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A Brief Report on Current Evidence of Traditional Chinese Medicine in the Treatment of Patients Infected with SARS-CoV-2

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Abstract

Coronavirus Disease 2019 (COVID-19) is caused by Severe Acute Respiratory Syndrome Coronavirus type 2 (SARS-CoV-2) which has become a major threat to public health worldwide. During 2003 and 2012, the Severe Acute Respiratory Coronavirus (SARS-CoV) and Middle East Respiratory Syndrome Coronavirus (MERS-CoV) had human epidemics. Because of similar characteristics among SARS-CoV-2 and other coronaviruses, they can be used by physicians to treat similar severe patients. During the past decade, traditional medicine has been widely used for the epidemic outbreaks such as SARS, H_1N_1 influenza, and MERS. In this review, the researchers summarized the recent findings and evidence of herbal formula of TCM in the treatment of COVID-19.

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Dear editor;

Coronavirus Disease 2019 (COVID-19) is caused by Severe Acute Respiratory Syndrome Coronavirus type 2 (SARS-CoV-2), which has become a major threat to public health worldwide.

During 2003 and 2012, respectively, the Severe Acute Respiratory Coronavirus (SARS-CoV) and Middle East Respiratory Syndrome Coronavirus (MERS-CoV) had human epidemics [1]. Because of similar characteristics between SARS-CoV-2 and other coronaviruses, they can be used by physicians to treat similar severe patients. During the past decade, traditional medicine has been widely used the epidemic outbreaks such as SARS, H1N1 influenza, and MERS [2, 3]. In this regard, researchers have recognized multiple components of herbal formulae in Traditional Chinese Medicine (TCM) with anti-SARS-CoV activity [4].

By February 22, 2020, 87% of COVID-19 Chinese patients were treated through TCM. Moreover, TCM treatment revealed that the effective rate of TCM was 92%, of which 5% of the patients only presented minor clinical manifestations [4]. In this brief report, we summarized the recent finding and evidence of herbal formula of TCM in the treatment of COVID-19.

Devastating inflammatory reactions can be associated with the deaths of patients suffering from SARS-CoV infection, COVID-19, or MERS-CoV. Consequently, the severity and mortality rate could be presumably reduced by anti-inflammatory agents. *Shuang Huang Lian*, as a TCM herbal product made from *Lonicerae japonicae* Flos, *Fructus Forsythiae and Scutellariae radix*, can probably hinder the activity of SARS-CoV-2 [5].

Moreover, some of the compounds in TCM can block and considerably prevent the SARS-CoV S-protein-Angiotensin-converting enzyme 2 (ACE2) interaction and, consequently, prevent the infection of SARS-CoV-2. These components are as follows: Emodin from *Polygonum* and genus *Rheum*, nicotinamide from foodstuff, baicalin from in *Scutellaria*

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baicalensis, scutellarin, luteolin from *Veronicalina riifolia*, and tetra-*O*-galloyl-β-D-glucose (TGG) from *Galla chinensis [6-10]*.

The results of a multi-center study revealed that *Astragalus membranaceus*, *Rhizoma Atractylodis*, *Rhizoma Atractylodis*, *Agastache*, *Rugosa*, *Glycyrrhizae uralensis*, *Macrocephalae*, *Saposhnikoviae divaricata*, *Lonicerae Japonicae Flos*, *Radix platycodonis*, *Fructus forsythia, and Atractylodis Rhizoma* are the most frequently used Chinese herbs in the treatment of COVID-19 [11].

Based on the latest edition of Guideline, patients are recommended to use multiple component Chinese herbal products during the medicinal observation duration as a preventive measure, including *Lian Hua Qing Wen Capsule*, *Huo Xiang Zheng Qi Shui*, *Jin Hua Qing Gan Granule, and* Shu *Feng Jie Du Capsule [12]*.

In the clinical treatment period, *Qing Fei Pai Du Tang*, *Xi Yan Ping Injection*, *Xue Bi Jing injection*, *Re Du Ning Injection, Tan Re Qing Injection*, *Xing Nao Jing Injection*, and some other Chinese medicine formulae should be selected. Also, the patients in critical condition can be administered *Shen Fu Injection*, *Sheng Mai Injection*, *Shen Mai Injection*, *Su He Xiang Pill*, and *An Gong Niu Huang Pill [4]*.

According to the National Administration of Traditional Chinese Medicine, using *Qing Fei Pai Du Tang*, 214 COVID-19 patients were treated in Hebei, Shanxi, Shaanxi, and Heilongjiang Provinces with a total effective rate of 90% or higher by February 5, 2020 [13]. The symptoms were considerably treated in most of the patients (≥60%) but the disease was stable in others (30%). Based on the findings, the major symptoms like cough and fever can be markedly relieved by this herbal product, which also can accelerate the recovery process.

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Several TCM herbal products and their components have been reported with potential immunosuppressive impacts. For instance, Wang, *et al*. reported that lung inflammation might be inhibited by *Shen Fu Injection* while the levels of IL-6, IL-1β, and other cytokines are declined. Also, according to Chang, *et al*., *Re Du Ning Injection* could considerably decrease the levels of TNF-α, IL-8, IL-1β, IL-10, and some other cytokines of LPS-prompted model of acute lung damage in rats. Thus, in treating severe COVID-19 patients, TCM with the capacity to prevent cytokine storm and its overwhelming results may be controlled [14].

To manage patients with SARS-CoV-2 infection, it is required to provide alternative and complementary treatments urgently. Moreover, experiences in TCM should be certainly studied. Randomized, placebo-controlled, and double-blinded studies offer the most reliable evidence for a treatment such as TCM, in particular.

Nevertheless, it has been found that most of these studies have been weakly designed and potential biases could be obtained by the results to evaluate the TCM treatment effectiveness. Experimental studies may have the ability to clarify the TCM therapeutic impacts the underlying mechanism in treating COVID-19. Innovative anti-human coronavirus compounds may be obtained through further TCM studies. Eventually, they may prove the effectiveness in treating of SARS-CoV-2 or other emergent fatal viral diseases as usual therapeutic agents.

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Authors' contribution

The manuscript was carried out, written, and approved in collaboration with all authors.

Conflicts of Interest

None

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