

# The Treatment of COVID-19 with Chinese Herbal Medicine

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## Abstract

Since its outbreak in Wuhan in December 2019, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has become a global pandemic. There remains no cure for the disease caused by it, COVID-19, although the first vaccine trials have begun. Chinese medicine has a recorded history of millennia of combating epidemics. This article documents the significant role Chinese herbal medicine can play in the clinical treatment of COVID-19.

## Keywords

Coronavirus, COVID-19, SARS-CoV-2, pneumonia, TCM, Chinese herbal medicine, pandemic, wen bing

## Introduction

Since the novel coronavirus (or as it is now known severe acute respiratory syndrome coronavirus 2 [SARS-CoV-2]) outbreak was confirmed to have spread to Italy on 31 January 2020, new cases increased rapidly in Europe. As of 20th April 2020 the World Health Organization (WHO) announced 2,314,621 confirmed cases and 157,847 deaths globally due to COVID-19.<sup>1</sup> The majority of patients with COVID-19 are adults. Among 44,672 patients in China with confirmed infection, just 2.1 per cent were below the age of 20.<sup>2</sup> The most commonly reported symptoms include fever, dry cough and shortness of breath. Most patients (80 per cent) experience mild illness; approximately 14 per cent experience severe disease and five per cent become critically ill. Early reports suggest that illness severity is associated with increasing age (over 60 years old) and co-morbidity.<sup>3</sup> According to statistics published in the *Journal of the American Medical Association*, of 22,512 cases, the median age was 64 years, 37.6 per cent were aged 70 and over, and 37.3 per cent were aged 51 to 70 years.<sup>4</sup> Currently there is no known effective therapy for COVID-19. Mortality in those with critical illness has been reported at over 50 per cent.<sup>5</sup> At the time of writing, the epidemic in Wuhan and China is under control. As of 20th April 2020, there were 36 total new reported infections, most of which were imported cases.<sup>6</sup>

Addressing a press conference in Geneva on 20 March 2020 regarding the COVID-19 outbreak, the World Health Organization (WHO) Director-General Tedros Adhanom Ghebreyesus urged world-wide solidarity to fight the disease, stating: ‘One of the things we are learning is that although older people are the hardest hit, younger people are not spared. Data from many countries clearly show that people under 50 make up a significant proportion of patients requiring hospitalization ... Today, I have a message for young people: you are not invincible. This virus could put you in hospital for weeks, or even kill you.’ He also voiced reasons to celebrate success: ‘Yesterday, Wuhan reported no new cases for the first time since the outbreak started. Wuhan provides hope for the rest of the world, that even the most severe situation can be turned around.’<sup>7</sup>

In order to respond to the SARS-CoV-2 epidemic in Wuhan, the Chinese National Health Commission and related ministries commissioned the construction of mobile cabin hospitals.<sup>8</sup> Medical staff were dispatched to these hospitals to take care of patients who tested positive for the virus but showed no severe symptoms. Once a patient’s symptoms worsened, he or she was transferred to one of the city’s designated hospitals. According to Xinhua News Agency on 10th March, with the last batch of 49 pneumonia patients discharged from Wuhan Wuchang

cabin hospital, the hospital was formally suspended after 35 days of operation.<sup>9</sup> At the height of the epidemic, a total of 16 mobile cabin hospitals were built in Wuhan, offering a total of 13,000 beds, with 12,000 patients treated.<sup>10</sup>

### Clinical characteristics

The main signs and symptoms of COVID-19 are:

- Fever, although the body temperature is not typically high - usually more than 37 degrees Celsius, but rarely exceeding 38.5 degrees. Some patients do not have fever at all.
- Dry cough; a little white sputum or yellow sputum may be coughed up in the later stages of the disease; in some cases there is no cough.

Other clinical manifestations include:

- Sore and dry throat
- Tiredness
- Chest tightness and severe shortness of breath, which worsen with activity
- Sore muscles or limbs
- Nasal congestion, runny nose
- Nausea and vomiting
- Diarrhoea
- Headache
- Redness of the eyes
- Bitter taste in the mouth
- Dry mouth and thirst
- Poor appetite
- The tongue is typically pale, sometimes purple, with a greasy (possibly white, greyish or yellow) coating (especially in the middle), and tooth-marked edges.

Clinical characteristics include:

- Transmission is via nose, mouth and skin contact.
- Median incubation period is 3.0 days and incubation time can last up to 24 days (although 24 days is rare).<sup>11</sup>
- COVID-19 can occur in all ages, with 0.9 per cent of patients being under 15 years of age.<sup>11</sup>
- Fever (87.9 per cent of patients) and cough (67.7 per cent) are the most common symptoms, although less than half (43.8 per cent) of patients have fever at the time of their initial consultation; diarrhoea (3.7 per cent) and vomiting (5.0 per cent) are rare.<sup>11</sup>
- Of 840 patients who received a CT (computer tomography) scan of the lungs at hospital admission,

76.4 per cent showed signs of pneumonia.

- If the patient's body temperature stays between 37 and 38.5 degrees Celsius, after six or seven days the patient generally gradually recovers.
- If after two or three days of the initial symptoms, the patient's body temperature suddenly rises above 39 degrees Celsius, the condition often becomes critical, with wheezing, shortness of breath, poor oxygenation and large amounts of exudation visible on CT examination of the lungs.<sup>13</sup>
- During hospitalisation, the most common complication is pneumonia (79.1 per cent), followed by acute respiratory diseases (3.4 per cent) and shock (1.0 per cent).<sup>14</sup>

Recovery takes place when the body starts producing antibodies - typically within two weeks of the first appearance of symptoms - which should then provide immunity. However, reports from Guangdong and Hainan suggest that some discharged patients have subsequently tested positive for viral nucleic acid.<sup>15</sup>

### Chinese medicine

COVID-19 typically presents as a pattern of cold-damp and toxin affecting the Lung and Spleen. At the time of the first COVID-19 cases, the climate of Wuhan had been very rainy and wet, with the temperature higher than in previous winters, and no direct sunlight. Most tongue images of COVID-19 patients show a thick white and greasy coating, confirming the presence of cold and damp. It is important to emphasise that this type of cold-damp invasion is not the usual kind encountered in clinical practice. It is termed 'han shi yi' (寒湿疫); the term 'yi' (疫) means epidemic and describes something strange, unpredictable, difficult to control and involving numerous deaths. Unlike typical invasions of exogenous pathogens, which tend to progress

in a relatively predictable way, the progression of epidemic conditions can be very fast, penetrating different channels and organs simultaneously and chaotically, and causing serious complications due to the presence of toxin.

At the beginning stage of the disease, three organ systems are primarily involved: the Lung, Spleen and San Jiao (Triple Burner):

#### Lung

The Lung becomes impaired or blocked, involving:

- Disruption of its dispersing function, causing fever, sore

**Most tongue images of COVID-19 patients show a thick white and greasy coating, confirming the presence of cold and damp.**

- throat, aversion to cold, muscle pain, headache, joint pain;
- Disruption of its descending function, causing shortness of breath, dry cough, difficulty in breathing, pressure in the chest;
  - Disruption of its role as the upper source of water, causing fluid retention in the lungs and body.

### Spleen

The transportation and transformation functions of the Spleen are disturbed, leading to:

- Diarrhoea and vomiting;
- Extreme tiredness and weakness;
- Poor appetite.

### San Jiao

The San Jiao is the passageway for yuan (original) qi and water. If the qi distribution and water metabolism of the San Jiao become disturbed or blocked, various dysfunctions can manifest across the three jiao, particularly water retention.

### Chinese herbal medicine treatment

From 27th January, the State Administration of Traditional Chinese Medicine in China launched the 'Screening Study of Effective Prescriptions of Traditional Chinese Medicine for the Prevention and Treatment of New Coronavirus Pneumonia' in Shanxi, Hebei, Heilongjiang and Shaanxi. These four provinces conducted a trial where *Qing Fei Pai Du Tang* (Lung Cleansing & Detoxifying Decoction) was used to treat patients with COVID-19 pneumonia. The state administration of TCM provided the following report:<sup>13</sup>

1. Jiangxia Fangcang Hospital admitted a total of 182 patients who were given this formula. Among them, all except one patient experienced remission of fever within three days.
2. Jiangnan Fangcang Hospital treated a total of 1,874 patients. The overall effectiveness rate of integrated Chinese and Western medicine treatment was over 89 per cent.
3. A total of 312 patients were admitted to Qiaokou Fangcang Hospital. Except for five patients under 18 years of age, all took *Qing Fei Pai Du Tang*. As of February 25, a total of 117 patients had been discharged.
4. Jingkai Fangcang Hospital admitted a total of 1,040 patients, all of whom took *Qing Fei Pai Du Tang* combined with Western medicine. Their fever, fatigue and cough symptoms significantly improved and those who remain in hospital at the time of writing are in good condition.

On 17th February the director of the Science and Technology Department of the State Administration of Traditional Chinese Medicine pointed out that the beneficial effect of *Qing Fei Pai Du Tang* had been further confirmed by clinical observation across 10 provinces. Based on 351 cases with detailed case information:

- Of 112 patients with a temperature exceeding 37.3 degrees Celsius, 51.8 per cent had their temperature return to normal within one day of taking the medicine, 68.8 per cent after taking the decoction for three days (one course of treatment) and 94.6 per cent within six days (two courses of treatment).
- Of 214 patients with cough, 46.7 per cent of patients found their cough disappeared after one day of taking *Qing Fei Pai Du Tang* and 80.4 per cent within six days.
- *Qing Fei Pai Du Tang* also seemed to have a curative effect on symptoms such as fatigue, anorexia and sore throat.<sup>16</sup>

*Qing Fei Pai Du Tang* is a new formula composed of four classic prescriptions. It emphasises pungent and warm herbs, pungent and cold herbs, and light and fragrant herbs to disperse the Lung, stop cough, clear heat, resolve damp and remove toxin. According to Sun Guangrong, a State master of Chinese medicine, the focus of *Qing Fei Pai Du Tang* is to remove internal obstruction by facilitating a way out of the body for pathogens.<sup>17</sup>

Ma Huang (Ephedrae Herba) 9g  
Xing Ren (Armeniacae Semen) 9g  
Shi Gao (Gypsum fibrosum) 30g  
Zhi Gan Cao (Prepared Glycyrrhizae Radix) 6g  
Gui Zhi (Cinnamomi Ramulus) 9g  
Ze Xie (Alismatis Rhizoma) 9g  
Zhu Ling (Polyporus) 9g  
Bai Zhu (Atractylodis macrocephalae Rhizoma) 9g  
Fu Ling (Poria) 15g  
Chai Hu (Bupleuri Radix) 16g  
Huang Qin (Scutellariae Radix) 9g  
Zhi Ban Xia (Pinelliae Rhizoma preparatum) 9g  
Sheng Jiang (Zingiberis Rhizoma recens) 9g  
Zi Wan (Asteris Radix) 9g  
Kuan Dong Hua (Farfarae Flos) 9g  
She Gan (Belamcandae Rhizoma) 9g  
Xi Xin (Asari Radix et Rhizoma) 6g  
Huo Xiang (Pogostemonis Herba) 9g  
Shan Yao (Dioscoreae Rhizoma) 12g  
Zhi Shi (Aurantii Fructus immaturus) 6g  
Chen Pi (Citri reticulatae Pericarpium) 6g

### Directions

- Decoct one package of herbs each day and take the decoction once in the morning and once in the evening

(40 minutes after a meal). If conditions permit, take half a bowl of rice soup after drinking the decoction.

- Three days of herbs constitutes one course of treatment. Usually only one or two courses of treatment are required.
- If the patient does not have a high fever, the amount of Shi Gao can be reduced; conversely, if the fever is high the amount of Shi Gao should be increased.

### Analysis

This formula is a standard generalised prescription, indicated for patients at the initial and clinical treatment stages of the disease (see below), but not for severe or critical cases. It is useful during a pandemic because it can be widely applied to treat a huge number of patients at a time when individualised prescription becomes impossible. However, where possible it is recommended to provide a personalised herbal prescription for each patient. The formula consists of the following prescriptions:

- *Ma Xing Shi Gan Tang* (Ephedra, Apricot Kernel, Gypsum and Licorice Decoction): indicated for cough and shortness of breath;
- *Wu Ling San* (Five-Ingredient Powder with Poria): indicated for water retention, protects the lower jiao and Kidney;
- *She Gan Ma Huang Tang* (Belamcanda and Ephedra Decoction): indicated for phlegm and fluids in the Lung;
- *Xiao Chai Hu Tang* (Minor Bupleurum Decoction): indicated for Shao Yang syndrome and San Jiao disorders;
- Plus the herbs Huo Xiang, Shan Yao, Zhi Shi and Chen Pi to regulate the Spleen and Stomach, eliminate cold-damp, remove toxin and promote defecation.

In this way, the Lung, Spleen, Stomach, San Jiao, Gall Bladder, Bladder, Kidney and Large Intestine are regulated and protected.

### Modifications

- If there is severe aversion to cold, remove Shi Gao and add Zhi Fu Zi (*Aconiti Radix lateralis preparata*) 10g and Gan Jiang (*Zingiberis Rhizoma*) 10g to warm the body and dispel cold.
- If there is high fever, remove Xi Xin and increase Shi Gao up to 60g to clear heat and reduce fever.
- If there is copious phlegm, add Jie Geng (*Platycodi Radix*) 10g and Zhe Bei Mu (*Fritillariae thunbergii Bulbus*) 10g to resolve phlegm.
- If there is fluid in the Lungs (confirmed by CT scan), add Ting Li Zi (*Lepidii/Descurainiae Semen*) 10g and Che Qian Zi (*Plantaginis Semen*) 10g to discharge fluids from the Lung.
- If there is severe constipation, add Da Huang (*Rhei Radix et Rhizoma*) 10g and Mang Xiao (*Natrii Sulfas*) 10g to

promote defecation and purge the Large Intestine.

- If there is vomiting, add Sha Ren (*Amomi Fructus*) 5g and Pei Lan (*Eupatorii Herba*) 10g to descend Stomach qi and relieve vomiting.

### Notes

- Xi Xin is a toxic herb as it contains aristolochic acid. The International Agency for Research on Cancer (IARC) pointed out in 2002 that herbal remedies containing plant species of the genus *Aristolochia* are carcinogenic to humans (Group 1).<sup>18</sup> According to the Chinese Pharmacopoeia, the daily dosage for Xi Xin is one to three grams. It is used at a high dosage in this prescription because doctors have found that the dosage of 3 grams is not effective for this disease; a dosage of 6 grams is used to warm and open the Lung and dispel cold-damp. This herb is forbidden in Europe, where it might be replaced by Gan Jiang (*Zingiberis Officinalis Rhizoma*) 10g.
- Ma Huang is forbidden in many countries outside China. It can be replaced by Zi Su Zi (*Perillae Fructus*) 10g and Sang Bai Pi (*Mori Cortex*) 10g to disperse and descend Lung qi and eliminate phlegm in the Lung.
- COVID-19 cannot be treated gradually. It is recommended not to use patent remedies in pill or tablet form, but herbal decoctions. If this is not possible, then herbal granules or powders can be used.
- Because the main pattern involves cold-damp and toxin, cold and cool herbs should be used carefully in the early and middle stages of treatment, except when the presentation is a pattern of damp-heat and toxin. The academic Dr. Tong Xiaolin has recommended avoiding intravenous infusions, at least for patients with a swollen tongue with a thick and greasy tongue coating, so as not to aggravate dampness. Such patients should also start taking Chinese herbs as early as possible.
- Avoid abuse of antibiotics (as this is a viral infection) unless the presentation is complicated by a bacterial infection. From the perspective of traditional Chinese medicine, antibiotics are generally cold in nature, and tend to impair Spleen and Stomach function.

Whilst *Qing Fei Pai Du Tang* is an effective yet flexible herbal approach to COVID-19, treatment based upon clinical differentiations is also encouraged. The following more detailed TCM treatment guide is based upon *China's Novel Coronavirus Pneumonia Diagnosis and Treatment Plan (Provisional 7th Edition)* by the State Administration of Traditional Chinese Medicine,<sup>19</sup> with modifications based on other published sources.

## Initial stage (medical observation)

**Invasion of the Lung by cold-damp:** Initial signs of infection with fever, chills, joint and muscle pain, fatigue, sore throat, bitter taste in the mouth, dry throat, a pale tongue with a thin white coating, and a slightly tense or slightly rapid floating pulse.

*Principles of treatment:* Dispel cold, resolve damp and resolve the exterior

*Herbal formula:* *Qiang Huo Sheng Shi Tang* (Notopterygium Decoction to Overcome Dampness) plus *Xiao Chai Hu Tang* (Minor Bupleurum Decoction)

Qiang Huo (Notopterygium Rhizoma seu Radix) 10g  
Fang Feng (Saposhnikoviae Radix) 10g  
Man Jing Zi (Viticis Fructus) 10g  
Ma Huang (Ephedrae Herba) 10g  
Chuan Xiong (Chuanxiong Rhizoma) 10g  
Cang Zhu (Atractylodis Rhizoma) 10g  
Qing Hao (Artemisia annuae Herba) 10g  
Huo Xiang (Pogostemonis Herba) 10g  
Chai Hu (Bupleuri Radix) 10g  
Huang Qin (Scutellariae Radix) 10g  
Zhi Ban Xia (Pinelliae Rhizoma preparatum) 10g  
Sheng Jiang (Zingiberis Rhizoma recens) 5g

**Invasion of cold-damp into Tai Yin:** Fever (or no fever), joint and muscle pain, fatigue, nausea, vomiting, loose stools or diarrhoea, white and greasy tongue coating.

*Principles of treatment:* Dispel cold, resolve damp, harmonise the middle jiao and resolve the exterior.

*Herbal formula:* *Huo Xiang Zheng Qi San* (Patchouli/Agastache Powder to Rectify the Qi)

Huo Xiang (Pogostemonis Herba) 10g  
Pei Lan (Eupatorii Herba) 10g  
Qiang Huo (Notopterygium Rhizoma seu Radix) 10g  
Zhi Ban Xia (Pinelliae Rhizoma preparatum) 10g  
Zi Su Ye (Perillae Folium) 10g  
Hou Po (Magnoliae officinalis Cortex) 10g  
Da Fu Pi (Arecae Pericarpium) 10g  
Yi Yi Ren Yi Yi Ren (Coicis Semen) 10g  
Qing Hao (Artemisia annuae Herba) 10g  
Chen Pi (Citri reticulatae Pericarpium) 5g  
Bai Kou Ren (Amomi Fructus rotundas) 5g (added towards the end of cooking)

## Clinical treatment stage (confirmed cases)

### Mild cases

**Invasion of cold-damp into the Lung with disharmony of the Shao Yang:** Aversion to cold, fever or no fever, dry cough, bitter taste in the mouth, dryness of the throat, tiredness, heaviness of the body, slight feeling of pressure on the chest, poor appetite, nausea, loose stool, pale or slightly red tongue with a thin, white and greasy coating, soft pulse.

*Principles of treatment:* Dispel cold, resolve dampness and resolve the exterior.

*Herbal formulas:* *San Ao Tang* (Three-Unbinding Decoction) plus *Qiang Huo Sheng Shi Tang* (Notopterygium Decoction to Overcome Dampness) and *Xiao Chai Hu Tang* (Minor Bupleurum Decoction)

Ma Huang (Ephedrae Herba) 10g  
Xing Ren (Armeniaca Semen) 10g  
Qiang Huo (Notopterygium Rhizoma seu Radix) 10g  
Zhi Ban Xia (Pinelliae Rhizoma preparatum) 10g  
Chai Hu (Bupleuri Radix) 10g  
Huang Qin (Scutellariae Radix) 10g  
Huo Xiang (Pogostemonis Herba) 10g  
She Gan (Belamcandae Rhizoma) 10g  
Lu Gen (Phragmitis Rhizoma) 12g  
Cang Zhu (Atractylodis Rhizoma) 10g  
Zi Su Ye (Perillae Folium) 10g  
Hou Po (Magnoliae officinalis Cortex) 10g  
Da Fu Pi (Arecae Pericarpium) 10g  
Yi Yi Ren (Coicis Semen) 10g  
Bai Kou Ren (Amomi Fructus rotundas) 5g (added towards the end of cooking)

**Accumulation of damp-heat in the Lung with disharmony of Shao Yang:** Low or no fever, slight chills, fatigue, heavy head and body, muscle soreness, dry cough, scanty phlegm, sore throat, dry mouth, no desire to drink, chest fullness, sweating (or no sweating), vomiting and loss of appetite, diarrhoea or sticky stools, red tongue with a white, thick and greasy or thin yellow coating, and a slippery and rapid pulse.

*Principles of treatment:* Clear heat, resolve damp, disperse Lung-qi and harmonise the Shao Yang

*Herbal formulas:* *San Ren Tang* (Three-Seed Decoction) plus *Xiao Chai Hu Tang* (Minor Bupleurum Decoction)

Xing Ren (Armeniacae Semen) 10g  
Yi Yi Ren (Coicis Semen) 10g  
Bing Lang (Arecae Semen) 10g  
Hou Po (Magnoliae officinalis Cortex) 10g  
Zhi Zi (Gardeniae Fructus) 10g  
Qing Hao (Artemisia annuae Herba) 10g  
Zhi Ban Xia (Pinelliae Rhizoma preparatum) 10g  
Chai Hu (Bupleuri Radix) 10g  
Huang Qin (Scutellariae Radix) 10g  
She Gan (Belamcandae Rhizoma) 10g  
Lu Gen (Phragmitis Rhizoma) 12g  
Cang Zhu (Atractylodis Rhizoma) 10g  
Da Fu Pi (Arecae Pericarpium) 10g  
Lian Qiao (Forsythiae Fructus) 10g  
Bai Kou Ren (Amomi Fructus rotundas) 5g (added towards the end of cooking)

### Moderate cases

**Accumulation of damp and toxin in the Lung:** Fever, cough with scanty phlegm (which may be yellow), feeling of suffocation, shortness of breath with rapid respiration, bloating in the abdomen, difficult defecation or constipation, a swollen dark red tongue with a yellow and greasy or yellow and dry coating, a wiry, slippery and rapid pulse.

*Principles of treatment:* Clear heat, remove toxin, resolve damp, descend the Lung qi

*Herbal formula:* *Ma Xing Shi Gan Tang* (Ephedra, Apricot Kernel, Gypsum and Licorice Decoction)

Ma Huang (Ephedrae Herba) 6g  
Xing Ren (Armeniacae Semen) 12g  
Shi Gao (Gypsum fibrosum) 30g  
Hou Po (Magnoliae officinalis Cortex) 10g  
Yi Yi Ren (Coicis Semen) 15g  
Sang Bai Pi (Mori Cortex) 10g  
Cang Zhu (Atractylodis Rhizoma) 10g  
Huo Xiang (Pogostemonis Herba) 10g  
Hu Zhang (Polygoni cuspidati Rhizoma) 20g  
Ma Bian Cao (Verbenae Herba) 30g  
Ting Li Zi (Lepidii/Descurainiae Semen) 15g  
Chen Pi (Citri reticulatae Pericarpium) 6g  
Lu Gen (Phragmitis Rhizoma) 30g  
Ban Lan Gen (Isatidis Radix) 15g  
Sheng Gan Cao (Glycyrrhizae Radix) 10g

**Disturbance of the Lung by cold-damp:** No fever, dry cough or cough with scanty phlegm, fatigue, chest tightness, nausea, loose stools, pale tongue with a white and greasy coating, and a soft pulse.

*Principles of treatment:* Eliminate cold, resolve damp, descend the Lung qi

*Herbal formulas:* *Ping Wei San* (Calm the Stomach Powder) plus *Er Chen Tang* (Two-Aged [Herb] Decoction)

Cang Zhu (Atractylodis Rhizoma) 15g  
Chen Pi (Citri reticulatae Pericarpium) 10g  
Hou Po (Magnoliae officinalis Cortex) 10g  
Cao Guo (Tsaoko Fructus) 6g  
Ma Huang (Ephedrae Herba) 10g  
Xing Ren (Armeniacae Semen) 10g  
Qiang Huo (Notopterygium Rhizoma seu Radix) 10g  
Huo Xiang (Pogostemonis Herba) 10g  
Fu Ling (Poria) 15g  
Bai Zhu (Atractylodis macrocephalae Rhizoma) 10g  
Bing Lang (Arecae Semen) 10g  
Qing Hao (Artemisia annuae Herba) 10g  
Zhi Gan Cao (Glycyrrhizae Radix preparata) 6g

### Severe cases

**Blockage of the Lung by damp and toxin:** Fever, red face, cough with scanty yellow phlegm, blood-streaked sputum, difficulty expectorating phlegm, fullness of the chest, shortness of breath, nausea, vomiting, fullness of the abdomen, poor appetite, sticky stools, scanty and dark yellow urine, red tongue with a yellow and greasy coating, and a rapid and slippery pulse.

*Principles of treatment:* Clear heat, resolve damp, remove toxin, descend Lung qi and relieve shortness of breath.

*Herbal formulas:* *Ma Xing Shi Gan Tang* (Ephedra, Apricot Kernel, Gypsum and Licorice Decoction) plus *Hou Po Xia Ling Tang* (Agastache, Magnolia Bark, Pinellia and Poria Decoction)

Ma Huang (Ephedrae Herba) 10g  
Shi Gao (Gypsum fibrosum) 30g  
Xing Ren (Armeniacae Semen) 10g  
Sheng Gan Cao (Glycyrrhizae Radix) 3g  
Huo Xiang (Pogostemonis Herba) 10g  
Hou Po (Magnoliae officinalis Cortex) 10g  
Cang Zhu (Atractylodis Rhizoma) 10g  
Fu Ling (Poria) 15g  
Cao Guo Ren (Tsaoko Fructus) 10g  
Zhi Ban Xia (Pinelliae Rhizoma preparatum) 10g  
Ting Li Zi (Lepidii/Descurainiae Semen) 10g  
Chi Shao (Paeoniae Radix rubra) 10g  
Sang Bai Pi (Mori Cortex) 10g  
Da Huang (Rhei Radix et Rhizoma) 5g (added towards the end of cooking)

**Flaring of toxin and heat in the qi and ying levels:** High fever, thirst, feeling of suffocation, tightens of the chest, shortness of breath, restless, blurred vision, skin rash, vomiting blood, epistaxis, spasms or convulsions in the limbs, red tongue with scanty or peeled coating, and a deep, thready and rapid or floating and rapid pulse.

*Principles of treatment:* Clear heat, remove toxin, cool blood and suppress Liver wind

*Herbal formulas:* *Qing Ying Tang* (Clear the Nutritive Decoction) plus *Xiao Cheng Qi Tang* (Minor Order the Qi Decoction)

Shi Gao (Gypsum fibrosum) 30g-60g (cooked first)  
Sheng Di Huang (Rehmanniae Radix) 30g  
Zhi Mu (Anemarrhenae Rhizoma) 10g  
Dan Zhu Ye (Lophatheri Herba) 12g  
Huang Qin (Scutellariae Radix) 10g  
Lian Qiao (Forsythiae Fructus) 15g  
Mu Dan Pi (Moutan Cortex) 15g  
Huang Lian (Coptidis Rhizoma) 6g  
Xuan Shen (Scrophulariae Radix) 20g  
Shui Niu Jiao (Bubali Cornu) 30g  
Ting Li Zi (Lepidii/Descurainiae Semen) 15g  
Da Huang (Rhei Radix et Rhizoma) 10g (added towards the end of cooking)  
Mang Xiao (Natrii Sulfas) 10g (added towards the end of cooking)

### Critical cases

**Internal obstruction causing collapse, yin and yang separating:** Severe breathing difficulty, asphyxia (mechanical ventilation may be needed), restlessness, unconsciousness, sweaty and cold extremities, a dark purple tongue with a thick or dry coat, and a large, floating, rootless pulse.

*Principles of treatment:* Restore the yang and rescue patient from collapse

*Herbal formulas:* *Du Shen Tang* (Unaccompanied Ginseng Decoction) plus *Si Ni Tang* (Frigid Extremities Decoction)

Ren Shen (Ginseng Radix) 20g  
Zhi Fu Zi (Aconiti Radix lateralis preparata) 10g  
Shan Zhu Yu (Corni Fructus) 15g  
Gan Jiang (Zingiberis Rhizoma) 15g  
Zhi Gan Cao (Glycyrrhizae Radix preparata) 6g

One pill of *Su He Xiang Wan* (Liquid Styrax Pill) is taken when drinking the decoction, or if there is heat blockage, one pill of *An Gong Niu Huang Wan* (Calm the Palace Pill with Cattle Gallstone).

### Convalescent period

**Deficiency of Lung and Spleen qi with weakness of yuan qi:** Shortness of breath, fatigue, poor appetite, fullness of the abdomen, weakness, pale complexion, loose stools, a pale tongue with a thin white and greasy coating, and a slippery and weak pulse.

*Principles of treatment:* Tonify Lung and Spleen qi and restore yuan qi

*Herbal formulas:* *Bu Fei Tang* (Tonify the Lung Decoction) plus *Shen Ling Bai Zhu San* (Ginseng, Poria and White Atractylodes Powder)

Ren Shen (Ginseng Radix) 10g  
Shu Di Huang (Rehmanniae Radix preparata) 10g  
Zhi Huang Qi (Astragali Radix preparata) 12g  
Wu Wei Zi (Schisandrae Fructus) 10g  
Zi Wan (Asteris Radix) 10g  
Lu Gen (Phragmitis Rhizoma) 12g  
Sang Bai Pi (Mori Cortex) 10g  
Chao Bai Zhu (dry-fried Atractylodis macrocephalae Rhizoma) 10g  
Fu Ling (Poria) 12g  
Huo Xiang (Pogostemonis Herba) 10g  
Zhi Ban Xia (Pinelliae Rhizoma preparatum) 10g  
Chen Pi (Citri reticulatae Pericarpium) 5g  
Sha Ren (Amomi Fructus) 3g (added towards the end of cooking)

**Deficiency of qi and yin with weakness of Liver and Kidney:** Shortness of breath, fatigue, poor appetite, insomnia, weak defecation, hot flushes, night sweats, dry mouth, restlessness, dizziness, weakness of the lower back and knee, a light red tongue with a thin, dry and peeled coating, and a rapid and weak pulse.

*Principles of treatment:* Nourish yin, clear deficient heat and tonify the Liver and Kidney

*Herbal formulas:* *Sheng Mai San* (Generate the Pulse Powder) plus *Yi Guan Jian* (Linking Decoction) and *Qing Hao Bie Jia Tang* (Sweet Wormwood and Soft-Shelled Turtle Shell Decoction)

Ren Shen (Ginseng Radix) 10g  
Mai Men Dong (Ophiopogonis Radix) 12g  
Wu Wei Zi (Schisandrae Fructus) 10g  
Bei Sha Shen (Glehniae Radix) 10g  
Dang Gui (Angelicae sinensis Radix) 10g  
Sheng Di Huang (Rehmanniae Radix) 20g  
Gou Qi Zi (Lycii Fructus) 10g  
Zi Wan (Asteris Radix) 10g  
Chuan Bei Mu (Fritillariae cirrhosae Bulbus) 10g  
Chuan Lian Zi (Toosendan Fructus) 10g  
Qing Hao (Artemisia annuae Herba) 10g  
Bie Jia (Trionycis Carapax) 20g  
Mu Dan Pi (Moutan Cortex) 10g  
Zhi Mu (Anemarrhenae Rhizoma) 10g

### Appendix: My personal experience of COVID-19

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During the editing of this article myself and my family actually contracted COVID-19 and became sick. The details of our experience and treatment are shared here in the hope they will be useful to practitioners.

The Belgian government announced lockdown on Wednesday 11th March, to start on Friday 13th March. Prior to this, I had been careful at my clinic and was seeing much fewer patients that week. I refused to see any patient with fever and cough in order to protect myself and family. I closed my practice on 12th March. Unfortunately, that day I treated a Dutch couple who had just been to Rome (Italy) for a holiday. The lady told me that she had been suffering from fever and diarrhoea that were so mild that she had even gone to her work in a shop (although her colleague asked her to go home). Her husband had not noticed any symptoms.

On 16th March, my wife developed a headache, severe aversion to cold, slight fever, tiredness, throat pain, a bitter taste in the mouth, slight diarrhoea, loss of taste and smell and poor appetite. I was afraid that this might be COVID-19, although she did not have cough or shortness of breath. Her fever started rising in the evening and reached 38.5 degrees Celsius. I immediately gave her an acupuncture treatment (all together three treatments were given that week) using the acupuncture strategies described in my article 'Acupuncture in the Treatment of COVID-19: An Exploratory Study' (also published in the *Journal of Chinese Medicine*).

Over the next two days my wife's situation improved: her fever was under control with acupuncture treatment. However, her throat pain became worse and she developed a dry cough. On 19 March, I started to give her the following herbal formula, based upon *Qing Fei Pai Du Tang*:

Sang Bai Pi (Mori Cortex) 10g  
Xing Ren (Armeniacae Semen) 10g  
Shi Gao (Gypsum fibrosum) 20g  
Zhi Gan Cao (Glycyrrhizae Radix preparata) 6g  
She Gan (Belamcandae Rhizoma) 10g  
Chai Hu (Bupleuri Radix) 10g  
Huang Qin (Scutellariae Radix) 10g  
Zhi Ban Xia (Pinelliae Rhizoma preparatum) 10g  
Sheng Jiang (Zingiberis Rhizoma recens) 10g  
Zhi Shi (Aurantii Fructus immaturus) 10g  
Chen Pi (Citri reticulatae Pericarpium) 6g  
Huo Xiang (Pogostemonis Herba) 10g  
Qing Hao (Artemisia annuae Herba) 10g  
Jin Yin Hua (Lonicerae Flos) 10g  
Lian Qiao (Forsythiae Fructus) 10g  
Yu Xing Cao (Houttuyniae Herba) 15g  
Ze Xie (Alismatis Rhizoma) 10g  
Bai Zhu (Atractylodis macrocephalae Rhizoma) 10g  
Zhu Ling (Polyporus) 10g  
Gui Zhi (Cinnamomi Ramulus) 10g  
Fu Ling (Poria) 12g  
Concentrated herbal granules at a dosage of two grams, three times daily.

In the meantime, on 18th March I myself had begun to suffer from a runny nose, sneezing, general muscle aches and headache. Initially I thought that it was due to working so hard in my garden that day. However, when I measured my body temperature on the evening of 20th March, I noticed that I had fever, with a temperature of 37.5 degrees Celsius. At this point I suspected that we had both contracted the virus. I started to take the same herbal prescription as my wife. The next day, I developed similar symptoms to my wife, with a dry cough, although without any loss of smell or taste. At this point I also gave the following herbs to my youngest daughter, who is four years old, to try to prevent her from becoming ill. The formula was based upon a combination of *Yu Ping Feng San* (Jade Windscreen Powder) and *Huo Xiang Zheng Qi San* (Patchouli/Agastache Powder to Rectify the Qi):

Fang Feng (Saposhnikoviae Radix) 20g  
Bai Zhu (Atractylodis macrocephalae Rhizoma) 15g  
Huang Qi (Astragali Radix) 15g  
Cang Zhu (Atractylodis Rhizoma) 20g  
Shi Chang Pu (Acori tatarinowii Rhizoma) 20g  
Huo Xiang (Pogostemonis Herba) 20g  
Lian Qiao (Forsythiae Fructus) 20g  
Jin Yin Hua (Lonicerae Flos) 20g  
Pei Lan (Eupatorii Herba) 20g  
Concentrated powder, prescribed at a dosage of one gram twice daily.



I was delighted that by Saturday 21st March, after five days of treatment with acupuncture and herbal medicine, my wife had almost no symptoms at all. However, my situation had deteriorated: the cough, shortness of breath and chest tightness had become worse. On Monday 23rd March, I went with my wife to hospital to see if I could be examined and tested, but the hospital only checked our blood oxygen saturation and refused to perform a CT scan of the chest. We were sent home because we did not have fever at that moment. Meanwhile my symptoms seemed typical of the virus:

- Severe aversion to cold, slight fever, headache and cough (symptoms of the Tai Yang stage);
- Throat pain and bitter taste in the mouth (symptoms of the Shao Yang stage);
- Slight diarrhoea and loss of appetite (symptoms of the Tai Yin stage);
- Tiredness and somnolence (symptoms of the Shao Yin stage).

Whilst I was glad that I had started my herbal treatment on the first day of fever, the fever continued and my cough and chest tightness became even worse. I strongly believe that if a chest CT had been carried out, it would have shown the typical ground-glass opacity that is characteristic of the disease. I was heartened that my wife remained symptom-free, but knew that I had to act urgently to save my life.

By coincidence, I heard that a friend and colleague who is an orthodox medical doctor and university professor in Belgium, had encountered a similar situation in his family. His daughter is a dentist and her practice became infected by SARS-CoV-2, and the virus subsequently spread through her whole family. He treated the whole family with hydroxychloroquine and azithromycin and they experienced symptom relief six days later. Because of this, and in light of my worsening situation, I decided also to combine these drugs with my Chinese herbal medicine. From Wednesday 25 March. I took hydroxychloroquine for six days (200 milligrams, twice a day) and azithromycin for four days (500 milligrams on the first day, and 250 milligrams on the following days). Due to my serious condition of fever, shortness of breath and chest tightness, that day I went back to the hospital to be checked. I was disappointed that the hospital went through the same routine procedure without performing blood tests or a CT scan of the lungs. The same evening, I visited the emergency department at the University hospital, since I knew it was providing tests for severe cases and medical

staff. That night I had a temperature of 38.5 degrees Celsius. On Thursday 26th March I received my test result: positive for SARS-CoV-2.

My fever, shortness of breath and chest tightness disappeared on the evening of the next day, and my appetite also improved. My daughter had stayed with us the whole time and remained healthy. By Thursday 9th April, after having no fever for two weeks, the University hospital confirmed that I could reopen my practice to receive patients. Both my wife and I continued to take the above herbs, but only twice a day at a dose of 1.5 grams each time.

Based on my experience, I would highlight the following points:

#### Treatment

When the University hospital called me to inform me that I had tested positive, they told me just to stay at home and take paracetamol to reduce fever. In my opinion, this is a rather passive - even potentially hazardous - way to proceed with this disease, given that mild cases can easily develop into severe cases, some of which will become critical. I realised that if I had only kept to their advice my life could have been in danger.

I believe that Chinese medicine played a pivotal role in the recovery of myself and my wife, even though in my case it was combined with orthodox medicine. I

was lucky that I was able to improve my immune response by taking Chinese herbal medicine early. Hydroxychloroquine tends to start working after two or three days

and in order to be effective it needs to be given at an early stage of the disease; if prescribed at the severe or critical stages it is unlikely to work. In my case, after taking it twice a day (rather than the recommended three times daily) in combination with Chinese herbs, my chest tightness got better and my fever disappeared. I believe this effect was due to the combination of taking herbs for the preceding five days, combined with one day of hydroxychloroquine.

#### Rest

Before I became sick, I had been extremely busy with work, including travelling and teaching abroad. I was tired. Once I developed symptoms, I knew I had to take proper rest. I even had to tell the editor of the *Journal of Chinese Medicine* that I would not be able to finish this article for a while, and I had to cancel some international online lectures. I stayed in bed and slept.

## The fever continued and my cough and chest tightness became even worse ...

### Diet and nutrition

A balanced diet is extremely important when fighting COVID-19 and weight loss due to sickness needs to be carefully controlled. Even though there may be damp, either due to the disease or use of drugs, the patient's yuán qì needs to be supported. After getting sick I lost three kilograms in one week. Although I had a very poor appetite with a bitter taste in the mouth, I knew I had to force myself to eat well. I ate a variety of foods, including fresh fruit and vegetables and plenty of protein to support the yuán qì such as eggs and chicken soup. I also drank plenty of warm water. There is some evidence that zinc supplementation can help with COVID-19 so I also took a zinc tablet daily (Zincotabs, containing 22.5 milligrams per tablet).

### Regulation of emotions

COVID-19 patients frequently experience fear, restlessness, worry and panic. Although this is understandable, these emotions can adversely influence health. I did my best to stay calm and mentally strong so I would sleep well. Although my whole family had to stay at home for quarantine, we were very happy once our symptoms started improving. Our daughter remained healthy, which made us extremely happy. 🌿

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