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Novel Coronavirus 2019-nCOVID: A Review

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ABSTRACT

The purpose of this article is to provide the information about a newly discovered viral disease called Corona Virus Disease 2019 (COVID-19). This disease brings different types of respiratory tract infections to the body. The article provides basic knowledge about the disease for awareness. This article covers the various aspects of the virus as in structural binding, interaction, adaptation of virus with time, symptoms, causes, diagnosis, treatment and prevention. The awareness regarding this disease is essential because it has no well – defined cause and can happen to any person or animal. This disease can lead to death. Management of patients with COVID-19 begins with the establishment of an accurate diagnosis of disease followed by treatment using an appropriate medication in a manner to suppress the symptoms at first. The goal of therapy is to completely control the symptoms without producing unacceptable medication side effects. The following data contains various images for better understanding. The objective of this paper is only to create awareness and how one can avoid the disease by certain precautions. This article also helps one to understand the symptoms and can give one-self the benefit of the doubt and can cure it by proper consultation.

Keywords: SARS, MERS, COVID-19, Myths and Facts about COVID-19.

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INTRODUCTION

Coronaviruses (CoV) belong to the genus Coronavirus in the family *Coronaviridae*. All CoVs are pleomorphic RNA viruses characteristically containing crown-shape peplomers with 80-160 nm in size and 27-32 kb positive polarity.^[1] Covid-19 is an official name for corona virus 2019, as this virus got outbreak in December 2019 resulting it as a coronavirus pandemic. It is an infectious disease caused by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2).^[2] Corona virus are zoonotic pathogens with a wide range of clinical features asymptotically present in humans and animals which causes respiratory, gastrointestinal, hepatic and neurologic symptom which needs intensive care and immediate hospitalization.^[3] It was not considered as pandemic until they have been seen with the severe acute respiratory syndrome (SARS) in the Guangdong state of China for the first time in 2002 and 2003. Before these outbreaks, there were the two most known types of CoV as CoV OC43 and CoV 229E that have mostly caused mild infections in people with an adequate immune system.^[4] After 10 years Covid-19 is back with sars-Cov along with mers-Cov (middle east respiratory syndrome coronavirus).^[5] At first, an unknown pneumonia case was detected on December 12, 2019, and possible influenza and other coronaviruses were ruled out by laboratory testing. Chinese authorities announced on January 7, 2020 that a new type of Coronavirus (novel Coronavirus, nCoV) was isolated.^[6] This virus was named as 2019-nCoV by WHO on January 12 and COVID-19 on 11 February 2020. As of February 12, 2020, a total of 43,103 confirmed cases and 1,018 deaths have been announced.^[7]

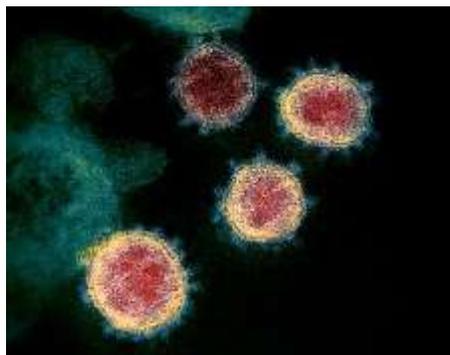


Figure 1: Overview of Novel coronavirus

About virus:

The World Health Organization declared the illness resulting from the new virus, COVID-19, a Public Health Emergency of International Concern. Total 145,902 cases are reported all over the world till March 14, 2020.^[8]

Structure of virus:

Like other coronaviruses, SARS-CoV-2 particles are spherical and have proteins called spikes

protruding from their surface. These spikes latch onto human cells, then undergo a structural change that allows the viral membrane to fuse with the cell membrane. The viral genes can then enter the host cell to be copied, producing more viruses. Recent work shows that, like the virus that caused the 2002 SARS outbreak, SARS-CoV-2 spikes bind to receptors on the human cell surface called angiotensin-converting enzyme 2 (ACE2).

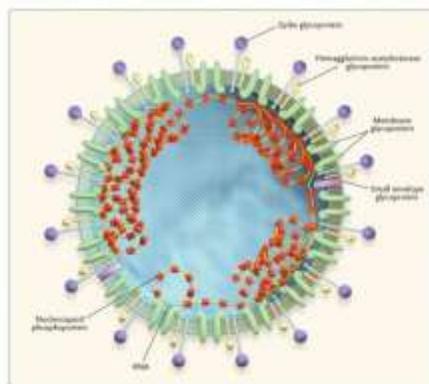


Figure 2: Structure of Novel Coronavirus

To help support rapid research advances, the genome sequence of the new coronavirus was released to the public by scientists in China. A collaborative team including scientists from Dr. Jason McLellan's lab at the University of Texas at Austin and the NIAID Vaccine Research Center (VRC) isolated a piece of the genome predicted to encode for its spike protein based on sequences of related coronaviruses. The team then used cultured cells to produce large quantities of the protein for analysis. [9]

BINDING AND INTERACTION WITH HUMAN AND ANIMALS:

Scientists exploring how coronaviruses like COVID-19 infect human cells have shown that the SARS-CoV-2 spike (S) glycoprotein binds to the cell membrane protein angiotensin-converting enzyme 2 (ACE2) to enter human cells. COVID-19 has been shown to bind to ACE2 via the S protein on its surface. During infection, the S protein is cleaved into subunits, S1 and S2. S1 contains the receptor binding domain (RBD) which allows coronaviruses to directly bind to the peptidase domain (PD) of ACE2. S2 then likely plays a role in membrane fusion. Chinese researchers have now used cryogenic electron microscopy (cryo-EM) to study the structure of the ACE2 (angiotensin converting enzyme 2) when it is bound to one of its typical ligands, the amino acid transporter B0AT1 and also how the COVID-19 RBD may bind to the ACE2-B0AT1 complex. These structures have previously not been identified and could aid in producing antivirals or a vaccine that can block coronavirus infection by targeting ACE2. According to one of the research ACE2 needs to dimerise to be active. The resultant homodimer has two PDs, able to bind two COVID-19 S protein trimers simultaneously.

A previous study found COVID-19 S proteins form trimers with two of the RBDs facing one direction (down) and the other facing the opposite way (up).

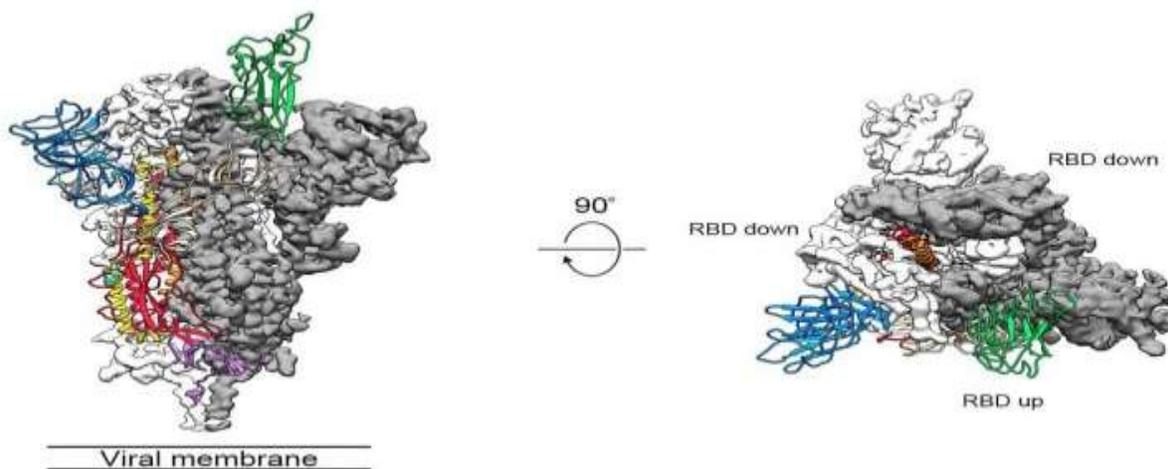


Figure 3: Side and top views of the pre-fusion structure of the COVID-19 S protein with a single RBD in the up conformation. The two RBD-down protomers are shown as cryo-EM density in either white or grey and the RBD-up protomer is shown in ribbons coloured green. In the current study, the team identified that the structures could only bind if the PD interacts with the up RBD.

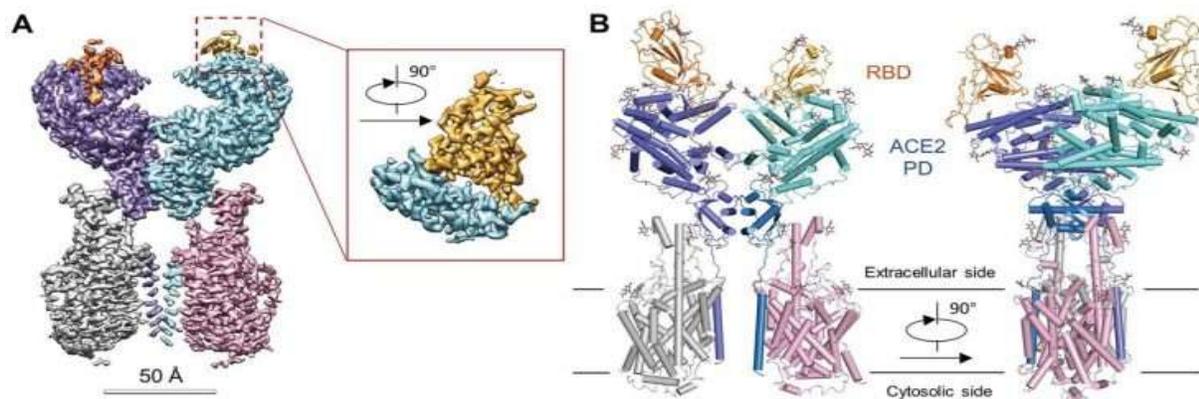


Figure 4. The overall structure of the RBD-ACE2-B0AT1 complex. (A) Cryo-EM map of the RBD-ACE2-B0AT1 complex. Left: Overall reconstruction of the ternary complex at 2.9 Å. Inset: focused refined map of RBD. (B) Overall structure of the RBD-ACE2-B0AT1 complex. The complex is coloured by subunits, with the protease domain (PD) and the Collectrin-like domain (CLD) coloured cyan and blue in one of the ACE2 protomers, respectively. The glycosylation moieties are shown as sticks. They further compared how SARS-CoV-2-RBD binding is different to other SARS-CoV-RBDs binding; showing that some changes in the sequence may make associations tighter in COVID-19, while others could reduce the binding affinity.

The researchers concluded that their research could contribute to structure-based designs of decoy ligands or antibodies able to specifically target ACE2 or coronavirus spike proteins to prevent viral infection.^[10]

Adaptation:

Sars-Cov 19 will not die because of natural cause like warm weather (stated by many of the people as a myth) Scientist has identified four main factors which can be referred as good condition of virus adaptation in human body, they are as follows:

1. **Environment:** In the winter, the outdoor air is colder, and the air is dryer usually both indoors and out. For influenza, it has been elegantly shown in the lab that absolute humidity - the quantity of water vapor in the air - strongly affects flu transmission, with drier conditions being more favorable. Subsequently it has been shown that epidemiological patterns are consistent with this lab data in the US and in Vietnam, among other study sites. Notably the Vietnam study looked at influenza-like illness, without distinguishing influenza from other types of pathogens. This hints that similar mechanisms may be at work for other respiratory viruses, but to my knowledge are no specific studies of the role of humidity for coronaviruses or other respiratory viruses besides flu. Also important: there may be some very humid conditions that also favor flu transmission, especially relevant in the tropics.
2. **Human behavior:** In the winter humans spend more time indoors with less ventilation and less personal space than outdoors in the summer. In particular, schools are a site of much infectious disease transmission. School terms have been strongly identified as periods of higher transmission for respiratory viruses including those causing chicken pox, measles, and flu. The 2009 pandemic flu in the United States was very much decreased during the summer, and then came back rapidly in September. The relevance of school terms is important but unknown for the SARS-CoV-2. Few children have been identified as cases. This may mean they do not get easily infected and don't do much transmitting. Or it may mean only that they don't get severe symptoms when they are infected, and transmit nonetheless. Understanding this is key if we want to know whether school closures can help control COVID-19 spread, as well as to anticipate how much summer vacation may help reduce spread.
3. **The Host's Immune System:** It is possible that the condition of the average person's immune system is systematically worse in winter than summer. One hypothesis has focused on melatonin which has some immune effects and is modulated by the photoperiod, which varies seasonally. Another with more evidence is that vitamin D levels, which depend in part on ultraviolet light exposure (higher in summer), modulate our immune system in a positive

way. The best evidence for the relevance of this hypothesis is that vitamin D supplementation reduces the incidence of acute respiratory infection, according to a meta-analysis of randomized trials. On the other hand, we found that this effect was unlikely to be a large factor in the variation in influenza incidence between summer and winter. This is a promising area for more study but at present its relevance seems uncertain.

4. Depletion of susceptible host: Even without any seasonal variability, infectious disease epidemics rise exponentially, level off, and decline because when many individuals are susceptible, each case infects more than one new case ($R_{eff} > 1$). Then as the proportion of susceptible contacts declines, the epidemic peaks ($R_{eff} = 1$), and eventually declines ($R_{eff} < 1$).
5. When there is some factor (like any or all of #s 1-3) varying seasonally, and when new susceptible appear in the population over time (for example through births) this process interacts with the seasonal factors to produce recurrent epidemics typically at the same time each year.^[11]

Causes

Cases of COVID-19 have been reported in a growing number of countries, including the U.S. Public health groups, such as the World Health Organization (WHO) and the U.S. Centers for Disease Control and Prevention (CDC), are monitoring the situation and posting updates on their websites. These groups have also issued recommendations for preventing and treating the illness. It's unclear exactly how contagious the new coronavirus is. It appears to be spreading from person to person among those in close contact. It may be spread by respiratory droplets released when someone with the virus coughs or sneezes.^[12]

Through Cough:

People can catch the virus from others. The disease can spread from person to person through small droplets from the nose or mouth which are spread when a person coughs or exhales. These droplets land on objects and surfaces around the person. Other people then catch the virus by touching these objects or surfaces, then touching their eyes, nose or mouth. People can also fall victim to virus even if they breathe in droplets from a person infected who coughs out or exhales droplets. This is why it is important to stay more than 1 meter (3 feet) away from a person who is sick.

Through Air:

Many Studies suggest that the virus is mainly transmitted through contact with respiratory viral droplets rather than through the air. Viral droplet is a droplet which contains viral particles. A virus is always dependent on a microbe that attaches to a cell, which it takes over, increases its strength and moves on to its next host, according to WHO. A virus cannot go anywhere unless it is riding

with a droplet of or saliva or droplets from the mouth. So when you cough or sneeze, then saliva droplets are ejected from the mouth. The virus waiting for a prey will lash on to the droplet, making it a viral droplet. ^[13]

Through Intercourse:

Kissing with an infected person could definitely infect the other, although coronaviruses are not typically sexually transmitted, according to a New York Times report quoting several experts. Therefore, COVID-19 is not a Sexually Transmitted Disease (STD).

Through Touch:

Corona virus could get spread through skin indeed. After numerous people who attended a Buddhist temple in Hong Kong fell ill, the city's Center for Health Protection collected samples from the site. Restroom faucets and the cloth covers over Buddhist texts tested positive for coronavirus, the agency said. Technically, the virus widely known as the coronavirus is just the latest of many similarly shaped viruses. (Coronaviruses are named for the spikes that protrude from their surfaces, which resemble a crown or the sun's corona.) A study of other coronaviruses found they remained on metal, glass and plastic for 2 hours to 9 days.

Whether a surface looks dirty or clean is irrelevant. If an infected person sneezed and a droplet landed on a surface, a person who then touches that surface could pick it up. How much is required to infect a person is unclear. Coronaviruses are relatively easy to destroy, Professor Whittaker said. Using a simple disinfectant on a surface is nearly guaranteed to break the delicate envelope that surrounds the tiny microbe, rendering it harmless, as long as you wash your hands before touching your face. You should be all right, because viral droplets don't pass through skin. If you are concerned about getting sick from someone who might have sneezed onto a product you've ordered that's made in China, don't worry. In the time it takes to get to the other countries, you should be safe, and if you are really concerned, you can clean the surface with a disinfectant or wash your hands after touching it. If a sick person handles the food or it's a high-traffic buffet, then risks cannot be ruled out, but heating or reheating food should kill the virus, as per experts said for the New York Times. ^[14]

Symptoms:

Reported illnesses have ranged from mild symptoms to severe illness and death for confirmed Corona virus disease 2019 (COVID-19) cases.

The following symptoms may appear 2-14 days after exposure.

- Fever
- Cough

- Shortness of breath or difficulty in breathing
- Persistent pain or pressure in the chest
- New confusion or inability to arouse
- Bluish lips or face. ^{[15][16]}

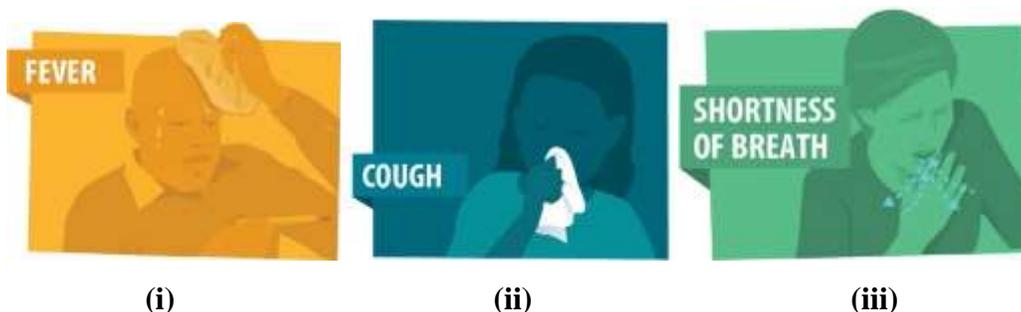


Figure 5 : (i), (ii) & (iii) are the common symptoms for COVID-19

Prevention:

- There is currently no vaccine to prevent coronavirus disease 2019 (COVID-19).
- The best way to prevent illness is to avoid being exposed to this virus.
- The virus is thought to spread mainly from person-to-person.
- Between people who are in close contact with one another (within about 6 feet).
- Through respiratory droplets produced when an infected person coughs or sneezes.
- These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.

Take steps to protect yourself:



Figure 6: Wash your hands properly

- Wash your hands often with soap and water for at least 20 seconds especially after you have been in a public place or after blowing your nose, coughing, or sneezing.
- If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol. Cover all surfaces of your hands and rub them together until they feel dry.

- Avoid touching your eyes, nose, and mouth with unwashed hands.



Figure 7: Self-isolation

- Avoid close contact with people who are sick
- Put distance between yourself and other people if COVID-19 is spreading in your community. This is especially important for people who are at higher risk of getting very sick.

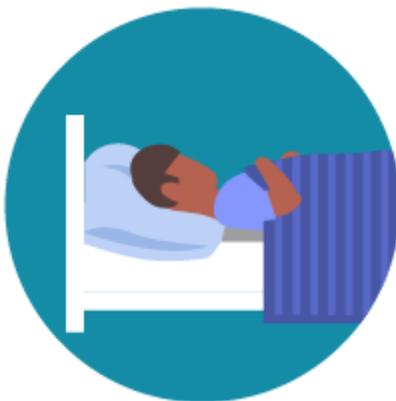


Figure 8: Take rest if you are sick

- Stay home if you are sick, except to get medical care. Learn what to do if you are sick.



Figure 9: Cover your nose while sneezing and coughing

- Cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow.
- Throw used tissues in the trash.
- Immediately wash your hands with soap and water for at least 20 seconds. If soap and water are not readily available, clean your hands with a hand sanitizer that contains at least 60% alcohol.



Figure 10: Wear facemasks to avoid virus entry

- If you are sick: You should wear a facemask when you are around other people (e.g., sharing a room or vehicle) and before you enter a healthcare provider's office. If you are not able to wear a facemask (for example, because it causes trouble breathing), then you should do your best to cover your coughs and sneezes, and people who are caring for you should wear a facemask if they enter your room. Learn what to do if you are sick.
- If you are NOT sick: You do not need to wear a facemask unless you are caring for someone who is sick (and they are not able to wear a facemask). Facemasks may be in short supply and.



Figure 11: Sanitize your surroundings

- Clean AND disinfect frequently touched surfaces daily. This includes tables, doorknobs, light switches, countertops, handles, desks, phones, keyboards, toilets, faucets, and sinks.

- If surfaces are dirty, clean them: Use detergent or soap and water prior to disinfection.^[17]

Treatment:

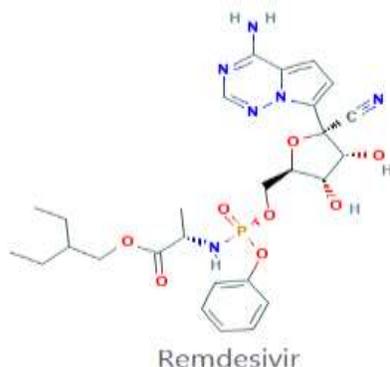
Critically important studies emerging from China suggest that for many patients who die of Covid-19, it may be their own immune system, rather than the virus itself, that deals the fatal blow. This is called a cytokine storm. Over the past two decades, much has been learned about the diagnosis and treatment of cytokine storm syndromes. On the front lines of the Covid-19 response, it is critical that medical professionals are aware of the syndrome and prepared to identify and treat it. This act of preparation could help to significantly reduce the number of deaths from Covid-19. In treating cytokine storms brought about by other illnesses, like other viral infections and autoimmune diseases, death rates among patients suffering a cytokine storm have been reduced to as low as 27 percent. Until vaccines for the novel coronavirus are available, likely a year or more from now, it is possible that millions of people may become infected around the globe. This is in part due to minimal early symptoms in up to 80 percent of those who become infected. Cytokine storm syndromes go by many names, but they share the pathology of an overly active immune response that leads to frequently fatal multi-organ dysfunction syndrome (MODS). The risk factors for why some previously healthy individuals become deathly ill remain unknown. There are likely host factors, including genetic mutations that put individuals at higher risk. Until the risk factors are known, the medical community will need to treat those Covid-19 patients based solely on the severity of their disease.^[18] Treatment for Cytokine storm syndrome is there: Recently, a number of specific anti-cytokine approaches have proven effective in treating a variety of cytokine storm syndromes, including those triggered by viruses. These include drugs targeting interleukin-1 (IL-1), IL-6, IL-18, and interferon-gamma. While randomized trials will be needed to confirm which, if any, of this therapeutics will effectively treat Covid-19-infected patients with cytokine storm syndrome, IL-6 blockade has recently been reported to be in use in China with successful outcomes in some individuals receiving this as part of their treatment.

DRUG TREATMENTS:

Antiviral Drug

Remdesivir

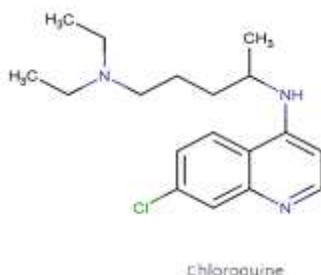
Remdesivir is an experimental broad-spectrum antiviral drug originally designed to target Ebola. Researchers have found that remdesivir is highly effective at fighting the novel coronavirus in isolated cells Trusted Source. This treatment is not yet approved in humans, but two clinical trials for this drug have been implemented in China. One clinical trial was recently also approved by the FDA in the United States.^[19]



Antimalarial Drugs

Chloroquine

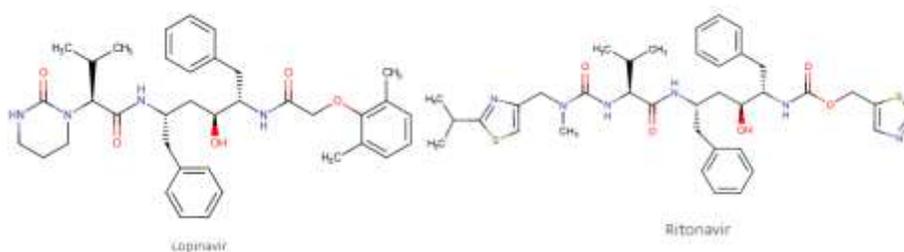
The *in vitro* antiviral activity of chloroquine has been identified since the late 1960's^[20] and the growth of many different viruses can be inhibited in cell culture by both chloroquine and hydroxychloroquine, including the SARS coronavirus^[21]. Some evidence for activity in mice has been found for a variety of viruses, including human coronavirus OC43^[22], enterovirus EV-A71^[23] Zika virus^[24] and influenza A H5N1^[25]. The potential use of chloroquine as an option for combating the novel coronavirus.



ANTIRETROVIRAL DRUGS

Lopinavir and Ritonavir

Lopinavir and ritonavir are sold under the name Kaletra and are designed to treat HIV. In South Korea, a 54-year-old man was given a combination of these two drugs and had a significant reduction in his levels of the coronavirus.^[26] According to the World Health Organization (WHO), there could be benefits to using Kaletra in combination with other drugs.



UNDER INVESTIGATION DRUGS

APN01

Is a recombinant human angiotensin-converting enzyme 2 (rhACE2), to treat patients with severe coronavirus infection in the People's Republic of China. A clinical trial is set to start soon in China to examine the potential of a drug called APN01 to fight the novel coronavirus. The scientists who first developed APN01 in the early 2000s discovered that a certain protein called ACE2 is involved in SARS infections. This protein also helped protect the lungs from injury due to respiratory distress. From recent research, it turns out that the 2019 coronavirus, like SARS, also uses the ACE2 protein to infect cells in humans. The randomized, dual-arm trial will look at the effect of the medication on 24 patients for 1 week. Half of the participants in the trial will receive the APN01 drug, and the other half will be given a placebo. If results are encouraging, larger clinical trials will be done.^[27]

Favilavir

China has approved the use of the antiviral drug favilavir to treat symptoms of COVID-19. The drug was initially developed to treat inflammation in the nose and throat. Although the results of the study haven't been released yet, the drug has supposedly shown to be effective in treating COVID-19 symptoms in a clinical trial of 70 people.^[28]



COMBINATION DRUG THERAPY:

Combination of anti HIV drugs with antimalarial and anti-swine flu drugs are used in India for the treatment of COVID on 2 Italian patient and one of them and other 2 infected also has been cured on March 14, 2020 and March 20, 2020 in SMS hospital Rajasthan India respectively. But the treatment with the help of this combination therapy drug is not been reported yet.

Case studies:

On 27th January 2020, the European Centre for Disease Prevention and Control (ECDC) and the WHO Regional Office for Europe asked countries to complete a WHO standard COVID-19 case report form for all confirmed and probable cases according to WHO criteria. The overall aim of surveillance at this time was to support the global strategy of containment of COVID-19 with rapid identification and follow-up of cases linked to affected countries in order to minimise onward transmission. The surveillance objectives were to: describe the key epidemiological and clinical characteristics of COVID-19 cases detected in Europe; inform country preparedness; and improve

further case detection and management. Data collected included demographics, history of recent travel to affected areas, close contact with a probable or confirmed COVID-19 case, underlying conditions, signs and symptoms of disease at onset, type of specimens from which the virus was detected, and clinical outcome. The WHO case definition was adopted for surveillance: a confirmed case was a person with laboratory confirmation of SARS-CoV-2 infection (ECDC recommended two separate SARS-CoV-2 RT-PCR tests), irrespective of clinical signs and symptoms, whereas a probable case was a suspect case for whom testing for SARS-CoV-2 was inconclusive or positive using a pan-coronavirus assay. By 31 January 2020, 47 laboratories in 31 countries, including 38 laboratories in 24 European Union and European Economic Area (EU/EEA) countries, had diagnostic capability for SARS-CoV-2 available (close to 60% of countries in the WHO European Region), with cross-border shipment arrangements in place for many of those lacking domestic testing capacity. The remaining six EU/EEA countries were expected to have diagnostic testing available by mid-February. As at 09:00 on 21 February 2020, 47 confirmed cases of COVID-19 were reported in the WHO European Region and one of these cases had died. Data on 38 of these cases (i.e. all except the nine reported in the UK) are included in this analysis.

The first three cases detected were reported in France on 24 January 2020 and had onset of symptoms on 17, 19 and 23 January respectively. The first death was reported on 15 February in France. As at 21 February, nine countries had reported cases Belgium (1), Finland (1), France (12), Germany (16), Italy (3), Russia (2), Spain (2), Sweden (1) and the UK (9 – not included further).

The place of infection (assessed at national level based on an incubation period presumed to be up to 14 days, travel history and contact with probable or confirmed cases as per the case definition) was reported for 35 cases (missing for three cases), of whom 14 were infected in China (Hubei province: 10 cases; Shandong province: one case; province not reported for three cases). The remaining 21 cases were infected in Europe. Of these, 14 were linked to a cluster in Bavaria, Germany, and seven to a cluster in Haute-Savoie, France. Cases from the Bavarian cluster were reported from Germany and Spain, whereas cases from the Haute-Savoie cluster were reported from France and Spain. Cases linked to the Haute Savoie cluster were also detected in the UK, including the index case of this cluster, who was infected in Singapore before travelling to France. The index case for the cluster in Bavaria was reported to be infected in China.

The median age of the 38 cases was 42 years (range: 2–81 years) and 25 were male. The proportion of male cases was higher among cases acquired in Europe (14 males of 21 cases) compared with those acquired in China (8 males of 14 cases) although the difference was not statistically significant (chi-squared test: $p = 0.6$). There was no difference in median age by sex (males: 45 years; females:

38 years, k-sample median test, $p = 1.0$) or by whether infection was acquired in Europe or not (acquired in Europe: 47 years; acquired in China: 38 years, $p = 0.2$).

All but two cases were hospitalized (35 of 37 where information on hospitalization was reported), although it is likely that most were hospitalized to isolate the person rather than because of severe disease. The time from onset of symptoms to hospitalization (and isolation) ranged between 0 and 10 days with a mean of 3.7 days (reported for 29 cases). The mean number of days to hospitalization was 2.5 days for cases imported from China, but 4.6 days for those infected in Europe. This was mostly a result of delays in identifying the index cases of the two clusters in France and Germany. In the German cluster, for example, the first three cases detected locally were hospitalized in a mean of 5.7 days, whereas the following six took only a mean of 2 days to be hospitalized.

Symptoms at the point of diagnosis were reported for 31 cases. Two cases were asymptomatic and remained so until tested negative. The asymptomatic cases were tested as part of screening following repatriation and during contact tracing respectively. Of the remaining 29, 20 reported fever, 14 reported cough and eight reported weakness. Additional symptoms reported included headaches (6 cases), sore throat (2), rhinorrhoea (2), shortness of breath (2), myalgia (1), diarrhoea (1) and nausea (1). Fever was reported as the sole symptom for nine cases. In 16 of 29 symptomatic cases, the symptoms at diagnosis were consistent with the case definition for acute respiratory infection, although it is possible that cases presented additional symptoms after diagnosis and these were not reported.^[29]

Myths and Facts ^[30]

Myth: Antibiotics can treat the coronavirus.

Fact: The coronavirus is a virus, not a bacterial infection, so antibiotics can't treat it. The coronavirus itself is a virus, so only antiviral medications can work against it. Antibiotics only work against bacteria and bacterial infections, not viruses. If you have a bacterial infection, antibiotics can be used. For example, it's possible for someone who has COVID-19 to also develop a bacterial infection while they're sick, in which case they might receive antibiotics.

Myth: COVID-19 looks much different from other infections.

Fact: The most common signs of COVID-19 are fever and coughing. COVID-19 is a type of respiratory disease, and there are many respiratory diseases, so COVID-19 doesn't look completely different from other illnesses you've seen or heard about. The most common visible signs of COVID-19 are fever, dry coughing and difficulty breathing.

Myth: COVID-19 is automatically fatal.

Fact: Currently, most people are recovering from COVID-19. The coronavirus is definitely scary, but fortunately, getting COVID-19 isn't an automatic death sentence. The World Health Organization states that most people — about 80%, in fact — who get COVID-19 recover from it, and only a small percentage of people who have the disease have died.

Myth: Everyone is at equal risk of getting COVID-19.

Fact: Your risk of getting COVID-19 depends on several factors. The World Health Organization explains that your risk depends on where you are (and where you've been recently) and, specifically, whether you are or were in an area where the coronavirus is.

Your risk of being infected with COVID-19 depends on:

- Where you live
- Where you've traveled recently
- Whether you have a pre-existing medical condition or chronic health condition

Overall, your risk of getting COVID-19 is higher if many people in your area have been diagnosed with the disease. Your risk also varies depending on your immune health. As with other viral infections, if you have heart disease or another chronic health condition, you may be more vulnerable to COVID-19.

Myth: You'll get COVID-19 from your pet.

Fact: There's no evidence that household pets can carry the coronavirus. The World Health Organization states that the coronavirus family of viruses is common in animals, but not household pets like cats or dogs. Bacteria like salmonella can pass between your pets and you, but currently, there's no evidence that your furry family members can carry or transmit the coronavirus. You're safe to cuddle your cat or dog without fear, but as a general hygiene tip, be sure to always wash your hands afterward.

Myth: You'll get COVID-19 from some foods.

Fact: Coronavirus cannot grow in food. Coronavirus needs a host (a person or animal, excluding household pets) to spread through, and it's therefore unlikely for people to get COVID-19 from food. It's unlikely for the virus to live long without attaching to a host.

Similarly, unfounded claims are circulating that some foods can prevent coronavirus, including oregano oil and herbal remedies, but these are not proven.

Myth: The best protection from coronavirus is to avoid people.

Fact: Frequent hand washing and covering coughs are the best protection. It's almost impossible to isolate yourself from others completely, and it's not the best protection against the coronavirus, either.

The best ways to protect yourself and the people you love from getting COVID-19 are hygiene basics: wash your hands frequently — for about 20 seconds each time — and cover your coughs and sneezes. As much as you can, avoid touching your face, specifically your mouth, nose and eyes. Because coronavirus spreads through liquid droplets in coughs and sneezes, good hygiene is essential. If you feel like you're developing symptoms of COVID-19 — specifically, fever, coughing and difficulty breathing — the best thing you can do is to call your doctor right away. They can advise you on your best course of action and recommended next steps.

Myth: You'll get COVID-19 from imported Chinese products.

Fact: It's safe to receive packages from areas where COVID-19 has been reported. The World Health Organization says it's OK to receive mail and packages from parts of the world that have reported coronavirus outbreaks. Coronaviruses do not survive for long on packages, objects and letters. With the information we have now, it appears that coronavirus can't survive outside of the human body for long without a human or animal host. However, if you're concerned about the coronavirus being on surfaces you touch, you can use alcohol-based disinfectants on surfaces in your home or workplace.

Myth: The elderly are the only people getting COVID-19.

Fact: People of all ages can get COVID-19. So far, we know that older adults and people with compromised immune systems and pre-existing medical conditions are typically more vulnerable to the coronavirus. The CDC has said "it is possible that older adults and persons who have underlying chronic medical conditions may be at risk for more serious complications." However, anyone of any age can get COVID-19.

Myth: Preventive medicines can keep you safe from COVID-19.

Fact: Self-medication with any remedy or medicine can be potentially harmful. Although it's important to have a strong immune system to fight off viruses, it's not recommended to try boosting your immunity through self-medication. The World Health Organization asserts that traditional herbal or holistic remedies — including wearing sesame oil and rinsing your nose with saline solution — are not effective ways to prevent coronavirus.

Likewise, antibiotics and other medicines cannot keep you safe from getting COVID-19 and may do more harm than good. At this time, there's no specific immunization or medicine that's proven to prevent or treat COVID-19.

Myth: You'll get the coronavirus automatically from someone released from quarantine.

Fact: People who are released from quarantine no longer have the coronavirus. You won't get COVID-19 automatically from someone who's just been released from quarantine, because that

person didn't develop COVID-19. People who've been exposed to the coronavirus but haven't developed COVID-19 may be placed in 14-day quarantine. Fourteen days is the incubation period for coronavirus, meaning it's the longest amount of time it takes for someone to develop COVID-19 after being exposed to it. If someone's released from quarantine, it means they didn't develop COVID-19 during quarantine, so they're not considered a risk for spreading the coronavirus. As an example of this process, in a recent press briefing from the Centers for Disease Control and Prevention (CDC), the CDC stated that a group of people who were recently released from mandatory 14-day quarantine in the U.S. pose no health threat to their families or communities. At this 14-day mark, none of the people who were released from quarantine had the coronavirus.

Myth: You'll get the coronavirus from someone recently released from the hospital.

Fact: People released from the hospital are not likely contagious. Health care professionals and infectious disease experts are taking every action to restrict the spread of coronavirus, and release patients from the hospital only when it's determined they no longer pose a health threat to other people. Someone who is released from the hospital has been deemed no longer a health risk to others and is well on their way back to wellness, no longer being contagious. Reinfection with the coronavirus can occur, but is not likely to be immediate, so it's not credible that you'll automatically get coronavirus from someone who's recently released from the hospital. Patients are currently being released on a case-by-case basis, according to the CDC. They must meet specific requirements — like no longer showing symptoms and testing negative on multiple respiratory specimens — before returning home.

CONCLUSION:

The newly discovered viral disease called Corona Virus Disease 2019 (COVID-19) brings different types of respiratory tract infections to the body. The study includes various aspects of the virus as in structural binding, interaction, adaptation of virus with time, symptoms, causes, diagnosis, treatment and prevention. The awareness regarding this disease is essential because it has no well – defined cause and can happen to any person or animal. This disease can lead to death. Management of patients with COVID-19 begins with the establishment of an accurate diagnosis of disease followed by treatment using an appropriate medication in a manner to suppress the symptoms at first. The goal of therapy is to completely control the symptoms without producing unacceptable medication side effects. The objective of this paper is only to create awareness and how one can avoid the disease by certain precautions. This study also helps one to understand the symptoms and can give one-self the benefit of the doubt and can cure it by proper consultation.

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