Review on Current Drug Therapy and Use of Natural Products in the Management of COVID 19

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Abstract:

The novel corona virus infection firstly found in China in December 2019.The virus is almost spreading in all the continents and has become a global economic crises.The virus is mutating fastly and thus it becomes challenging task for all research scientist in the development of a vaccine. In this paper introduction to the virus and the current drugused in the first line treatment of the novel corona virus infection are mentioned in detailed.The key drugs used in therapy are azithromycin, ciclesonide, colchicine, famotidine, apn01, anticoagulant, favipiravir, interferon beta, lopinavir, ritonavir, remdesivir, intravenous Vit C etc.The review also summarizes about the home remedies given by Ministry of AYUSH, Government of Indiawhich has proven effective in some cases and some natural products which serve as immune boosting in the global pandemic of novel corona virus.

Keywords:

COVID-19, Azithromycin, Favipiravir, Lopinavir,Ritonavir, Remdesivir.

1. INTRODUCTION:

For the success of drug therapy to treat novel corona virus infection the detailed structure and metabolic pathways of virus must be knownalso pathophysiology of the infection is important to identify possible drug targets.Structure of corona virus is given in figure 1.

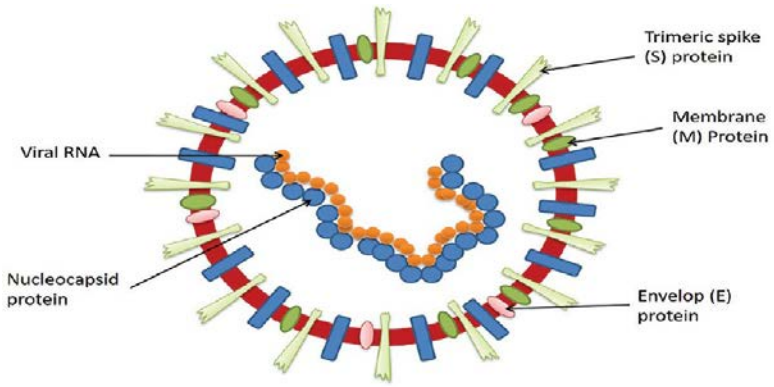

Figure 1. Structure of Corona Virus
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The life cycle of corona virus in the host cell:

In the attachment step the spike proteins of the coronavirus binds to cellular receptor angiotensin-converting enzyme 2 (ACE2) facilitate entry of the viral RNA genome into the host cell and translation of viral proteins. Open reading frames are translated to produce polyproteins, which are cleaved by the proteases to yield 16 non-structural proteins. Next step is assembly and budding into the lumen of the Endoplasmic Reticulum Golgi Intermediate Compartment (ERGIC). Virions released from the infected cell through exocytosis. [1,2]

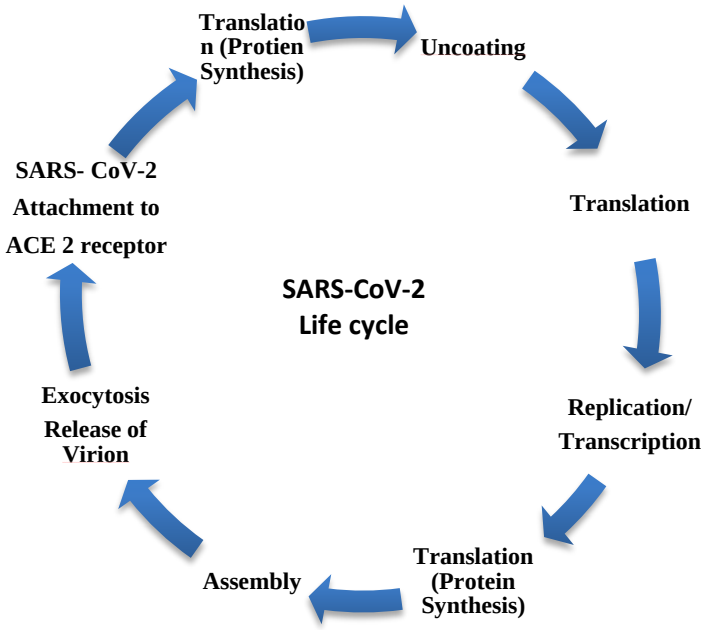

Figure 2. The life cycle of coronavirus in host cells. [1,2]

Possible therapeutic options:

Currently, no antiviral medication is recommended to completely cure COVID-19, and no cure is available for COVID-19. Antibiotics aren't effective against viral infections such as COVID-19. Current research focused on trials on drugs that could be effective for treating severe COVID-19. Treatment is directed at relieving symptoms and may include:

- Pain relievers (ibuprofen or acetaminophen)
- Cough syrup or medication
- Rest
- Fluid intake

There is no evidence that ibuprofen or other nonsteroidal anti-inflammatory drugs (NSAIDS) need to be avoided.[3]Researchers in Hong Kong have tried combination of antiviral drugs lopinavir and ritonavir with the hepatitis drug ribavirin and the multiple sclerosis treatment interferon-beta with a control group given just lopinavir-ritonavir. Researchers found that patients suffering milder illness caused by the novel coronavirus recover more quickly if they are treated soon after symptoms appear. This was small trial with 127 patients and detailed study with larger patient group is required. The human immunodeficiency virus (HIV) that causes AIDS is best treated with combinations of different drugs and this could also be the case with COVID-19.[4]Baricitinib, fedratinib, and ruxolitinib are powerful anti-inflammatories are likely to be effective against the elevated levels of cytokines (interferon-γ) typically observed in people with COVID-19·[5]

2. Immunity Boosting Measures for Self-care[6]

A) Measures for Enhancing Immunity:

1. Drink warm water throughout the day.
2. Daily practice of Yogasana, Pranayama and meditation as advised by Ministry of AYUSH (India).

3. Indian spices are recommended in cooking. Example- Haldi (Turmeric), Jeera (Cumin), Dhaniya (Coriander) and Lahsun(Garlic)

B) Ayurvedic Immunity Enhancing Measures:

1. Take Chyavanprash in the morning. Diabetics should take sugar free Chyavanprash.
2. Drink decoctionmade from Tulsi (Basil), Shunthi (Dry Ginger), Dalchini (Cinnamon), Kalimirch (Black pepper), and Munakka (Raisin) or herbal tea.
3. Golden Milk- Drink hot milk with Haldi (turmeric) powder.

C) Simple Ayurvedic Procedures:
1. Nasal applicationof sesame oil or coconut oil or ghee in the nostrils as per method given in Ayurvedic therapy.
2. Oil pulling therapy- Take 1 table spoon sesame or coconut oil in mouthas per method given in Ayurvedic therapy.
D) Actions During dry cough and sore throat:
1. Steam inhalation with Ajwain (Caraway seeds) or fresh Pudina (Mint) leaves.

2. Lavang (Clove) powder mixed with natural sugar or honey can be taken 2-3 times a day in case of cough or throat irritation. However, it is best to consult doctors if these symptoms persist.

3. Drugs Used in COVID 19:-

A.Azithromycin

Introduction: Azithromycin antibiotic used for the treatment of a many bacterial infections. Most common are pneumonia, infection of throat, middle ear infections, traveller'sdiarrhoea, and certain other intestinal infections.

Mechanism of action: Azithromycin interfering with their protein synthesis and inhibit bacterial growth.
Side effects: Common side effects include nausea, vomiting, diarrhea and upset stomach. An allergic reaction, such as anaphylaxis, QT prolongation, or a type of diarrhea caused by Clostridium difficile is possible. No harm has been found with its use during pregnancy. Its safety during breastfeeding is not confirmed, but it is likely safe.Azithromycin is an azalide, a type of macrolide antibiotic.It works by decreasing the production of protein, thereby stopping bacterial growth.[7-9]

Clinical Trials: Azithromycin has been shown to be active in vitro against Zika and Ebola viruses and to prevent severe respiratory tract infections when administrated to patients suffering viral infection.Azithromycin with hydroxychloroquine was significantly more efficient for virus elimination in some trials.Azithromycin is being studied together with other medications in COVID-

19.There is no strong evidence to support combining azithromycin with hydroxychloroquine to treat COVID-19, though such use is being studied. [10-12]

B.Ciclesonide

Introduction: Ciclesonide is a glucocorticoid used to treat asthma and allergic rhinitis. It is marketed under the brand names Alvesco for asthma and Omnaris, Omniair, Zetonna, and Alvesco for hay fever in the US and Canada.[13]

Mechanism of action: Ciclesonide is a glucocorticoid receptor agonist. Ciclesonide is glucocorticoid it can inhibitleukocyte infiltration at the inflammation site, interfere with mediators of inflammatory response, and suppress humoral immune responses alsoreduces inflammatory reaction by limiting the capillary dilatation and permeability of the vascular structures.
Side effects: Side effects of the medication include headache, nosebleeds, and inflammation of the nose and throat linings.[14] The drug was approved for adults and children 12 and over by the US Food and Drug Administration in October 2006.[15]

Clinical trials: According to *In-vitro* studies, ciclesonide showed good antiviral activity against severe acute respiratory syndrome SARS-CoV-2. Clinical trials are going for evaluating the antiviral effect in COVID-19.Luxembourg and Zug(Switzerland) May 2020 announced initiation of a Phase 3 clinical study."There is promising scientific evidence that Alvesco, an inhaled glucocorticoid, may both reduce COVID-19 symptoms and suppress viral replication," said Michael Blaiss, M.D., Clinical Professor of Pediatrics, Medical College of Georgia at Augusta University in Augusta, Georgia. [13, 16]
The Phase 3 study of Alvesco, a metered-dose inhaler onthe 400 patientstartedin the United States. Early results of this study are expected to be released in September 2020.There are currently no antiviral drugs approved by the FDA for COVID-19 with the exception of Gilead's Antiviral Remdesivir which has received FDA Emergency Use Authorization for the treatment of COVID-19. According to the website of the Centres for Disease Control and Prevention (CDC), clinical management of COVID-19 includes prompt implementation of recommended infection prevention and control measures in healthcare settings and supportive management of complications. The World Health Organization (WHO) advises that people of all ages can be infected by the new coronavirus (2019-nCoV). WHO recommends people of all ages to take steps to protect themselves from the virus, for example by following good hand and respiratory hygiene.[17]

C.Colchicine

Introduction: Colchicine is a medication used to treat gout and Behcet's disease.[18,19]In gout, it is less preferred to NSAIDs or steroids.Other uses include the prevention of pericarditis and familial Mediterranean fever.[18, 20]

Mechanism of action:Colchicine inhibits multiple proinflammatory mechanism and increases level of anti-inflammatory mediators.[22] **C**olchicine inhibits mitosis and neutrophil motilityto give anti-inflammatory effect.[21]

Side effects: Deaths – both accidental and intentional – have resulted from overdose of colchicine. Typical side effects of moderate doses may include gastrointestinal upset, diarrhea, and neutropenia.

Over dosage damage bone marrow, anemia, hair loss. Side effects can result from inhibition of mitosis, which may include neuromuscular toxicity and rhabdomyolysis.[21]

Clinical trials: A clinical trial of 6000 people with COVID-19 infection, funded by the Government of Quebec, began in March 2020 to test the potential efficacy of using colchicine over a 30 day period to reduce disease symptoms.[22]The clinical study, named COLCORONA, coordinated by the Montreal Health Innovations will evaluate the phenomenon of major inflammatory storm present in adults suffering from severe complications related to COVID-19. The researchers hypothesized that the treatment could reduce the complications associated with COVID-19. [23, 24]

D.Famotidine

Introduction: Famotidine, sold under the brand name Pepcid among others, is a medication that decreases stomach acid production. It is used to treat peptic ulcer disease, gastroesophageal reflux disease, and Zollinger-Ellison syndrome.It is taken by mouth or by injection into a vein.It begins working within an hour.[25, 28]

Mechanism of action: It is a histamine H2 receptor antagonist.[25]Activation of H2 receptors located on parietal cells stimulates the proton pump to secrete acid. Famotidine (H2 antagonist) blocks the action of histamine in the parietal cells, ultimately blocking acid secretion in the stomach.[28]

Side Effects: Common side effects include headache, intestinal upset, and dizziness.[25] Serious side effects may include pneumonia and seizures.[25,26] Use in pregnancy appears safe but has not been well studied while use during breastfeeding is not recommended.[27]

Clinical trials: A research study by Columbia University, Northwell Health and Massachusetts General Hospital shows that Famotidine, a common heartburn drug improved the clinical outcomes of hospitalized COVID-19 patients.[29]
The study involving 1620 patients from more than 10 hospitals in the United States showed that Famotidine associated with reduced risk of intubation or death in hospitalized COVID-19 patients. However further randomized controlled trials are warranted and also detailed studies are needed to understand the mode of its efficacy.
The drug was chosen as earlier drug repurposing computer modelling studies showed that the drug molecular structure had very good potential to block ‘docking sites’ on the spike protein structures of the SARS-CoV-2 coronavirus, rendering the virus to become inactive and not capable of entering host cells and replicating.

E.APNO1

Clinical trials: Austrian immuno-oncology firm Apeiron Biologics today announced that it has received regulatory approvals in Austria, Germany and Denmark to initiate a Phase II clinical trial of APN01 to treat COVID-19.APN01 is the recombinant form of the human angiotensin-converting enzyme 2 (rhACE2), and has the potential to block the infection of cells by the novel SARS-CoV-2 virus (COVID19), and reduce lung injury. The Phase II trial aims to treat 200 severely infected COVID-19 patients, and the first patients are expected to be dosed shortly.
APN01 has a unique dual mode of action. The virus binds to soluble ACE2/APN01, instead of ACE2 on the cell surface, which means that the virus can no longer infect the cells. At the same time,

APN01 reduces the harmful inflammatory reactions in the lungs and protects against acute lung injury (ALI/acute respiratory distress syndrome (ARDS).[30]

F. Favipiravir

Introduction:Favipiravir, sold under the brand name Avigan, is an antiviral medication used to treat influenza in Japan.[31] It is also being studied to treat a number of other viral infections. It became a generic drug in 2019.[32]Favipiravir has been approved to treat influenza in Japan. It is, however, only indicated for novel influenza (strains that cause more severe disease) rather than seasonal influenza.[33]

Mechanism of Action: The mechanism of its actions is thought to be related to the selective inhibition of viral RNA-dependent RNA polymerase. Human hypoxanthine guanine phosphoribosyl transferase (HGPRT) is key enzyme in the activation of prodrug favipiravir. Active form of favipiraviris favipiravir-ribofuranosyl-5'-triphosphate (favipiravir-RTP), available in both oral and intravenous formulations. Favipiravir is not toxic to mammalian cells as it does not inhibit RNA or DNA synthesis in mammalian cells.In Japan favipiravir was approved against influenza pandemics in 2014. However, favipiravir has not been shown to be effective in primary human airway cells, casting doubt on its efficacy in influenza treatment.[34]

Sideeffects: There is evidence that use during pregnancy may result in harm to the baby.[35]

Clinical Trials: In February 2020, favipiravir was being studied in China for experimental treatment of the emergent COVID-19. Trials are also being planned in Japan.[36]The drug has been approved for use in clinical trials of coronavirus disease 2019 in China.[37]In February 2020, favipiravir was being studied in China for experimental treatment of the emergent COVID-19. Italy approved Favipiravir for the experimental use in COVID-19 during March 2020, and has started conducting trials. The Italian Pharmaceutical Agency, however, reported that existing evidence in support of this drug is scant and preliminary.The drug was approved for the treatment of COVID-19 in the hospital settings in Russia on May 29, 2020, after an ongoing open-label randomized clinical trial had recruited 60 subjects on favipiravir. On May 30, 2020, the Russian Health Ministry approved a generic version offavipiravir named Avifavir. RDIF backed the development of Avifavir and found it highly effective in the first phase of clinical trials.[38]Research in 2014 suggested that favipiravir may have efficacy against Ebola based on studies in mouse models; efficacy against in humans was unaddressed.[39]

During the 2014 West Africa Ebola virus outbreak, a French nurse who contracted Ebola while volunteering for MSF in Liberia reportedly recovered after receiving a course of favipiravir. A clinical trial investigating the use of favipiravir against Ebola virus disease began in Guéckédou, Guinea, in December 2014. Preliminary results presented in 2016 at the Conference on Retroviruses and Opportunistic Infections (CROI), later published, showed a decrease in mortality in patients with low-to-moderate levels of virus in blood, but no effect on patients with high levels (the group at a higher risk of death). The trial design was concomitantly criticised for using only historical controls.[40]

G. Interferon Beta

Introduction: Interferon beta-1a (also interferon beta 1-alpha) is a cytokine in the interferon family used to treat multiple sclerosis (MS).It is produced by mammalian cells, while interferon beta-1b is

produced in modified E. coli. Some claims have been made that Interferons produce about an 18–38% reduction in the rate of MS relapses.[41-43]

Mechanism Of Action:, Interferon beta therapy leads to a reduction of neuron inflammation. Also increases the production of nerve growth factor and consequently improve neuronal survival. In vitro, interferon beta reduces production of Th17 cells which are a subset of T lymphocytes believed to have a role in the pathophysiology of MS.[44]

Side Effects: Interferon beta-1a is available only in injectable forms, and can cause skin reactions at the injection site that may include cutaneous necrosis. They usually appear within the first month of treatment albeit their frequency and importance diminish after six months of treatment.[45]Clinical studies on the efficacy of type I interferons, including interferon alfa and interferon beta, in the treatment of SARS-CoV had variable results.[46]

Clinical Trials: Since there is evidence that insufficient production of interferon beta-1a in lung cells in older people can lead to their increased susceptibility to respiratory viral infections such as SARS-CoV-2 and MERS-CoV. Company Synairgen began clinical tests of SNG001, a special inhalation formulation of interferon beta-1a in patients with COVID-19.[47]

H. Lopinavir/ Ritonavir

Introduction: Lopinavir/ritonavir (LPV/r), sold under the brand name Kaletra among others, is a fixed dose combination medication for the treatment and prevention of HIV/AIDS. It combines lopinavir with a low dose of ritonavir.It is taken by mouth as a tablet, capsule, or solution.[48]It is on the World Health Organization's List of Essential Medicines, the safest and most effective medicines needed in a health system.[49]

Mechanism of action: Mechanism of Action: Lopinavir/ritonavir inhibits the HIV protease enzyme by forming an inhibitor-enzyme complex thereby preventing cleavage of the gag-pol polyproteins. Immature, noninfectious viral particles are subsequently produced.
Administered alone, lopinavir has insufficient bioavailability; however, like several HIV protease inhibitors, its blood levels are greatly increased by low doses of ritonavir, a potent inhibitor of intestinal and hepatic cytochrome P450 3A4, which would otherwise reduce drug levels through catabolism.Abbott, therefore, pursued a strategy of co-administering lopinavir with doses of ritonavir sub-therapeutic with respect to HIV inhibition; hence, lopinavir was only formulated and marketed as a fixed dose combination with ritonavir.[50]

Medicinal uses: As of 2006, lopinavir/ritonavir forms part of the preferred combination for HIV first-line therapy recommended by the US United States Department of Health and Human Services in 2006[51]

Side effects: Common side effects include diarrhea, vomiting, feeling tired, headaches, and muscle pains. Severe side effects may include pancreatitis, liver problems, and high blood sugar. It is commonly used in pregnancy and it appears to be safe.Both medications are HIV protease inhibitors. Ritonavir functions by slowing down the breakdown of lopinavir.[48]

Clinical trials: While data for SARS-CoV-1 looked promising, the benefit in COVID-19 is unclear as of 23 March 2020. In 2020, a non-blinded, randomized trial found lopinavir/ritonavir was not useful

to treat severe COVID-19. In this trial the medication was started typically around 13 days after the start of symptoms.[52]

I. Remdesivir

Introduction: Remdesivir is a broad-spectrum antiviral medication developed by the biopharmaceutical company Gilead Sciences.[53] It is administered via injection into a vein. As of 2020, remdesivir is being tested as a specific treatment for COVID-19, and has been authorized for emergency use in the US, India[54] and approved for use in Japan for people with severe symptoms. It also received approval in the UK in May 2020, however will be rationed due to limited supply. It may shorten the time it takes to recover from the infection.[55]
Side effects may include liver inflammation and an infusion-related reaction with
SARS-CoV-2 nusea, low blood pressure, and sweating[56]
It is a pro-drug that is converted in the body into GS-441524, a ribonucleotide analog.
Earlier studies found antiviral activity against several RNA viruses including SARS coronavirus and MERS coronavirus, but it is not approved for any indication. Remdesivir was originally developed to treat hepatitis C and was then tested against Ebola virus disease and Marburg virus disease, but was ineffective for all of these viral infections.[53]

Mechanism of action: As an adenosine nucleoside triphosphate analog, the active metabolite of remdesivir interferes with the action of viral RNA-dependent RNA polymerase and evades proofreading by viral exoribonuclease (ExoN), causing a decrease in viral RNA production. In some viruses such as the respiratory syncytial virus it causes the RNA-dependent RNA polymerases to pause, but its predominant effect (as in Ebola) is to induce an irreversible chain termination. Unlike with many other chain terminators, this is not mediated by preventing addition of the immediately subsequent nucleotide, but is instead delayed, occurring after five additional bases have been added to the growing RNA chain. For the RNA-Dependent RNA Polymerase of MERS-CoV, SARS-CoV-1, and SARS-CoV-2 arrest of RNA synthesis occurs after incorporation of three additional nucleotides. Hence, remdesivir is classified as a direct-acting antiviral agent that works as a delayed chain terminator.[57,58]

Sideeffects: The most common adverse effects in studies of remdesivir for COVID 19 include respiratory failure and organ impairment, including low albumin, low potassium, low count of red blood cells, low count of platelets that help with clotting, and yellow discoloration of the skin. Other reported side effects include gastrointestinal distress, elevated transaminase levels in the blood (liver enzymes), and infusion site reactions.[59]

Other possible side effects of remdesivir include:

- Infusion-related reactions. Signs and symptoms of infusion-related reactions may include: low blood pressure, nausea, vomiting, sweating, and shivering.

- Increases in levels of liver enzymes, seen in abnormal liver blood tests. Increases in levels of liver enzymes have been seen in people who have received remdesivir, which may be a sign of inflammation or damage to cells in the liver.[60]

Clinical trials: Remdesivir for 5 or 10 Days in Patients with Severe Covid-19. A randomized, open-label, phase 3 trial in patients with severe Covid-19 not requiring mechanical ventilation, this trial did

not show a significant difference between a 5-day course and a 10-day course of remdesivir. With no placebo control, however, the magnitude of benefit cannot be determined. [61,62]

J. Intravenous vitamin C

Introduction: Intravenous Ascorbic Acid (also known as vitamin C or L-ascorbic acid), is a type of therapy that delivers soluble ascorbic acid directly into the bloodstream, either administered via injection or infusion. Intravenous ascorbic acid is a dietary supplement for nutritional deficiencies.Some recent research suggests its ability to decrease inflammation in the patient and to improve symptoms related to disease processes, and side effects of standard cancer treatments.[63-65]
Mechanism of action: Ascorbic acid operates as an anti-oxidant and essential enzyme cofactor in the human body. Although many in vitro studies have studied hydrogen peroxide generation by ascorbic acid, the pharmacological mechanism of intravenous ascorbic acid in vivo is still unclear.[66,67]
Side effects: Vitamin C is a water-soluble vitamin, with dietary excesses not absorbed, and excesses in the blood rapidly excreted in the urine, so it exhibits remarkably low acute toxicity. More than two to three grams may cause indigestion, particularly when taken on an empty stomach. Other symptoms reported for large doses include nausea, abdominal cramps and diarrhea. These effects are attributed to the osmotic effect of unabsorbed vitamin C passing through the intestine. [68] There is a longstanding belief among the mainstream medical community that vitamin C increases risk of kidney stones.[69,70]

Clinical trials:
As of April 2020, there are ten ongoing clinical trials of intravenous vitamin C for people who are hospitalized and severely ill with COVID-19; two placebos controlled (China, Canada) and one with no control (Italy).[71]

K. Oralvitamin D

Introduction: Vitamin D is a group of fat-soluble secosteroids responsible for increasing intestinal absorption of calcium, magnesium, and phosphate, and multiple other biological effects. In humans, the most important compounds in this group are vitamin D3 (also known as cholecalciferol) and vitamin D2 (ergocalciferol).[72]
The major natural source of the vitamin is synthesis of cholecalciferol in the lower layers of skin epidermis through a chemical reaction that is dependent on sun exposure (specifically UVB radiation).Cholecalciferol and ergocalciferol can be ingested from the diet and from supplements. Flesh of fatty fish, naturally contain significant amounts of vitamin D. Cow milk and plant-derived milk substitutes are fortified with vitamin D, as are many breakfast cereals. [73]

Side effects: Dehydration,omitting,Diarrhea,Decreased appetite,Irritability,Constipation,Fatigue, Muscle weakness,Metastatic calcification of the soft tissues

Infectious diseases and covid-19: In general, vitamin D functions to activate the innate and dampen the adaptive immune systems. Deficiency has been linked to increased risk or severity of viral infections, including HIV. Supplementation slightly decreases the risk and severity of acute respiratory tract infections, and also the exacerbation of asthma. There is no evidence for vitamin D affecting respiratory infections in children under five years of age.

The COVID-19 pandemic raised concerns that vitamin D deficiency may be a risk factor for respiratory infection, but there is only preliminary evidence of a direct association between vitamin D deficiency and COVID-19 infection.[74]
One UK study found no association between previously measured vitamin D levels and the incidence of COVID-19 infection when adjustments were made for potential confounding factors, such as ethnicity. Vitamin D deficiency is prevalent in many countries with the highest numbers of COVID-19 cases and deaths, such as the United States, Spain, the UK, Italy, and Iran.[75,76]
Table 1 listed some natural remedies for preventive measures as well as used to get relief from symptomatic treatment.

Table 1.Role of Natural Products In The Management of Covid-19

Natural Product	**Health Benefits**	**Marketed Preparation**	**References**
Ocimumtenuiflorum (Tulsi)	Relief from Sore throat and Cough, common cold	Herbal Tea	[77,78]
Curcuma longa (Turmeric)	Immunity Booster	Golden Tea	[79]
Chyavanprash	Immunity Booster	Dabur Chyavanpraash, ZandukesariJivanchyavan praash.	[80,81]
Allium sativum (Garlic)	Treat Common cold, Vit C.	Health juices	[82,83]
Glycyrrhiza glabra(Licorice)	Respiratory System well maintained. Immunity booster.	Himalaya Yashtimadhu.	[84]
Honey	Sore throat and cough, Common cold	Dabur Honey, Patanjali Honey.	[85,86]
Trigonella foenum-graecum(Fenugreek)	Strengthens Immunity and Anti-oxidant	Fenugreek extract	[87]
Zingiber officinale(Ginger)	In Cold and Cough symptoms	Ginger Tea	[87]

Conclusion:

The paper focus on the virus structure along with virus's life cycle in host cell and different drugs which are being used currently in the management of the COVID-19. The different immunity boosting majors for self-care are discussed. The various dugs from different classes of disease are being used alone or in the combination of other drugs which are showing positive impact in curing the

disease. The clinical trials are conducted on many patients in various universities all over the world. Many traditional and natural remedies like Tulsi, Garlic, Honey, Turmeric, Ginger etc. are used for immunity boosting purposes and also for symptomatic reliefin COVID-19.

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