International Journal of
Recent Innovations in Medicine and Clinical Research
Open Access, Peer Reviewed, Abstracted and Indexed Journal

ISSN: 2582-1075
https://ijrimcr.com/
Volume-2, Issue-4, 2020: 108-112

Research Article

Role of Immunity Modulators in Prophylaxis and Therapeutic Management of SARS CoV-2 (Covid-19) Coronavirus

Deodatta Bhadlikar

Principal, Professor and Medical Superintendent, Mahaveer Ayurvedic Medical College and Hospital, Meerut, U.P., India-250341
Author Affiliations
Dr. Deodatta Bhadlikar, M.D. (Ayurved); Ph.D. (Ayurved),
Corresponding Author Email: dr_bhadlikar@yahoo.com; bhadlikar69@gmail.com

Received: November 2, 2020 **Accepted:** November 25, 2020 **Published:** December 7, 2020

Abstract: Despite of worldwide efforts, the SARS CoV-2 (Covid-19) coronavirus pandemic is continuing. At present there is no medicine, vaccine which has evidence, so there is utmost need to see role of immunity modulators in prophylaxis and therapeutic management of Covid-19 coronavirus. The immunity modulators which may help in preventive and therapeutic aspects. The immunity modulators are helpful in boosting immunity by forming antibodies against virus, overall it may help to reduce mortality rate. In Covid-19 other than Pneumonia; another cause may be disseminated intravascular coagulation that is thrombosis. The affected parts are lungs and terminally cardiac arrest, stroke and many other thromboembolic diseases. Antioxidants boost immunity by forming antibodies against virus. Many of the antioxidants are anti-viral agents, which inhibits viral replication. Antioxidants scavenge free radicals and also increases enzymes and inhibits peroxidation. Immunity booster may play important role in prophylaxis and therapeutic management of SARS CoV-2 (Covid-19) coronavirus.
Keywords: Immunity modulators, prophylaxis, therapeutic management, SARS CoV-2 (Covid-19) coronavirus, pranayama (Meditation), Flavonoids, carotenoids, antioxidants, immunoglobulin, cytokines, Ayurvedic herbs.

Introduction

Covid-19 coronavirus (SARS-CoV-2) (1;2), that is severe acute respiratory syndrome. Despite worldwide efforts, the pandemic is continuing. So there is utmost need of clinically proven prophylaxis and therapeutic management. Right now there is no treatment or medicine has evidence in the treatment for Covid-19. Now there is utmost need to see role of immunity modulators. The coronavirus is RNA virus (Ribonucleic acid). This virus is not living organism but protein molecule covered in protective layer of lipid (fat); which, when absorbed by the cells of ocular, nasal, buccal mucosa, the virus changes his genetic code (mutation) and converts into the aggressive and multiplier cells. As it is not bacteria, so no antibiotic works. Vaccines (when it will be developed) will be for prevention and not treatment of existing disease. The immunity modulator acts as prophylaxis and therapeutic management, which may be helpful in breaking the virus and treating the disease, which will reduce mortality rate. In prophylaxis management the main role of immunity booster is to form the antibodies against the virus. In Covid-19 other than pneumonia, another cause may be disseminated intravascular coagulation (thrombosis). As because of this thrombosis the lung are the most affected as, they are most inflamed, but there is also heart attack, stroke and many other thromboembolic diseases, which may mainly cause pulmonary thrombosis or thromboembolism.

The immunity modulators may play important role in prophylaxis and therapeutic management of SARS CoV-2 (Covid-19) coronavirus.

Materials

Immunity means WBC, antibodies, lymphatic system, spleen, thymus gland, bone marrow. Immunity (internal defence mechanism) is resistance that the body provides against pathogens and their harmful effects. Antibodies may neutralize virus directly or destroy virus infected cells via ADCC (antibody dependent cellular cytotoxicity) or complement.

1) Innate immunity (natural or inherited): we get naturally through genetic factors.
2) Acquired immunity: this we get after we attend or we get exposed to antigens.

The Acquired immunity has again two types:

a) Active acquired immunity-which gained as result of direct exposure to antigens.
b) Passive acquired immunity-this is transmitted from mother to baby, that is the antibodies transmitted to baby through placenta and breast milk.

Causes of low immunity

Unhealthy or nutrient deficiency diet, irregular or less sleep, stress, smoking, over consumption of alcohol, over exercise, lack of physical activity, inadequate hygiene, high sugar intake, use of cortisol, overdose of antibiotics.

How to check immunity

Blood test (immunoglobulin-IgA, IgG, IgM). The immunoglobulin means the antibodies that normal level of infection fighting proteins. Abnormal number of certain cells of WBC can indicate immune defect. IgA, IgG, IgM test which measures the level of types of antibodies to protect the body from bacteria, viruses and allergens. The body makes different antibodies or immunoglobulins to fight different things. Sometimes the body may even mistakenly makes antibodies against itself, treating healthy organs tissues like foreign invader which is called as autoimmune disorder.

Types of antibodies

Immunoglobulin A (IgA)-found in the lining of respiratory tract and digestive system as well as in saliva, tears and breast milk.

Immunoglobulin G (IgG)-most common antibody, it's in blood and other body fluids. It protects against bacterial and viral infection, can take time to form after infection or immunization.

Immunoglobulin M (IgM)-found mainly in blood and lymphatic fluid, this is the first antibody the body makes, when it fights a new infection.

Immunoglobulin E (IgE)-found in small amount in blood, there may be higher amounts, when the body over reacts allergens or is fighting an infection from parasites.

Immunoglobulin D (IgD)-this is the least understood antibody, with only small amounts in the blood. Low lymphatic is also sign of disease. Normal range of the immunoglobulin in the blood. IgG-6.0-16.0g/l, IgA-0.8-3.0g/l, IgM-0.4-2.5g/l or IgM-37-286mg/l.

How to develop immunity

When pathogens invades body, the pathogens multiplies and disease occurred. Then the body immediately starts making antibodies to attack pathogens. The person normally get better once enough antibodies are formed. Another way to develop immunity to disease is to be inoculated with vaccine. Artificially person received antibodies in the form of injection that is gamma globulin.

What to do to boost immunity

Average 75% Immune systems live in our Gut. So the advice is to take balance rich diet with proteins, good fats, (Omega 3 and 6), fresh fruits (special seasonal), fresh vegetables. Increase citrus fruits in diet which contain vitamin c, which is very good immunity booster.

Oranges, sweet lime, lemon, pineapple, berries, kiwi guava, avocado, papaya spanich, tomato, yoghurt, amla (*Phyllanthus emblica*/ gooseberry), grapes, (sweat lime/*Citrus limetta*) tangerines, kale, watermelon, celery, sweet potato, oily fish, red capsicum, (Bell pepper) carrot, beet, cabbage, cauliflower, broccoli, brinjal, nuts (almonds soaked overnight), walnut, garlic, Ginger, turmeric, green tea, palak (*Spinacia oleracea*), these contains high vitamin C, vitamin D, vitamin E which are vital support for biochemical reaction in immune system. These are powerful antioxidants to fight off infection.

*__Blueberries:__ contains a type of flavonoid called anthocyanin which has antioxidant properties, that can help to boost immunity. These flavonoids play an important role in respiratory tract immune defence system.

***Dark chocolate**: contain theobromine, that is high flavonoids, which is antioxidant prevent from free radicals, which are molecules, that the body produces. When it breaks down food come into contact with pollution, they damages cells.

*__Oily fish__: salmon, tuna, Pilchard are rich in Omega 3 fatty acids, contains many essential nutrients, flavonoids and carotenoids antioxidants.

***Broccoli**: contains vitamin c, which acts as antioxidant.

***Sweet potatoes**: rich in beta carotene, contains vitamin A, which acts as antioxidant.

***Ginger**: (*Zingiber officinale*) which acts as antioxidant.

***Almonds**: contains vitamin E, manganese, magnesium and fibre.

***Drumsticks**: boost immunity and acts as a shield virus to grow.

***Coconut water with lemon**: coconut water plus half lemon which boosts vitamin c 10 times more than vitamin in oranges. **Note**: it is not advisable in kidney patient.

***Garlic** (*Allium sativum*) is antiviral, antioxidant contains allicin.

***Onion** (*Allium cepa*)-which acts as antiviral.

***Green tea:** contains small amount of caffeine and also contains flavonoids.

***Pumpkin seeds**: 3to4 tea spoon pumpkin seed increases healthy fats, magnesium and zinc which are vital for immune function.

***Sunflower Seeds:** Rich in vitamin E, which acts as antioxidant.

***Red bell paper** (red capsicum): vitamin c present three times higher than orange.

***Empty stomach fruit**: which makes system alkaline.

***Exercise**: Regular walking may lead to higher number of WBC, which fights again infection.

***Adequate sleep**: Ensures the secretion of melatonin a molecule, which plays a role in boosting immunity. When we sleep our immune system produces protective infection fighting substances like cytokines which fights against bacteria and viruses.

***Stress management**: by meditation (Pranayam), that is breathing exercise reduces NFKB, may reduce CRP and do not appear to increase inflammatory cytokines. Ashwagandha (*Withania omnifera*) is one of the good anti stress and anxiety agent.

***Zinc**: coronavirus appears to be susceptible to the viral inhibitory actions to zinc. Zinc may prevent coronavirus entry into cells and appears to reduce coronavirus virulence. Daily dose is 15 mg to 30 mg with lozenges, potentially providing direct protective effects in upper respiratory tract.

***Fasting**: fasting for three days will reset immunity and metabolism.

***Honey**: acts as antioxidant

***Copper Pot (Kasya pot)**: that is derivative of copper known to be beneficial for immune system.

Neem leaves (*Azadirachta indica*); bitter melon (Karela)/bitter gourd/ *Momordica charantia*); Methi (Fenugreek/Trigonella foenum-graecum); they stimulates the immunity. Bitter herbs interact with taste receptors in mouth, they setting off production mucus to protect cells and prevent invasion and activate cells to sweep particles out.

Vegetables and fruits contains isolated flavonoids
Many flavonoids reduces NLRP3 inflammasome signalling and consequently NFKB, TNF-a, IL-6, IL-1B, IL-18 expression.

Liquiritigenin from *Glycyrrhiza glabra* (Licorice)-That is Mulethi/Yashtimadhu contains flavonoids. Dihydroquercetin and quercetin found in onion and Apple. Quercetin also functions as zinc lonophore chelating zinc and transporting it into cell cytoplasm. This could theoretically enhance, the antiviral action of zinc.

Myricetin found in tomatoes, oranges, nuts and berries-Apigenin found in *Matricaria recutita* (Bodegold/ Scented mayweed/Camomile)-Epigallocatechin gallate (EGCG) from green tea is antiviral especially in early stage. EGCG link quercetin (zinc lonophore) which potentially works as antiviral action of zinc.

pH of coronavirus may vary from 5.5 to 8.5,so it is advised to take alkaline food specially with vitamin c content which are immunity booster, also lemon-9.9 pH, lime-8.2 pH, avocado-15.6 pH, garlic-13.2 pH, mango-8.7 pH, tangerine-8.5 pH, pineapple-12.7 pH, dandelion-22.7 pH, Orange-9.2 pH.

Vitamin D that is 25 hydroxy D is very good immunity booster. Every cell in body has receptor binding. This binding is supported that is get strengthen by vitamin D supplements. In Vitamin D deficiency, the receptor cyclic AMP occult 3/4 p53 weeken the binding in cell, So virus easily enters in cells. In vitamin D deficiency, one can have prone to get upper respiratory tract disorder. Good source of vitamin D is early sun rays. Another thing sun rays contains ultraviolet rays which breaks outer fat layer of virus.

Results and Discussion
The probable role of immune modulators in prophylaxis and Therapeutic management of SARS CoV-2 (Covid-19) corona virus: The immunity that is immunoglobulins means antibodies, which fights against infection or the resistance that the body provides against pathogens and their harmful effects. Antibodies may neutralizes virus directly or destroy virus infected cell via ADCC or complement. IGA found in Lining of respiratory tract. The flavonoids (anthocyanin, theobromine, liquiritigenin, Dihydroquercetin, quercetin, myricetin, apigenin, Epigallocatechin gallate [EGCG]) and carotenoids has antioxidant properties, which boosts immunity and may play important role in respiratory tracts immune defence system.

The cytokines fights against bacteria and virus. Many flavonoids reduces NLRP3 inflammasome signalling and consequently NFKB; TNF-a; IL-6; I6-1B; IL-18 Expression. NFKB may reduce CRP and do not appear to increase inflammatory cytokines. Fasting for three days; adequate sleep; exercise; empty stomach fruit, stress management can develop flavonoids. Vitamin C; Vitamin D; Vitamin E, Zinc and some Ayurvedic herbs contain flavonoids.

Many immune modulators acts as antiviral agent, which inhibits replication of virus by inhibiting viral binding at cell surface, viral replication tool or suppression of cellular signalling pathway essential for viral replication such as PI3K; AKT; NFKB immune. The immune modulatory improves cognitive ability to boost the absorption of proteins by the body, as they are antioxidant scavenge damaging particles in the body known as free radicals, which damages cell membrane, temper DNA and even cause cell death. Antioxidants may neutralizes free damage they cause and antioxidant increases antioxidant enzymes and inhibits peroxidation.

Conclusion: The immune modulators may play important role in prophylaxis and therapeutic management of SARS CoV-2 (Covid-19) coronavirus.

Conflict of interest: None declared.

References

1. *Charak samhita
2. *Shushrut samhita
3. *Aasthang samhita

Citation: Bhadlikar D. Role of Immunity Modulators in Prophylaxis and Therapeutic Management of SARS CoV-2 (Covid-19) Coronavirus. Int J Rec Innov Med Clin Res. 2020;2(4):108-112.