

Anti-edema, an alternative technology to treat and prevent Novel Coronavirus Pneumonia

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Abstract: Vitro virus culture method is to inoculate the virus into the culture medium. This method demonstrated that the culture medium and the virus are the two basic required conditions for virus propagation, that is to say, without the culture medium, the virus could not reproduce. Therefore, virus survives based on the culture medium.

Novel Coronavirus Pneumonia (NCP) is a disease caused by coronavirus. Edema in the lung alveoli is the natural culture medium for coronavirus to reproduce and synthesize proteins, which would lead to respiratory failure and even to death. Edema in the lung alveoli and the coronavirus are the two basic conditions for NCP to develop. Therefore, there are two ways to treat NCP, which are, anti-edema and virus killings. However, at present, the clinical setting of NCP treatment worldwide is limited to virus killing only.

This article intends to argue that anti-edema might be a better treatment for NCP since anti-edema could destroy the growth medium for coronavirus in the alveoli. This can urge the reproduction of coronavirus to die, so as to achieve the goal of treating NCP and control the spreads of the novel coronavirus.

1. The characteristics of novel coronavirus and its pathogenic feature

First, we would like to discuss the characteristics of coronavirus in order to get to know more about it. The novel coronavirus is known as an RNA virus. RNA is the template for protein synthesis, in which protein as a viscous macromolecular substance, can be synthesized in an environment with amino acids. The name of this virus, i.e., "COVID-19", is originated from the "crown-like" shape of the novel coronavirus.

The novel coronavirus dies quickly in the air, so it rarely reproduces in the air environment. In fact, it is mainly propagated in places where there is a culture medium. The culture medium is a relatively high-water-content object, including the surface of animal carcasses, such as the surface of seafood products, and any parts with high moisture like the nasal cavity, oral mucosa and alveoli.

The pathogenic feature of the novel coronavirus is that it synthesizes the protein in the alveoli, and then the protein and edema fluid together form mucus, which causes breathing difficulties and even suffocation.

2. NCP and its infection pathway

What is NCP? NCP is a pathology in which edema occurs in the alveoli, and then the novel coronavirus parasitizes on the surface of the alveoli and multiplies rapidly, resulting in abnormal lung function and even death (Figure 1). The respiratory tracts and even alveolar surfaces of humans and animals have a high level of water content and have amino acids presence, providing a natural medium for the coronavirus. The novel coronavirus reproduces in the alveoli, and after the reproduction it can be transmitted through breath to others. The coronavirus synthesizes proteins in the alveoli to form mucus, which hinders the normal function of the alveoli, and even leads to death due to the respiratory failure. Evidence shows that there is a large amount of mucus in the lungs of the NCP patient autopsy.

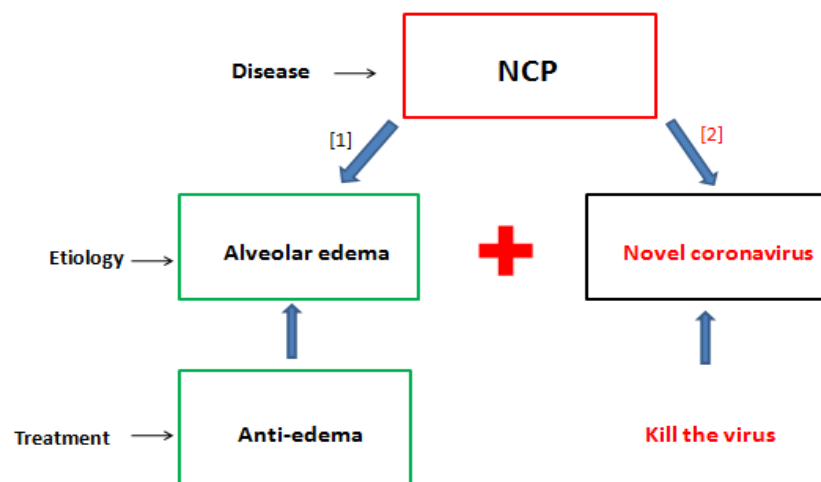


Figure 1. Two factors for NCP

3. Current global situation of NCP

The novel coronavirus first appeared in 2020, and it soon spread across the world. After a year of its development, this pandemic has become a global health issue. The ravages of the new coronavirus on humans are enormous. So far, the total number of its confirmed cases worldwide is 27,078,602, and the cumulative number of deaths is 2,098,094. After more than a year of hard work together, most of the countries in the world have reached the following consensus to solve this issue:

- 1) The most effective preventive method of NCP is to wear a mask.

2) It is expected that the vaccine may become the best weapon to end the spreads of NCP. By now, the vaccine has begun to be used on a larger scale, and the effect of the vaccine will soon be validated.

4. Spread of the novel coronavirus

1) The novel coronavirus cannot be extinct in the environment

As a kind of organism, the novel coronavirus exists in the environment, such as the surface of seafood. In fact, the novel coronavirus could live on any surface of objects that contains water, amino acids or other substances suitable for virus to survive, particularly in the pipe system of the air-conditioning system. Since this virus can be alive and reproduce such easily, it cannot be extinct as long as it is in the environment. Therefore, instead of simply killing the virus in the environment, the destruction of the parasitic breeding environment of viruses in the respiratory tract could be a better option.

2) The novel coronavirus in the alveoli is the causative factor of NCP and the main source of its transmission

The edema in the alveoli acts as a natural medium for the novel coronavirus to grow and reproduce, and the virus is transmitted mainly through the respiratory tract. Therefore, in order to thoroughly control the spread of the novel coronavirus, it is necessary to inhibit its propagation in the alveoli.

5. The effect of the vaccine needs further discussion

1) The vaccine is effective only when both antigen and antibody appear in the blood at the same time

A vaccine is a biological preparation that provides actively acquired immunity to a particular infectious disease, by injecting an deactivated antigen into the human body. After the antigen enters the blood vessels, it would induce the production of antibodies (a type of protein) in the blood. This specific antibody could be combined with the antigen (active virus in the blood) to reduce the toxicity level or kill the virus. To be exact, the combination of antibodies and antigens is the basis for vaccine effectiveness, and the prerequisite for effective vaccination must be that antibodies and antigens appear in the blood together at the same time.

2) The pathogenic part of the novel coronavirus is in the pulmonary alveoli, not in the blood

The pathogenic part of the novel coronavirus starts in the lungs, and the surface of the respiratory tract is the only pathway for it to enter the human body. Therefore,

inhibiting the reproduction of the coronavirus in the alveoli is the focus of treating NCP and controlling the reproduction of the virus. However, the alveoli are not the same as blood. There is a layer of alveolar cells separated from the capillaries, and the alveolar capillary barrier includes the capillary wall and basement membrane. Therefore, it is almost impossible for the antibodies in the blood to be in contact with the coronavirus on the surface of the alveoli. That is to say, the vaccine will hardly work well on the virus locates in the alveolar.

3) Virus is a kind of molecule which is difficult to kill thoroughly

It is easily to kill bacteria through drugs or antibodies medically, and the main reason is that bacteria are cells in nature. As long as its cell membrane is destroyed, the bacteria could die and lose their pathogenicity. However, viruses are not cells but macromolecules, and the molecule can easily change its shape which is also called mutation. If we want to kill the virus, its molecule needs to be destroyed and a special chemical reaction is required to achieve that. Therefore, the virus is almost impossible to kill most of the time. This is also why the medical profession cannot treat viral diseases such as HIV, hepatitis virus, and even flu viruses well and kill them thoroughly.

6. The hope of NCP treatment lies on the technique of anti-edema

As previously discussed, the production of NCP requires two necessary conditions: the edema in the alveolar, which is a natural cultural medium, and the parasitism of the novel coronavirus (Figure 1).

As shown in Figure 1, there should be two ways to cure this pneumonia: one is to kill the virus, and the other is to eliminate edema to destroy the environment the disease grows in. Currently, the worldwide treatment approach is to kill the virus only.

Another way facing humans in order to solve this problem is to eliminate edema. At present, there are very few special anti-edema technologies in the medical field, and the only technology we know is Shengkang technology. Anti-edema technology can completely prevent the reproduction and spread of the coronavirus by destroying the virus growth environment. As we discussed, if its dependent environment is destroyed, the virus will die in the respiratory tract right away, and will no longer reproduce or spread.

7. Shengkang technology of anti-edema may be an opportunity for humans to truly eliminate the pandemic

Shengkang technology is a technique created by Dr. Yuling Wang from Peking University in 2013. The core concept of this technology is just to reduce edema level, and the underlying mechanism is to restore the capillary elasticity and absorb water content and other small molecules outside the capillaries. This technology has been already identified as an international leading technology by the Ministry of Science and Technology of China in 2013. Moreover, it has been clinically validated in the treatment of bacterial infections.

8. The proposed clinical trial for NCP patients:

The following is the study design to evaluate the effect of Shengkang technology on anti-edema for NCP patients:

1) The experiment group will include 10-30 NCP patients who will be treated 2-6 hours a day with Shengkang technology for a total of 5 days. Researchers will observe the curative effect every day, including monitoring their symptoms and the virus detection procedure, and will do the individual assessments after the 5-day-treatment. The comparison groups will be patients with similar characteristic but using different treatment protocols.

2) The technology and equipment will be provided by Beijing Shengkang Rehabilitation Hospital. The partner will provide study participants, transportation expenses, boarding and lodging places.

3) The time to launch the treatment will be decided by the therapeutic evaluation experts from both sides.

If any country or organizations would like to work together with authors, It would be an chance for the world to benefit.

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