

# Identifying Appropriate Therapeutic Methods in Covid-19 Originated from Persian Medicine: A Review Article

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## Abstract

**Objectives:** COVID-19, a novel Coronavirus from same family as SARS-CoV-2 is a highly contagious virus. It is transmitted mainly from upper respiratory system and affects important organs, like heart and lungs. The aim of this study is identifying appropriate therapeutic methods originated from Persian medicine. **Materials and Methods:** This study has been designed from the viewpoints of traditional and modern medicine. Considering modern medicine, we searched valid database by searching key words “SARS-Cov-2” and “COVID-19”. For traditional medicine, we searched reliable traditional medicine like the “Canon of Medicine” by “Avicenna”, the Exir-e Aazam and Zakhira-I Kharazm Shahi. Patients were evaluated according to their symptoms and categorized based on traditional medicine. Physiopathology and management of the disease, including prevention and treatment were studied. **Results:** The principle underlying mechanism seems to be warm and dry dystemperament that affects different organs and causes various adverse effects which are higher than warm and dry dystemperament, but less than the presence of virus. Our traditional Iranian medicine findings are validated by the modern medicine. **Conclusion:** Based on symptoms, the equivalent of this disease was examined from the viewpoint of traditional medicine. Then, physiopathology and management of this disease were presented in five levels, including one stage of prevention and four stages of treatment, and finally, the treatment recommendations of Iranian traditional medicine were approved with new research results.

**Keywords:** SARS-Cov-2, COVID-19, Traditional medicine, Persian medicine, Dystemperament therapeutic methods.

## Introduction

At the beginning of 2020, the novel coronavirus has emerged as a global health problem. Until now, there is not any definite treatment for this disease. No vaccine is validated so far <sup>(1)</sup>. The main route of transmission is thorough upper respiratory tract and then infection affects various organs <sup>(2)</sup>. COVID-19 affects alveolar

cells, neural, immune and cardiovascular system, liver, kidney and even skin. Mortality is due to multi-organ failure, acute respiratory distress syndrome, heart failure, arrhythmia, renal failure and shock. This necessitates specific attention to possible damage to these organs for management of severe cases <sup>(2)</sup>. In this study, is aimed to describe SARS-CoV-2 infection by means of Iranian traditional medicine to introduce preventive and therapeutic management.

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## Materials and Methods

Clinical and pathophysiologic aspects of COVID-19 are studied in PubMed, Google Scholar and Scopus. Iranian traditional medicine books like the Canon of Medicine by Avicenna, the great elixir, Akbari medicine,

Kholasa-tol hekmah and Zakhira-I Kharazm Shahi were studied accordingly for COVID-19. Ultimately, findings of Iranian traditional medicine references were compared with the last modern findings about COVID-19. Also, in this essay the preventive and therapeutic methods for COVID-19 infection is suggested.

## Results

The most common signs of the COVID-19 disease include body ache, fever and chills, dry cough, fatigue, lethargy, headache, sore throat, dyspnea, diarrhea, abdominal pain, loss of smell and taste senses, macular rash, arrhythmia in advanced condition, and pulmonary bleeding<sup>(3, 4)</sup>. The pathophysiological origins of the disease are described in new published articles. It appears that SARS-CoV-2 disease is created when its spike protein bind to host Angiotensin-converting enzyme-2 (ACE2) receptor and inhibits the activity of this enzyme. This endopeptidase enzyme plays an important role in immune system, as well as cardio-pulmonary system and renal function<sup>(5)</sup>. There are lots of these receptors in the lung, heart and kidney tissues. In other way, there is a specific receptor in coronavirus that binds Furin protein. This protein, which exists in the cell membrane of various tissues such as the liver, lung, and small intestine, can induce the activity of spike protein in coronavirus. This indicates that coronavirus can attack multiple organs at a same time and cause various symptoms in patients<sup>(6)</sup>.

In paraclinical examinations, high WBC counts, lymphopenia, high CRP count, increased ESR, CPK, and LDH can be found. Pneumonia and grand glass opacities can be seen Under CT scan examination<sup>(7)</sup>. Some people show acute respiratory distress syndrome (ARDS), acute heart injury, renal failure, and even encephalopathy that can lead to death.<sup>(7-10)</sup>

From view point of persian medicine, the temperament of the lungs is warm and dry, but its secondary and stable temperament has high humidity<sup>(11,12)</sup>. When virus enters into the respiratory system, it causes warm and dry dystemperament. The above mentioned symptoms, along with the spread of viral infection in a society, its spread in the body and involvement of different body organs in a short period of time, various and unpredictable clinical responses, and the occurrence of inflammation in involved organs

indicate warm and dry dystemperament.<sup>(13,14)</sup>

Since there is a close relationship between lung and heart function<sup>(15)</sup>, warming and drying properties in the lung can be transferred to the heart via vascular systems<sup>(16)</sup>. Additionally, the obstruction and closure of airway system causes a lack of access to cold air, and subsequently warm and dry dystemperament in the heart<sup>(16)</sup>. Blood exited from the heart becomes warm following warmth, tender material disrupts and concentrated material remains<sup>(16, 17)</sup>. This condition can be associated with the obstruction of pulmonary system, heart and lung congestion, pulmonary edema and consequently hypoxia. Since lung plays crucial role for heart, brain and liver tissues, this condition leads dystemperament, congestion, and injury in these tissues<sup>(13)</sup>. These abnormalities can cause death in some cases, especially those who suffer from heart failure<sup>(18, 19)</sup>.

The dryness caused by this dystemperament can be associated with splitting and cracking in pulmonary vascular and alveolar tissues and subsequently bleeding and respiratory secretions<sup>(20)</sup>. Furthermore, evaporations originated from disrupted tender material due to dystemperament and also direct effect of virus on the brain create abnormalities in central nervous system which is eventually associated with several side effects such as the loss of smell or taste senses, headache, dizziness, sleepless, and chronic pain in the body<sup>(21, 22)</sup>.

Following high blood temperature due to dystemperament and also released evaporations in some cases, rash may be occurred<sup>(23)</sup>. Sometimes, human body naturally mitigates inflammation, accumulation of viruses in the intestine and dystemperament by induction of diarrhea<sup>(24)</sup>. For this reason, diarrhea should not be inhibited by medications and this condition should be supported by obtaining enough water and minerals. Furthermore, the use of flatulent and indigestible foods, as well as foods that stay in the gastrointestinal tract for long hours or produce high excrement should be avoided<sup>(11)</sup>. Therefore, treatment of constipation in these individuals is very important.

It seems that corona virus initially creates warm and dry dystemperament at upper respiratory tract and then at lower part. This dystemperament can be associated with further side effects in the other organs, particularly in the heart, brain and liver<sup>(21)</sup>. These consequences

are because of dystemperament and in several cases due to the proliferation and existence of virus in these organs. Therefore, consideration and treatment of dystemperament, as well as its consequences and physical improvement of the body is the first line of the disease therapy. Protection against virus is the second line of the treatment. In viewpoint of Iranian traditional medicine, the following notes should be considered for the management of Covid-19:

1. Counteract against corona virus in view of traditional medicine, includes one stage of prevention and four stages of treatment, including beginning, increase, termination and the end. There are specific and different strategies for each stage.

2. Transmission of infection into the body, the most common involved organs, pay attention to dystemperament and histology of involved organs, and the affectivity from pathogen are important subjects that affect treatment strategies.

3. The foundation of quadruple traditional medicine and their appropriate use is associated with effective outcome. These criteria include therapeutic management, respect to sextuplet principles of health protection, medications, producers, and spiritual treatments.

4. Correlation between body organs with each other is important in view of Iranian traditional medicine. Some of critical organs such as heart, brain, and liver are more important and they are the source of triplet spirits, including animal, sensual and natural spirit.

5. Obstruction of arteries and ducts and accumulation of wastes materials and pathogens are important issues that need to be addressed in prevention and treatment.

6. One of the most important issues is related to maintain and strengthen the instinctual heat and strength of the patient and the organ involved. Thus, physicians should be aware about this issue in maintaining health and treatment.

### **Discussion**

The general view of persian medicine in dealing with diseases is the priority of prevention and then treatment.

#### **Prevention:**

Due to the transmission type, prevalence, transmission, pathogenicity, effective preventive measures and behavior of the virus in human body and compliance with the sources of Persian medicine and similarity to the epidemic diseases (HAVAY-E VABAIE) <sup>(22-26)</sup>, measures which are similar to those mentioned in the epidemic diseases in the books are recommended.

The most important part of the epidemic diseases' prevention from the perspective of persian medicine is the measures used in the general categorizes, which are briefly listed below:

#### **Air:**

In contaminated atmosphere of stay-at-home, it is recommended to reduce the humidity of the environment and use sunlight <sup>(22)</sup>. It is also recommended to use the vapor of some plants such as Harmel, frankincense, rose, as well as sprinkling the products of these three in vinegar, onion or garlic, or a mixture of vinegar and rose water in the house atmosphere <sup>(26)</sup>.

#### **Eat and drink:**

Reducing of food intake is highly recommended to improve patient health <sup>(21)</sup>. Also hungry shouldn't be allowed if it leads to weakness of patients. Low volume foods, consumption of light foods with quick digestion and less waste products and ability to improve the instinctual heat are recommended <sup>(21)</sup>. Eating raw garlic and onion in small amounts that are well-chewed or cooked well in milk are recommended after each meal. Low-fat, mildly acidic foods and the use of single or compound teryag or Antidote are recommended <sup>(21)</sup>, if available. Eating foods that cause infections and produce thick and sticky mucus, such as meat and dairy products should be avoided <sup>(27)</sup>. Additionally, fruits and vegetables that produce excess moisture, sweets, and drinking very cold water, especially if drunk quickly, should be avoided <sup>(27)</sup>.

#### **Movement and resting:**

Resting and stay at home is recommended; however, to prevent excessive immovability which increases the body's moisture and the accumulation of waste products in the body, the uses of cradle move as well as mild and moderate exercise are emphasized <sup>(27)</sup>.

### Retention and depletion:

The most important work in this field is to cleanse the body according to the amount of excess body moisture, which can be done in moderation with an appropriate laxative, wet-cupping, expellent, bloodletting, sweating, diarrhea and exercise <sup>(28-32)</sup>.

### Psychological movements

It is recommended that people avoid each other, sadness, grief, anger, resentment, jealousy, anxiety and severe mental and emotional conflicts <sup>(27)</sup>.

### Sleep and wake up

Excessive sleep, insomnia, excessive sleep deprivation and nocturnal awakening are harmful <sup>(27)</sup>. Moreover, the most important measure in preventing the disease is to maintain and strengthen the natural forces by using heart, lung and instinctual heat tonics <sup>(28)</sup>.

### Treatment

The treatment of the disease should be performed according to the quadruple stages of the disease, taking into account the condition of patients and the involved organs, especially lungs and heart. Firstly, the therapist must correct the necessary items (sextuplet principles of the health maintenance) and take medical and pathological measures and, if necessary, prescribe medication. Healing practices and spiritual healing are used from the beginning to the end of treatment if needed.

Spiritual treatment is one of the main therapeutic an integral part in Persian medicine, and Abu Ali Sina describes some of them as follows:

Happiness, concomitance with pleasant and cheerful things is beneficial for patients <sup>(11)</sup>.

In COVID- 19 disease, patients are initially asymptomatic or present mild symptoms such as fever and mild pain in the body, sore throat and chronic cough, and sometimes gastrointestinal symptoms. During the exacerbation phase, the symptoms may be intensified and several problems in respiratory system (such as a dry cough), gastrointestinal tract, nervous system, kidneys, and circulatory system may be appeared. At the end stage, the symptoms do not worsen and the disease

remains constant, except when the complications of the disease such as the addition of lung bacterial infections and complications of other organs appear with various, severe and dangerous symptoms. In the final stage, the struggle between the prudent nature of the body and the disease ends. The result of this process is complete recovery, remained side effects after treatment, or death in some cases.

Treatment actions are performed according to the time of the disease onset, symptoms, complications and the disease stages, which are summarized as following:

- Elimination of dystemperament: from the beginning of the disease, we eliminate dystemperament of the patient with mild and cold measures.
- Strengthen the instinctive heat and help the resourceful nature to fight disease
- Helps get rid of phlegm and excess impurities in lungs
- Material deviation: which is done simultaneously with other steps, such as foot scrubs and bandages, sleeping on the abdomen, using laxatives, dry cupping, chest massage, phlebotomy and wet cupping
- Strengthen the lungs and other involved organs

On the other hand, recent studies have confirmed the anti-proliferative effects of several plants such as *Althaea officinalis* <sup>(32, 33)</sup>, *Glycyrrhiza glabra* L. <sup>(34, 35, 36)</sup>, *Echium amoenum* <sup>(37, 38, 39)</sup>, *Origanum majorana* <sup>(40, 41)</sup> and *Viola odorata* <sup>(42, 43, 44)</sup> on viruses. Furthermore, these studies reported the antioxidant properties of *Althaea officinalis* <sup>(32, 33)</sup>, *Glycyrrhiza glabra* <sup>(9, 34, 35, 36)</sup>, *Matricaria chamomilla* <sup>(45, 46, 47)</sup> and mint <sup>(48)</sup>, the repairing effect of *Althaea officinalis* <sup>(32, 33)</sup> and *Malva sylvestris* <sup>(49, 50, 51)</sup> and also the positive effect of *Matricaria chamomilla* <sup>(45, 46, 47)</sup> and cheese in strengthening the immune system. These effects are mediated through the multiple mechanisms, especially protecting the heart, lungs and immune system by regulating the secretion of cytokines (anti-inflammatory effects) along with the balance of absorption or reabsorption of electrolytes (potassium, calcium or sodium ions). These plants also show their therapeutic effects by improving endogenous antioxidant enzymes, regulation of signaling pathways and related kinases, as well as inhibiting of apoptotic pathways and

regenerating of damaged cells or tissues. (32-51)

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