



How to improve the immune system naturally in Pandemi COVID-19?

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ABSTRACT

Covid-19 has become a world pandemic. In Indonesia, surveillance data until October 2020 reported that the average incidence of covid-19 was 3,978 new cases per day in 502 districts from 34 provinces (WHO, 2020). About 80% of cases with mild symptoms can recover without special treatment, but not all covid-19 patients show signs and symptoms, this is thought to be influenced by the strength of the individual's immune system. Patients who have comorbidities such as diabetes, heart disease, hypertension, pulmonary disease and other chronic diseases will worsen the condition of the immune system. As it is known that the disease caused by the corona virus is a self-limiting disease that will heal itself with a good immune system. Immunity are all mechanisms that the body uses to protect against invading foreign substances or pathogens through an immune response mechanism which is divided into 2 phases : natural immune response (innate immunity) and adaptive immunity. Several ways can be done to improve the immune system. Natural immunity utilizes spices and herbal ingredients which are Indonesia's natural resources, as immunomodulators. This is based on several research results and evidence based. Apart from easy manufacturing methods, these ingredients are very easy to find around our environment.

Keywords : COVID 19, Immune

INTRODUCTION

At the end of 2019, the world was shocked by the emergence of a disease outbreak caused by a new type of coronavirus that was first identified in the Wuhan area, China. Coronavirus is a virus that causes infections in the respiratory tract ranging from the common cold to severe, such as *Middle East Respiratory Syndrome* (MERS) and *Severe Acute Respiratory Syndrome* (SARS). This virus was later called Syndrome Coronavirus 2 (SARS-COV2), and it caused Coronavirus Disease-2019 (COVID-19) (WHO, 2020). COVID-19 has become a world pandemic. In Indonesia, surveillance data until October 2020 reported that the average incidence of COVID-19 was 3,978 new cases per day in 502 districts from 34 provinces (WHO, 2020).

COVID-19 can cause mild to severe symptoms. About 80% of cases with mild symptoms (flu, sore throat, cough and fever) recover without the need for special treatment and about 1 in every 5 people may develop severe illness with pneumonia



or difficulty breathing, which usually comes on gradually. However, not all COVID-19 patients show signs and symptoms, this is thought to be due to differences in the immune system possessed by the body. In several reported cases, deaths from COVID-19 have occurred in patients with a history of comorbidities such as diabetes, heart disease, hypertension, lung disease and other chronic diseases. As it is well known that the disease caused by the Corona virus is a *self-limiting disease* that will heal itself with a good immune system, therefore it is very important to know what immunity is? What are the factors that affect immunity and how to increase the body's immunity automatically. experience during this pandemic?

DISCUSSION

Immunity are all mechanisms used to protect the body against attack from foreign substances or objects (WHO, 2020). These foreign substances can come from outside the body (exogenous) and within the body itself (endogenous). When immunogens are exposed to our bodies, our bodies will respond by forming an **immune response** from the immune system. The initiation of the immune reaction process, namely the body's defense mechanism against any foreign object that enters the body, a number of lymphocytes which have the ability to make *long lasting immunity*.

The immune response is divided into 2 phases, namely: the natural immune response phase (innate immunity or innate immunity or primary immunity) and the **adaptive immune response** phase (*adaptive immunity or acquired immunity or secondary immune response*). *Innate immunity functions as the foremost defense system at the beginning of an attack by a foreign object or exposure to immunogens into the body (UGM Pharmacy, 2020)*. The body cells that play a role in the immune system are leukocytes divided into 2, namely: 1) Antigen presenting cells (APCs include: macrophage cells, neutrophil cells, eosinophil cells, and dendritic cells) and *natural killers cells* that play a role in natural immune responses. by recognizing and processing immunogens. 2) B lymphocytes (produce antibodies) and T lymphocytes (produce cytokinins), play a role in adaptive immune response.



If the natural immune system can function to defend the body from immunogenic attacks, the body will not be infected and vice versa, the adaptive immune response functions.

The body's immunity can be influenced by several factors, including:

a) Genetic

Genetic factors affect the activity of the body's immune system in recognizing and eliminating pathogens such as bacteria, fungi, and viruses when they first enter the body. This greatly affects the body's susceptibility to disease.

b) Environment

The environment has a very important role in influencing the development of components of the immune system, although it reacts more slowly in dealing with pathogens but the ability to eliminate pathogens is more specific and lasts longer.

c) Fatigue, lack of rest and sleep

Adequate rest and the fulfillment of adequate sleep needs are natural ways to help repair damaged tissues and cells, increase antibody production and increase energy recovery. The need for sleep in adults is 7-9 hours while in children it is 8-11 hours.

d) Age

Cell development is influenced by age, as well as body function will also decline due to degenerative cell function so that the body's ability to fight pathogens will also decrease.

e) Stress



High stressors can trigger the body to continue producing the [hormone cortisol](#). High levels of cortisol will cause a weakened immune system.

f) Gender

The estrogen hormone factor in women will increase the production of IgG and IgA synthesis so that women will be more immune to infection, while in men the androgen hormones are immunosuppressant so they are more susceptible to infection.

g) Lifestyle, smoking and alcohol

An unhealthy lifestyle such as consumption of foods lacking in fiber, working with high stressors, smoking and consuming alcohol will reduce the body's immunity.

h) Health conditions and comorbidities

Unhealthy body conditions and the presence of comorbidities will reduce the body's immune function so that the body is more susceptible to pathogenic infections.

i) Consumption of drugs

Several types of drugs have *immunodupressant* side effects that can suppress the body's immune system. One of them is a corticosteroid class of drugs (cortisone, hydrocortisone), if taken in the long term, it is possible to reduce immunity.

j) Dietary factors and nutritional requirements

Foods that are rich in fat and sugar tend to increase the production of proteins which cause stress to the body so that it will experience damage to immune cells and the body will be susceptible to disease transmission. The diet of *Western food, junc food* and lack of body nutrition will cause the body to be

susceptible to degenerative / metabolic diseases such as heart disease, cholesterol, and diabetes. Foods that are rich in [antioxidants](#), such as vegetables and fruits, can help the body fight free radicals. In addition, to maintain body immunity, [adequate nutritional intake](#) is also needed.

The immune system can be enhanced by administering **immunomodulators**, namely compounds that are able to interact with the immune system and act as **immunostimulators**. During the COVID-19 pandemic, it is very important to increase the ability of the body's natural immunity. Indonesia is a country rich in natural herbs and spices that can be used as *immunomodulators*. Several natural ingredients and herbal plants that are commonly used as a complement to cooking can be used as *immunomodulators*. Scientific evidence of the benefits of herbal plants as immunomodulators has been widely carried out by researchers.

Some herbal plants that can be used as *immunomodulators* are:

1. ECHINACEA PURPUREA



Source : www.google.com

This herb is traditionally used for the treatment and prevention of various diseases, including respiratory infections, flu, bronchitis, toothaches, sore throat, herpes virus infections, and several skin disorders (hives, sores, insect bites, allergies and other infections).

2. NONI



Sources : www.google.com

Several scientific studies have shown that noni juice can improve immune function and help repair damaged cells

3. GINGER



Sources : www.google.com

Used as a cold medicine, indigestion, anti pain, fever and anti-inflammatory (inflammation) strong, anti-nausea and most importantly ginger as an antioxidant. and antirheumatic.

4. MENIRAN



Source : www.google.com



Contains ceilingoids which are able to ward off virus, bacteria or other microbes so as to increase the immune system

5. GOTU KOLA



Sources : www.google.com

Gotu kola contains oleic, linoleic, palmitic, stearic, sentoic and centellic acids which are used to boost the body's immune system. In addition to drugs for nervous weakness, fever, bronchitis, diabetes, psychoneurosis, hemorrhoids, and high blood pressure, appetite enhancer, and to maintain vitality (Soerahso et al. 1992).

6. SAMBILOTO



Sources : www.google.com

Sambiloto can stimulate the body's immune system in the form of a specific antigen response or a non-specific immune response to then produce phagocytosis cells that destroy the virus

7. SEA GRASS / CHOCOLATE ALGAE



Sources : www.google.com

There are laminaran compounds that can increase the body's immune system to function to protect the body from disease. One of the body's immune systems is the non-specific immune system.

8. CURCUMIN: Turmeric and TEMULAWAK



Source : www.google.com

Curcumin is effective in the prevention and treatment of various diseases including cancer, cardiovascular, inflammatory, metabolic, neurological, and skin diseases. Very good anti-inflammatory.

9. PROPOLIS



Source : www.google.com

Contains high enough flavonoid and phenolic compounds. Has activity as an immunostimulant, antiviral and anti-inflammatory, but is influenced by the origin of the bee itself.

10. ONION



Source : www.google.com

Play a role in regulating hormones, blood flow, lowering cholesterol levels, anti-cancer, allicin in it is useful for antibiotics and antifungal, and anti-inflammatory which is very good. agus consumed raw.

11. SWEET WOOD



Source : www.google.com

Contains essential oils, flavonoids and tannins that can boost the immune system, as anti-bacterial and reduce blood sugar levels.

12. LEMONGRASS



Source : www.google.com

Acting as an anti-oxidant, anti-inflammatory, antifungal, detox, body, inhibits cancer cells, maintains the digestive, respiratory, excretory, and nervous systems, as an antiseptic and is effective in the treatment of obesity.

How to make several ingredients to increase endurance based on the Circular of the Director General of Health Services No.HK 0202 / IV2243 / 2020 regarding the use of traditional medicines for health care, disease prevention and health care, among others:

- a) **Remedy I:** Ingredients consist of 2 thumb ginger, 1 lime, 3 finger cinnamon, enough brown sugar and 3 cups of water. How to make: wash all ingredients, digeprek ginger, boil the water until it boils, add the ingredients and brown sugar, boil for 15 minutes, then filter it. Drink 1 a day as much as 1 ½ cups.
- b) **Remedy II:** 2 finger turmeric, meniran ¼ handheld or 2 small plants, ½ handheld gotu kola, brown sugar to taste and 3 glasses of water. Method: wash all ingredients, boil water until it boils, boil all ingredients over low heat until boiling, add brown sugar. Drink 1 cup 1 time a day. For children, drink it 4 times a day, 6 tablespoons.
- c) **Remedy III:** turmeric 1 thumb segment, galangal 1 thumb segment, 1 lime juice, 3 cups water and brown sugar to taste. Method: wash all ingredients, turmeric and galangal crushed, boil the water over low heat until it boils, strain it in a cold state. Drink 2 times a day as much as 1 ½ cups.

Things that must be considered in making potions are the selection of good and clean ingredients, the equipment used for boiling must be clean and the hygienic way of making and how to consume it. Be careful of allergies



Some ways to increase immunity include: regular exercise 20-30 minutes every day or 3-5 times / week and exposure to the sun + 15 minutes, drinking water 2000 - 23000 l / day, eating foods with balanced nutrition, healthy living: not smoking and drinking alcohol, getting closer to God, doing more worship and doing good, getting enough rest and sleep (7 - 8 hours), consuming fermented foods and probiotics and managing stress, laugh and be happy because one of the benefits of laughter is to increase the production of endorphins which can relieve stress and make the mood better, with reduced stress, the immune system will be maintained.

CONCLUSION

1. a disease caused by the Corona virus is a *self-limiting disease* that will heal by itself with a good immune system.
2. Immunity is all the mechanisms used by the body to protect against foreign substances or pathogens attacking the body through an immune response mechanism which is divided into 2 phases, namely: natural immune response (*innate immunity or primary immunity*) and **adaptive immune response** phase. (*adaptive immunity or acquired immunity or secondary immune response*).
3. *Immunity is influenced by many factors including genetics, environment, gender, disease conditions and comorbidities, lifestyle, stress, fatigue, lack of rest and sleep and nutritional factors.*
4. *Immune response can be increased by: exercise, a healthy lifestyle, fulfillment of balanced nutrition, fermented food, approaching God and managing stress well.*
5. *Increasing the natural immune response can be done by utilizing Indonesia's natural wealth as an immunomodulator in the form of spices commonly used as a complement to traditional dishes and also herbal plants including: garlic, ginger, turmeric, lemongrass, ginger, cinnamon, noni, gotu kola, meniran , sambiloto, propolis, etc. which are easily available in our environment.*



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