

Research Article

Five Supplementary Therapies for COVID-19

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therapy
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The COVID-19 is characteristic of both damage of the respiratory system and the immune system or both similarities of SARS and AIDS. These features decide difficulty of specific treatment. The worldwide transmission and higher fatality rate call for new skills for prevention and treatment. Here, we recommend five supplementary therapies for COVID-19. (1) Discharging viruses from lungs by exhaling, coughing and suction are firstly emphasized. (2) Semireclining posture instead of lying supine for lightening hyperemia and edema of inflammation and dyspnea. (3) Non-steroidal anti-inflammatory coldrex, such as tylenol and paracetamol, can be safely used for controlling inflammation. (4) Vitamin B2 must be used for repairing of mucous membrane of the respiratory tract and as antioxidants. (5) It is most emphasized that sulfur dioxide (SO₂) produced from burning sulfur and explosion of firecrackers has a potent antimicrobial effect for air disinfectant and killing viruses in the lungs. In addition to the general therapies, all these methods or therapies can be simply and effectively supplied to patients for discharging viruses, inhibiting viruses and killing viruses, and for recovery from damages.

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COVID-19 is SARS-like infectious disease caused by a new type of coronavirus, named SARS-COV2 or 2019-nCoV. This new viral pneumonia began to outbreak in Wuhan, China, in December 2019, and is spreading all over the world in the present after 3 months [1–5]. There have non-specific medications, resulting of a longer period of treatment and higher fatality rate. Therefore, combining therapies, alternative medicines and supplementary methods are necessary and helpful.

COVID-19 is characteristic of both damage of the respiratory system and the immune system or both similarities of SARS and AIDS. The SARS-like symptoms result of pneumonia with fever, cough and dyspnea [1–4]. The AIDS-like symptoms result in damage of the lymphatic system and include non-reaction, non fever and significant decrease of numbers of lymphocytes and platelets in the blood [3,6]. Recognition of the latter is great important for clinical treatment and judge of prognosis. For such reason of syndrome, we more agree the name of COVID, but not the COV-Pneumonia. 2019-COV-Syndorme or SARS-II is preferable than all present names.

2. FACE MASK IS NOT ADEQUATE AND SPUTUM SUCTION IS USEFUL FOR A PATIENT

Face masks with a special air filter designed to protect from tiny airborne particles. When a person of COVID-19 coughs/exhales, the internal virus usually spread to environment through small droplets

from the nose/mouth. In the present, there is not any specific anti-viral drug to kill the virus reproduced in the body. Therefore, for a patient, inhaling viruses are harmful and exhaling viruses are favorable. Wearing a mask every 24 h must increase respiratory resistance obviously and block to exhale viruses completely, which is injurious to the patient, especially with dyspnea in the middle and severe cases. Thus, avoiding wearing a mask is considerable benefit for the treatment of patients. Recently, author of this paper have designed and made a new apparatus. The exhaled airs from patients are collected by a big mask and sent into the apparatus, in which any viruses and bacteria can be completely killed by more than 150°C high temperature. Therefore, the patients without wearing the face mask can breathe freely, even more save effort, but do not worry to spread viruses to around environment and other people.

Let patients cough up sputum is not only for keeping the airway open, but also for discharging viruses. Note, do not inhibit cough, but stimulate to cough. Some herbs in Chinese traditional medicine have such action. One main element of herbs is Chinese Ephedra that may be replaceable by ephedrine as a western drug.

Sputum suction is useful for clearing secretions and viruses, and keeps the airway open. For severe patients and near-death patients, suction can save lives! As a fact, when conducted sputum suction through inserting pipe with machine in Wuhan, the died numbers half decreased from that day (February 23).

3. SEMIRECLINING POSTURE IS EFFECTIVE FOR RESPIRATION AND INFLAMMATION

Semireclining posture is usually used instead of lying supine in patients with heart failure for lightening the load of the heart

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through decreasing returned blood volume from the periphery to the heart.

For pneumonia patients, semireclining posture can lighten hyperemia and edema of inflammation by decreasing returned blood volume too. Also, semireclining posture can relieve constriction of the chest wall and make the rib and diaphragm move more freely, which let the breath become easily and effectively. Both two actions are helpful for the treatment of pneumonia. Actually, however, the severe patients always lie supine in the bed with difficulty breathing day and night. As used results, when the supine patients sit up, their dyspnea improved promptly.

4. COLDREX FOR ANTI-INFLAMMATION

Like the SARS, the main fatality of the damage in COVID-19 resulted from the overwhelming chemical counterattack from the immune system, with excessive activated lymphocytes. This cytokine storm, as it is called, is intended by body to kill the virus; but in a weakened state of patients, it can cause inflammation, leaky blood vessels and even pneumonia, a hallmark of SARS and COVID-19.

They are medications that effectively fight inflammation in the body. Steroids and Non-steroidal Anti-inflammatory Drugs (NSAIDs) work by reducing inflammation, swelling, and mucus production in the airways of a person.

Steroids keep the immune system from making substances that cause inflammation and slow or stop the immune system processes that trigger inflammation. Steroids suppress inflammation and reduce the signs and symptoms of inflammatory conditions, which can help control conditions in which the immune system mistakenly attacks its own tissues.

But suppressing of immune system inhibits the normal function that producing anti-body and sensitized T-cells to kill the virus, which is a sharp contradiction. More seriously, COVID-19 is not only like the SARS but also like the AIDS in that the immune system is attacked and damaged. Therefore, steroids should be avoided to be used as much as possible. For these reasons, the NSAIDs are firstly considered instead of steroids to reduce inflammation in the lungs.

All NSAIDs work by reducing the levels of prostaglandins, chemicals that are released when there is inflammation and injury, and that cause pain and fever. NSAIDs block the enzyme (cyclooxygenase) that makes prostaglandins, resulting in lower concentrations of prostaglandins. As a consequence, inflammation, pain, and fever are reduced. In the NSAID, aspirin is a classic drug. Paracetamol is a viable alternative to the NSAIDs, especially because of the low incidence of adverse effects. Paracetamol also specifically inhibits concentration of prostaglandins [7].

We early and firstly defined COVID-19 as a cold, a severe influenza, and suggested to use coldrex, tylenol, for anti-allergy and anti-inflammatory. The NSAIDs and paracetamol are widely used main elements of coldrex. Therefore, coldrex is good selection for reducing the inflammation and fever of COVID-19. Actually, some people treated themselves as the common cold and taken orally coldrex when felt fever. After recovered, they were checked to be positive SARS-COV2. Thus, NSAIDs can be widely and safely used in all patients without worrying any steroids-like adverse effect.

Tylenol (acetaminophen), paracetamol or their compound preparation is firstly selected coldrex.

5. VITAMIN B2 FOR REPAIRING DAMAGE IN THE MUCOUS MEMBRANE OF RESPIRATORY TRACT

Vitamin B2 (V-B2), also called riboflavin, is a water-soluble vitamin. Water-soluble vitamins are stored in the body in very limited amounts and are excreted through the urine. Therefore, daily supplement is good. Riboflavin is required to release energy from protein, carbohydrate and fat. It is also involved in the transport and metabolism of iron in the body and is needed for the normal structure and function of mucous membranes and skin. V-B2 health benefits include maintaining energy levels, protect the digestive tract, offers a powerful punch of antioxidants, and preventing AIDS/HIV.

Riboflavin deficiency cause dermatoses and mucous membrane lesions, such as in the mouth, tongue, eyes and skin. The symptoms include: stomatitis (oral ulceration), glossitis, reddening of the eyes and dermatitis [8,9].

For protecting the mucous membrane and repairing the damage of the respiratory tract in the inflammation, conventional applications of V-B2 (30–60 mg/day) must be helpful for cooperating roles of treatment. As ever used results, over 30 children with pneumonia had been quickly cured. Also, vitamin C must be conventional used every day.

6. SULFUR DIOXIDE (SO₂) FOR DISINFECTANT AND KILLING VIRUSES

Sulfur dioxide (SO₂) is a colorless gas with an irritating, pungent odor and toxic in large amounts. Exposure to SO₂ may cause irritation to the eyes, nose, and throat. Although its chief uses are in the preparation of sulfuric acid, sulfur trioxide, and sulfites, SO₂ also is used as a disinfectant, an insecticide, a reducing agent, a bleach, and a food preservative.

6.1. Endogenous SO₂ and the Function

SO₂ is endogenously generated through the aspartate aminotransferase pathway. The role of SO₂ in mammalian biology is not yet well understood. New studies have suggested various potential mechanisms. SO₂ is a novel endogenous gaseous signaling molecule, which plays a significant physiological role in regulating cardiac and blood vessel function, and aberrant or deficient SO₂ metabolism can contribute to several different cardiovascular diseases [10,11]. It was shown that endogenous SO₂ plays a role in diminishing an experimental lung damage caused by oleic acid: lowered lipid peroxidation, free radical formation, oxidative stress and inflammation [12].

6.2. Antimicrobial Role of SO₂

SO₂ is a broad-spectrum antimicrobial agent that has an inhibitory effect on a wide variety of microorganisms. Moreover, inhalation

of SO_2 can inhibit influenza virus, etc. [13–15]. It has been understood since the early 1900s that only the free forms of SO_2 (and not the bound) have an antimicrobial effect. It was further discovered in the 1960s that molecular SO_2 was several hundred times more effective than bisulfite. The mechanism for antimicrobial effect of SO_2 works by the SO_2 entering the microbe and disrupting the activity of the enzymes and proteins of the cell. Since only the molecular form of SO_2 can enter through the cell membrane, it is the concentration of molecular SO_2 that controls microbial growth [16].

In the 1911, severe plague occurred in the northeast of China. In a town, one quarter residents had died. The government encouraged residents to set off firecrackers in the Chinese New Year. After then, the death number decreased rapidly to zero. Recent years, a lot of farmers in China claimed to overcome African swine fever and bird flu after setting off firecrackers in the hogcote or chicken coop. Firecracker explosion produces SO_2 , NO_2 and carbon particles. Both SO_2 and NO_2 can kill bacteria and viruses, and carbon particles can absorb microorganisms [17].

The SARS-COV2 spread through air. But most disinfectants are liquid sprayed to surface of objects, which are not efficient to kill viruses floating in the air. The aerosol transmission is the route of infection for most unknown source. Therefore, indoor/outdoor air disinfection is indispensable for blocking viral transmission. In the present, SO_2 is almost the only adapted air disinfectant, and also the cheapest product and the simplest operation. In the same time, inhaling SO_2 can kill viruses in the lung cavity and lung tissues.

SO_2 can be produced by burning sulfur (Figure 1) and setting off firecrackers. We suggest to set off firecrackers in the outdoor and burn sulfur in the room. In the usage of the first time, people leave one room: closing the door and window; burning sulfur 1 g/10 m²; keeping closing more than 3 h. After then, sulfur is burnt 0.2 g/10 m² every day and people can remain in the room at the same time. Patients can stay in the sickroom with lower concentration of SO_2 all the time. When without specific medications and with numerous infected people, SO_2 should become one important killer of viruses, especially in the backward countries and regions.



Figure 1 | Burning medical sublimation sulfur in the bottom of a bowl.

7. DISCUSSION AND SUMMARY

Currently, there is no vaccine to prevent the spread of coronavirus and no specific medications to kill the coronavirus. For treatment of COVID-19, supportive treatments include supplementary liquids, reducing fever and supplemental oxygen and respirator. Treatment options are currently being investigated around the world. There is some evidences that certain medications may have the potential to be effective with regard to preventing illness or treating the symptoms of COVID-19. Remdesivir is hotly trialed and recommended [18]; a combination of seemed un-related plaquenil and azithromycin appeared good effect to clean the coronavirus in the body [19]; and a combination of two anti-HIV medications, lopinavir and ritonavir, had a significant reduction in the levels of the coronavirus.

A UK trial of the steroid dexamethasone (6 mg/day, 10 days) was confirmed its life-saving benefits for COVID-19 patients on ventilators [20]. Among patients on ventilators, the rate of death for patients on the drug was 29.3% compared to 41.4% on those without. However, among the group who were not receiving any oxygenation at the time the trial started, 17.4% on the steroid died compared to 14% who did not receive it—suggesting the drug increased their mortality risk. I am surprised to see these results because it is general knowledge to inject large amount of dexamethasone (e.g. 5–10 mg) once in a while for severe patients with SARS, COVID-19 and other infections. Apparently, it is never to be applied to mild patients. As we emphasize above that steroids should be avoided, and here suggest combination of oral coldrex and injection of large dose of steroids for severe patients once in a while.

More exciting progress is anticoagulation (e.g. aspirin) in part because the virus can cause severe blood clots. Among coronavirus patients who were placed on ventilators, those who received blood thinners died less often than those who did not receive blood thinners [21].

In addition to the above “standard” and new therapies, we recommend those five methods or therapies that can be effectively supplied to patients for discharging viruses, inhibiting viruses and killing viruses, and for recovery from damages.

After all, we have to escape and evacuate for physical quarantine and we must insist waiting for coming of hot summer, for making vaccines and for discovering specific medications in the spring 2020 (when write this paper).

Actually, the past summer helped to control the epidemic in China and many other counties effectively, and keep steady in America and a few other countries (when revise this paper). World Health Organization and many other experts warned again and again that a second wave of epidemic will come at the autumn and winter. The vaccine is on the test-way yet and non-specific drug was found in the past three-quarters. Thus then, these therapies can continue to help treatment on covid-19.

CONFLICTS OF INTEREST

The author declares no conflicts of interest.

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