The most representative types of constitutions in individuals are defined by modern medical practitioners such as Wang Qi [4], and includes balanced constitution, constitution of qi deficiency, constitution of yang deficiency, constitution of yin deficiency, constitution of phlegm-dampness, constitution of damp-heat, constitution of qi stagnation, constitution of blood stasis, and special (allergic) constitution. These nine types of constitutions are well recognized by many doctors in the field of TCM. Some foreigners also study constitutional theory; for example, a physician from North Korea, Jima Li [5], believes that the constitutions of human beings are either yin-biased or yang-biased, and that nobody is completely balanced between yin and yang. Therefore, he removed the yin-yang balanced-type from the five formations described in Huangdi Neijing and proposed the following four formations: strongly yang people (yang within yang), mildly yang people (yin within yang), strongly yin people (yin within yin), and mildly yin people (yang within yin). The Classification and Judgment of TCM Constitution published by the Chinese Academy of Chinese Medical Sciences divides TCM constitutions into nine types: balanced constitution, constitution of qi deficiency, constitution of yang deficiency, constitution of phlegm-dampness, constitution of yin deficiency, constitution of damp-heat, constitution of qi stagnation, constitution of blood stasis, and special (allergic) constitution.

CONSTITUTIONAL CHARACTERISTICS OF PATIENTS WITH COVID-19 IN THE WUHAN AREA

Wuhan city is located in the central part of China and has a subtropical monsoon climate with abundant rainfall and sufficient heat throughout the year, as well as a hot rainy season. The COVID-19 outbreak occurred in winter, which was coincident with cold temperatures in Wuhan. Before the onset of the COVID-19 outbreak, the weather of Wuhan was persistently warm and dry. Then, a sudden strong cold air emerged, and the number of infected patients gradually increased [6]. As stated in the TCM classic, Wenbing Tioubian, “the symptoms of patients with epidemic cold diseases are usually chills, fever, headache, and joint pain. Although they are feverish, they are not particularly thirsty. The disease spreads through the neighborhood and patients subsequently exhibit similar symptoms. This is unlike epidemic warm diseases, where patients are thirsty without much headache or joint pain; therefore, the former are called cold diseases.” It is suggested that the clinical symptoms caused by epidemic cold diseases are mainly fever and headache. The seasons in Wuhan are not distinct, as the weather is sometimes warm and then suddenly can become very cold, leading to an increased risk of diseases. In addition, both warm- and cold-temperature pathogens invade the human body surface and initially attack the lungs. The COVID-19 epidemic will continue to spread rapidly if it is not well controlled. Therefore, the constitutional theory of TCM emphasizes treating diseases according to the times and seasons during which they occur.

When the COVID-19 outbreak occurred. People usually have relatively weak heart-yang during this period, according to TCM theory. The temperature over the past winter was generally higher than that of the same period of time in past years but included drastic differences in temperature between day and night, making it difficult for the body to adjust to these rapidly varying temperatures, which may have led to a high incidence of lung diseases induced by exogenous agents [5]. This past season in Wuhan had relatively high temperatures, high humidity, and insufficient sunshine, which is conducive to viral breeding. Furthermore, individuals in Wuhan are likely to eat spicy food, which easily leads to the raising of hidden “fire” in the spleen and stomach according to TCM theory. Moreover, the spleen and stomach functions of such individuals are weakened due to living in such a hot and humid environment for a prolonged period of time, facilitating “fire” in the body. Furthermore, people in winter are prone to consume yang and have a poor ability to resist pathogens. Except for the 11 cases identified from population screening, among the remaining 84 cases (mean age of 48.06 years), there were 49 males (aged 28–82 years) and 35 females (aged 35–82 years). From the perspective of a gender ratio, there was not much difference between men and women. The reason for more male patients may be related to their larger activity spaces and irregular behaviors in daily life. Almost all female patients were in the age range of 40–82 years (only two cases of < 40 years). Two women at 82 years old were seriously ill and were affected by factors of underlying diseases, such as coronary heart disease and hypertension. These findings suggest that constitutions of individuals have an important influence on the prevention diseases, including COVID-19. Patients with COVID-19 in the Wuhan area have their own unique constitutions, which are characterized by damp heat, yang deficiency, and phlegm dampness.

TCM posits that the onset of disease depends on the “vital energy” of the human body and the “pathogens” in nature. Pathogens in nature are generally the same for most people. However, because of different constitutions of different individuals, there are differences in their corresponding “vital energies”. These differences originate from the specific constitutions caused by the genetics of each individual. Therefore, different treatment regimens and prognostic protocols should be adopted for different individuals with COVID-19.

APPLICATION OF THE CONSTITUTIONAL THEORY OF TCM TO GUIDE SYNDROME DIFFERENTIATION AND TREATMENT OF PATIENTS WITH COVID-19

In the process of disease treatment, the most important component is syndrome differentiation. The constitutional
theory of TCM advocates constitutional differentiation (i.e., different constitutions should be treated differently with varying prescriptions and dosages)\(^6\). Mastering the characteristics of individual constitutions and providing treatments for different constitutions are of great significance for guiding the treatment of patients with COVID-19 to strengthen their constitutions, alleviate illness, and ensure healthy lives.

**TCM for Treatment and Prevention**

For patients with COVID-19, the TCM prescriptions should focus on clearing heat, releasing external pathogens, enhancing qi flow and body functions, removing dampness, and protecting yang. In addition, it should be noted that external pathogens first attack the lungs, and the lungs are a clear and hollow organ that are light, undisturbed, and intolerant of allergens and pathogenic attacks. Hence, regardless of exogenous diseases, internal injuries, or other organ lesions, once the delicate lungs are invaded by pathogens, prescriptions should be based on the rule of treating gently and mildly by using light, clear, and dispersive medications. Therefore, excessively cold, hot, moisturized, or dry TCM agents are not suitable for the prescription.

Recommendations for prevention and treatment of COVID-19 are as follows. The first recommendation involves a constitution of yang deficiency combined with dampness. Symptoms include excessive accumulation of yin and cold qi in the body forms interior coldness in these patients, manifesting as yang deficiency in the body, a pale face, weak breath, tiredness, a preference for lying down, intolerance of cold, cold limbs, pale tongue with white coating, and a low pulse. *Codonopsis, Atractylodes, Aconite,* cinnamon, and dried ginger should often be used to gently strengthen the yang to resist external pathogens. In addition, *Pinellia ternate, Magnolia officinalis,* purple perilla, and *Agastache rugosus* should be used in the prescription to eliminate dampness in the body. A second recommendation involves a constitution of damp heat combined with phlegm. Symptoms include a feeling of heaviness of the body and limbs, fever usually in the afternoon, excessive phlegm that is hard to cough up and is not relieved by sweating, a tongue with a yellow and greasy coating, and a rapid pulse. *Rhizoma atractylodis, Mangnolia officinalis,* dried tangerine peel, *Acorus gramineus* soland, coix seed, the root of kudzu vine, *Radix scutellariae,* and *Radix glycyrrhizae* preparata should often be used to clear heat and eliminate dampness and phlegm. This type of patient should pay attention to various aspects of protection. Such individuals are usually susceptible to flu and should be treated with *Astragalus membranaceus,* wolfberry, *Codonopsis, Radix sileris,* and *Rhizoma Dioscoreae* to improve immunity.

**Other Preventive and Treatment Measures**

Daily conditioning should primarily focus on regulating one’s diet. The characteristics and taste of food refers to four natures and five tastes of food. Similar to herbal medicines, according to TCM theory, food also has four different natures—including cold, hot, warm, and cool—which can be broadly categorized into cold and hot types. The basis for determining the natures of food is similar to that of herbal medicine. That is, the natures of food have different effects in the body. Patients with COVID-19 should avoid spicy and greasy food, as well as cold food, as they can exhaust and damage the spleen and stomach and promote phlegm formation. Patients are recommended to eat more fresh fruits and vitamin-rich foods, such as tomatoes, carrots, and garlic. In addition, multiple grains, such as peanuts, purple sweet potato, and mung beans, are highly recommended. Therefore, people should select food of a cold or hot nature depending on their individual situation to adjust the constitution of the body accordingly.

In addition to protecting the body against pathogens, it is necessary to strengthen our bodies by performing more exercises, such as jogging or Baduanjin (eight-sectioned exercise). Tai chi and moxibustion, also recommended by TCM, have many benefits to help the body fight against diseases.

Thus, for patients with COVID-19, it is necessary to not only prevention internally, but also to adjust an individual’s daily life to improve one’s constitution to resist diseases. In addition, the specific nature of a constitution is an important guide for the development and prognosis of diseases. According to TCM, the factors that affect the formation of one’s constitution should be targeted to improve an individual’s constitution by gradually balancing yin and yang and toning the visceral qi and blood flow.

**CONCLUSIONS**

Combined with the physical characteristics of Chinese medicine, change the time and mode of “close contact” between physical fitness and disease, and the internal mechanism of preventing the occurrence of disease. This is particularly important to prevent the spread of COVID-19. Through modulating a biased constitution, the balance of yin and yang and the prevention and treatment of COVID-19 may be achieved. This recommendation not only reflects the active participation of TCM in prevention and treatment of the COVID-19, but also shows the holistic treatment and the concept of “the same disease treated differently” of TCM\(^8\). In addition, patients with biased constitutions should receive appropriate treatment regimens to reduce infection rates and mortalities.

The constitutional theory of TCM is under the guidance of the TCM theory in China. It is also one of the components of the theoretical system of TCM. This theory has been widely used in clinical practice and had achieved efficacious outcomes. However, there are still some problems in TCM research. For example, when encountering patients with
COVID-19, it is unclear if medical staff can correctly recognize biased constitutions. Due to differential constitutions, individualized treatments for patients with COVID-19 are necessary; however, this is difficult to implement in such an epidemic with a considerable number of patients.

Nevertheless, with the joint efforts of people across China and the unremitting efforts of countless healthcare providers, we will finally combat this epidemic. We believe that studying TCM constitutional theory and the disease together may help to better understand COVID-19 and to clarify its specific classification within TCM constitutional theory, which will provide a clear guidance for the clinical intervention of COVID-19.

**Abbreviations**


TCM: Traditional Chinese Medicine.

**DECLARATIONS**

**Ethics Approval and Consent to Participate**

NA.

**Consent for Publication**

NA.

**Availability of Data and Materials**

NA.

**Competing Interests**

The authors declared that they have no competing interests.

**Authors’ Contributions**

Zeng Mengjie and Wu Zhiquan contributed equally to this work.

**ACKNOWLEDGEMENTS**

NA.

**Funding**

This work was supported by Sanya medical science and technology innovation project, No.: 2017YW06.

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