International Journal of Science and Research (IJSR)
ISSN: 2319-7064
ResearchGate Impact Factor (2018): 0.28 | SJIF (2019): 7.583

Corona Virus: Don't be Afraid; Be Safe

Pallavi N. Somthane[1], Landge M. M.[2], Deepak A. Joshi[3]

[1]Student of B.Pharmacy 4th year, Latur College of Pharmacy, Hasegaon. Tq.Ausa, dist. Latur-413512, India (Corresponding author)

[2]Assistant Professor, Department of Quality Accurance, Latur College of Pharmacy, Hasegaon. Tq.Ausa, dist.Latur-413512, India

[3]Assistant Professor, Department of Pharmaceutics, Latur College of Pharmacy, Hasegaon. Tq.Ausa, dist. Latur-413512, India

Abstract: ***Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus. Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. Older people, and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness. The best way to prevent and slow down transmission is be well informed about the COVID-19 virus, the disease it causes and how it spreads. Protect yourself and others from infection by washing your hands or using an alcohol based rub frequently and not touching your face. The COVID-19 virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes, so it's important that you also practice respiratory etiquette (for example, by coughing into a flexed elbow).At this time, there are no specific vaccines or treatments for COVID-19. However, there are many ongoing clinical trials evaluating potential treatments.***

Keywords: COVID-19, symptoms, prevention, handsanitizer, treatment

1. Introduction

Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus. Coronaviruses are a large family of viruses which may cause illness in animals or humans. Inhumans, several coronaviruses are known to cause respiratory infections ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). The most recently discovered coronavirus causes coronavirus disease COVID-19. COVID-19 is the infectious disease caused by the most recently discovered coronavirus. This new virus and disease were unknown before the outbreak began in Wuhan, China, in December 2019. The best way to prevent and slow down transmission is be well informed about the COVID-19 virus, the disease it causes and how it spreads. Protect yourself nd others from infection by washing your hands or using an alcohol based rub frequently and not touching your face.[1]

Corona virus comprises of a large family of viruses that are common in human beings as well animals (camels, cattle, cats, and bats). There are seven different strains of corona virus. [15]

- 229E (alpha coronavirus)
- NL63 (alpha coronavirus)
- OC43 (beta coronavirus)
- HKU1 (beta coronavirus)
- MERS-CoV (the beta coronavirus that causes Middle East Respiratory Syndrome, or MERS)
- SARS-CoV (the beta coronavirus that causes severe acute respiratory syndrome, or SARS)
- SARS-CoV-2 (the novel coronavirus that causes coronavirus disease 2019, or COVID

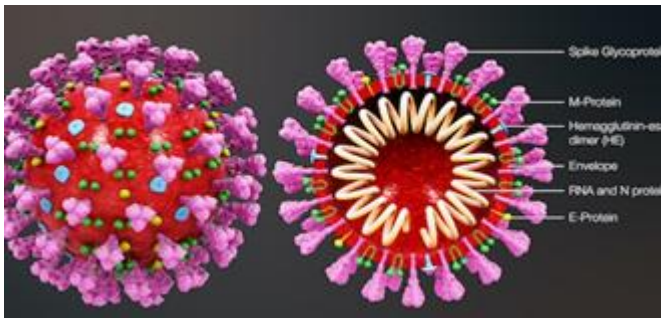

Figure 1: Structure of novel coronavirus

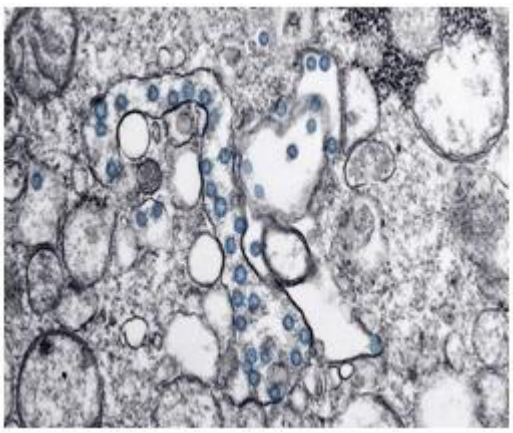

Figure 2: Internal structure of caronavirus

2. Symptoms

The most common seen symptoms of COVID-19 are fever, dry cough & tiredness. Some patients may have aches and pains, nasal congestion, runny nose, sore throat or diarrhoea. These symptoms are usually mild and begin gradually. Some people become infected but don't develop any symptoms and don't feel unwell. Most people (about 80%) recover from the disease without needing special treatment. Around 1 out of every 6 people who gets COVID-19 becomes seriously ill and develops difficulty breathing. Older people, and those with underlying medical problems like high blood

pressure, heart problems or diabetes, are more likely to develop serious illness. People with fever, cough and difficulty breathing should seek medical attention.

These symptoms may appear **2-14 days after exposure** (based on the incubation period of MERS-CoV viruses). [2]

- Fever
- Runny nose
- Sore throat
- Cough
- Trouble breathing(severe cases)
- Persistent pain or pressure in the chest
- New confusion or inability to arouse
- Bluish lips or face

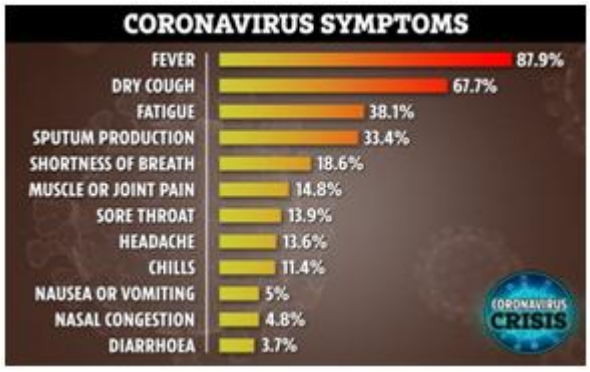

Figure 3: Symptoms of caronavirus

Spreading of COVID-19

People can catch COVID-19 from others who have the virus. The disease can spread from person to person through small droplets from the nose or mouth which are spread when a person with COVID-19 coughs or exhales. These droplets land on objects and surfaces around the person. Other people then catch COVID-19 by touching these objects or surfaces, then touching their eyes, nose or mouth. People can also catch COVID-19 if they breathe in droplets from a person with COVID-19 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.

Can the virus that causes COVID-19 be transmitted through the air?

Studies to date suggest that the virus that causes COVID-19 is mainly transmitted through contact with respiratory droplets rather than through the air.

Can CoVID-19 be caught from a person who has no symptoms-

The main way the disease spreads is through respiratory droplets expelled by someone who is coughing. The risk of catching COVID-19 from someone with no symptoms at all is very low. However, many people with COVID-19 experience only mild symptoms. This is particularly true at the early stages of the disease. It is therefore possible to catch COVID-19 from someone who has, for example, just a mild cough and does not feel ill. WHO is assessing ongoing research on the period of transmission of COVID-19 and will continue to share updated findings.

3. Prevention

Protection measures for everyone.

You can reduce your chances of being infected or spreading COVID-19 by taking some simple precautions:

- Regularly and thoroughly clean your hands with an alcohol-based hand rub or wash them with soap and water. Why? Washing your hands with soap and water or using alcohol-based hand rub kills viruses that may be on your hands.
- Maintain at least 1 metre (3 feet) distance between yourself and anyone who is coughing or sneezing. Why? When someone coughs or sneezes they spray small liquid droplets from their nose or mouth which may contain virus. If you are too close, you can breathe in the droplets, including the COVID-19 virus if the person coughing has the disease.
- Avoid touching eyes, nose and mouth. Why? Hands touch many surfaces and can pick up viruses. Once contaminated, hands can transfer the virus to your eyes, nose or mouth. From there, the virus can enter your body and can make you sick.
- Social distancing is the best way to protect our self from COVID-19 virus.
- Make sure you, and the people around you, follow good respiratory hygiene. This means covering your mouth and nose with your bent elbow or tissue when you cough or sneeze. Then dispose of the used tissue immediately. Why? Droplets spread virus. By following good respiratory hygiene you protect the people around you from viruses such as cold, flu and COVID-19.
- Stay home if you feel unwell. If you have a fever, cough and difficulty breathing, seek medical attention and call in advance. Follow the directions of your local health authority. Why? National and local authorities will have the most up to date information on the situation in your area. Calling in advance will allow your health care provider to quickly direct you to the right health facility. This will also protect you and help prevent spread of viruses and other infections.
- Keep up to date on the latest COVID-19 hotspots (cities or local areas where COVID-19 is spreading widely). If possible, avoid traveling to places – especially if you are an older person or have diabetes, heart or lung disease. Why? You have a higher chance of catching COVID-19 in one of these areas.[3]

Wear a mask to protect our self:-

Only wear a mask if you are ill with COVID-19 symptoms (especially coughing) or looking after someone who may have COVID-19. Disposable face mask can only be used once. If you are not ill or looking after someone who is ill then you are wasting a mask. There is a world-wide shortage of masks, so WHO urges people to use masks wisely.

How to put on, use, take off and dispose of a mask?

1) Remember, a mask should only be used by health workers, care takers, and individuals with respiratory symptoms, such as fever and cough.
2) Before touching the mask, clean hands with an alcohol-based hand rub or soap and water
3) Take the mask and inspect it for tears or holes.

4) Orient which side is the top side (where the metal strip is).
5) Ensure the proper side of the mask faces outwards (the coloured side).
6) Place the mask to your face. Pinch the metal strip or stiff edge of the mask so it moulds to the shape of your nose.
7) Pull down the mask's bottom so it covers your mouth and your chin.
8) After use, take off the mask; remove the elastic loops from behind the ears while keeping the mask away from your face and clothes, to avoid touching potentially contaminated surfaces of the mask.
9) Discard the mask in a closed bin immediately after use.
10) Perform hand hygiene after touching or discarding the mask – Use alcohol-based hand rub or, if visibly soiled, wash your hands with soap and water.

Prevent coronavirus by cleaning your phone every time you wash your hands

Bacteria and viruses thrive in warm, moist environments .but they can live a surprisingly long time almost anywhere you touch: counter tops, door handles, curtains, toys, computers, even inside refrigerators and freezers. Even if nobody is using your phone, you are going to be touching it regularly, and if you pick it up after you wash your hands, it may still have traces of virus you put there before you washed your hands! Typically mobile is said to be carrying over 25,000 bacteria per square inch. This is dirtier than a kitchen counter, your dog's bowl or even their common doorknob.

So it is definitely worth wiping your phone down as much as you wash your hands.

Formula for preparation of hand sanitizer

Ingredient for making 50ml of hand sanitizer

Figure 4: Sanitizing of mobile

Preparation method of hand sanitizer:-

Ingredient of making 50ml of hand sanitizer-

Isopropyl alcohol	……..32.5ml
Alovera gel	……12.5ml
Camphor	……..2.5gm
Essential oil	…… Q.S.
Benzyl konium chloride	…….. Q.S.

Ingredient of making 200ml of hand sanitizer-

Clean water	……. 90ml
Isopropyl alcohol	…….100ml
Hydrogen perioxide	……. 1 table spoon
Glycerine/Glycerol	……1 teaspoon

Don't gate panic about COVID-19:-

Illness due to COVID-19 infection is generally mild, especially for children and young adults. However, it can cause serious illness: about 1 in every 5 people who catch it need hospital care. It is therefore quite normal for people to worry about how the COVID-19 outbreak will affect them and their loved ones. First and foremost among these actions is regular and thorough hand-washing and good respiratory hygiene. Secondly, keep informed and follow the advice of the local health authorities including any restrictions put in place on travel, movement and gatherings [5]

How long is the incubation period for COVID-19?

The "incubation period" means the time between catching the virus and beginning to have symptoms of the disease. Most estimates of the incubation period for COVID-19 range from 1-14 days, most commonly around five days. These estimates will be updated as more data become available.

How long does the virus survive on surfaces?

It is not certain how long the virus that causes COVID-19 survives on surfaces, but it seems to behave like other coronaviruses. Studies suggest that coronaviruses (including preliminary information on the COVID-19 virus) may persist on surfaces for a few hours or up to several days. This may vary under different conditions (e.g. type of surface, temperature or humidity of the environment).

If you think a surface may be infected, clean it with simple disinfectant to kill the virus and protect yourself and others. Clean your hands with an alcohol-based hand rub or wash them with soap and water. Avoid touching your eyes, mouth, or nose.

Here anything I should not do?

The following measures ARE NOT effective against COVID-2019 and can be harmful:

1) Smoking
2) Wearing multiple masks
3) Taking antibiotics

4. Diagnosis

In any case, if you have fever, cough and difficulty breathing seek medical care early to reduce the risk of developing a more severe infection and be sure to share your recent travel history with your health care provider. The symptoms of the early stages of the disease are nonspecific. Differential diagnosis should include the possibility of a wide range of infectious and non-infectious (e.g., vasculitis, dermatomyositis) common respiratory disorders.

- Adenovirus
- Influenza
- Human metapneumovirus (HmPV)
- Parainfluenza
- Respiratory syncytial virus (RSV)
- Rhinovirus (common cold)

5. Treatment

Currently, no antiviral medication is recommended to treat COVID-19. Treatment is directed at relieving symptoms and may include:

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

If your doctor thinks you can be treated at home, he or she may give you special instructions, such as to isolate yourself as much as possible from family and pets while you're sick and to stay home for a period of time. If you're very ill, you may need to be treated in the hospital.

There currently isn't a vaccine against developing COVID-19. Antibiotics are also ineffective because COVID-19 is a viral infection and not bacterial.

If your symptoms are more severe, supportive treatments may be given by your doctor or at a hospital. This type of treatment may involve:

- fluids to reduce the risk of dehydration
- medication to reduce a fever
- supplemental oxygen in more severe cases

People who have a hard time breathing on their own due to COVID-19 may need a respirator.

Vaccines and treatment options for COVID-19 are currently being investigated around the world. There's some evidence that certain medications may have the potential to be effective with regard to preventing illness or treating the symptoms of COVID-19.

However, researchers need to perform randomized controlled trials Trusted Source in humans before potential vaccines and other treatments become available. This may take several months or longer.

Here are some treatment options that are currently being investigated for protection against SARS-CoV-2 and treatment of COVID-19 symptoms.[6]

- **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.
- **Chloroquine**- Chloroquine is a drug that's used to fight malaria and autoimmune diseases. It's been in use for more than 70 years Trusted Source and is considered safe. Researchers have discovered that this drug is effective at fighting the SARS-CoV-2 virus in studies done in test tubes. At least 10 clinical trials Trusted Source are currently looking at the potential use of chloroquine as an option for combating the novel coronavirus.
- **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 Trusted Source in his levels of the coronavirus. According to the World Health Organization (WHO), there could be benefits to using Kaletra in combination with other drugs.
- **APN01**-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.
- **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.

6. Summary of currently available drugs which can be potentially used for treatment of COVID-19

Disclaimer: The options listed below are NOT licensed for the treatment of COVID-19[10]

Table 1: Currently available drugs which can be used for treatment of COVID-19

Agents	classification	Mechanism of action	dosage	Side effect
Hydroxychloroquine	Off label use	Hampers low PH dependant steps of viral replication	400 mg BIDx 2 doses, then 200mg BID for 5 days	QT prolongation
Oseltamivir	No trials on COVID-19	Neuraminidase enzyme inhibitor in influenza	150mg BID for 5 days	GI intolerance Headache Insomnia
Remdesivir	Investigational (can be used only on Compassionate basis)	RNA dependent RNA polymerase Inhibitor	200 mg IV loading dose, then 100 mg IV daily, up to 10 days	GI intolerance Hepatotoxicity
Lopinavir/Ritonavir	Off label use	3CLpro (viral protease) inhibitor	400/100 mg BID for up to 10 days	QT prolongation Hepatotoxicity
Ribavirin	Off label use	Inhibitor of RNA polymerization	2 grams (loading dose) then	High risk of toxicity.

			600mg TID	Boxed warning for haemolytic anaemia
Interferon Beta B1	Off label use	Immunomodulatory; enhancement of innate and adaptive viral immunity	-	Flu like syndrome depression
Tocilizumab	Off label use	Monoclonal antibody to IL6 receptor / treats cytokine release syndrome	-	Elevation of liver enzymes Increased risk of re-activation of other Respiratory infections
Antibiotics (Broad spectrum)	Initiate as per Institution based CAP/VAP policy	Secondary bacterial Infection (CAP)/VAP		
IV Immunoglobulin (IVIG)	Off label use	Antibodies from convalescent plasma might suppress viraemia. Theoretically: Better to start at early stage of disease	Consider IVIG at standard dose of 1 gm/kg daily x 2 doses	Might interact with antivirals/

7. Conclusion

During first 2 months of the current outbreak, Covid-19 spread rapidly throughout China and caused varying degrees of illness. Corona virus disease 2019 (COVID-19) was reported as cluster of disease in China in December 2019.According to me, self quarantine and social distancing is the best option to prevent from this disease. Use of soap for hand washing can minimises the chances of infection. Presently there is no standardized treatment or vaccine available for COVID-19 so, containment and prevention is the best option to fight against COVID-19.

References

[1] https://www.who.int/health-topics/coronavirus#tab=tab_1
[2] https://www.theguardian.com/world/2020/mar/28/coronavirus-symptoms-what-are-they-and-should-i-call-the-doctor
[3] World Health Organization. Director-General's remarks at the media briefing on 2019-nCoV on 11 February 2020. https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020 (Accessed on February 12, 2020).https://www.healthcare.com/
[4] World Health Organization. Novel coronavirus situation report -2. January 22, 2020. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200122-sitrep-2-2019-ncov.pdf (Accessed on January 23, 2020).
[5] Rothe C, Schunk M, Sothmann P, et al. Transmission of 2019-nCoV Infection from an Asymptomatic Contact in Germany. N Engl J Med 2020; 382:970.17.https://www.who.int/health-topics/coronavirus#tab=tab_1
[6] Kupferschmidt K. Study claiming new coronavirus can be transmitted by people without symptoms was flawed. Science. February 3, 2020. https://www.sciencemag.org/news/2020/02/paper-non-symptomatic-patient-transmitting-coronavirus-wrong (Accessed on transmission during the incubation period. J Infect Dis 2020.
[7] https://www.bbc.com/news/world-asia-china-51395655
[8] https://nypost.com/2020/03/13/second-newborn-baby-tests-positive-for-coronavirus/
[9] Guidelines on use of masks for health care workers, patients and members of public. Ministry of health and family welfare. Government of India.
[10] Kanne JP, Little BP, Chung JH, Elicker BM, Ketai LH. Essentials for Radiologists on COVID-19: An Update-Radiology Scientific Expert Panel. Radiology [Internet]. 2020; 200527. Available from: http://www.ncbi.nlm.nih.gov/pubmed/32105562
[11] INTERNATIONAL **PULMONOLOGIST'S**CONSENSUS ON **COVID-19**
[12] https://familydoctor.org/condition/coronavirus/
[13] First Case of 2019 Novel Coronavirus in the United States. Michelle L. Holshue,M.P.H., Chas DeBolt, M.P.H., Scott Lindquist, M.D., Kathy H. Lofy, M.D., John Wiesman, Dr. P. H., Hollianne Bruce, M.P.H
[14] Evidence of SARS-CoV-2 Infection in Returning Travelers from Wuhan, China. Sebastian Hoehl, M. D. Holger Rabenau, Ph.D
[15] Guidelines on use of masks for health care workers, patients and members of public. Ministry of health and family welfare. Government of India.

Author Profile

Pallavi N. Somthane, Student of B.Pharmacy 4th year, Latur College of Pharmacy, Hasegaon.

Landge M.M,. Assistant Professor, Department of quality Assurance, Latur College of Pharmacy, Hasegaon.

Deepak A. Joshi Assistant Professor, Department of Pharmaceutics, Latur College of pharmacy, Hasegaon.