

Novel Corona Virus COVID-19; Symptoms, Testing, Treatment, Prevention, Effect of Temperature and its Negative and Positive Impacts on the World: A Review

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Abstract

First case of corona virus Covid-19 found in Wuhan, China in the month November 2019, some patients are suffering from symptoms of pneumonia were admitted in the hospital is the starting point of this pandemic. The number of patients with similar symptoms are increasing per day due to spread of virus. It was initially known as 2019 novel corona virus 2019-nCoV or SARS-CoV-2. The world health organization gives name of this corona virus disease as COVID-19. In the next four to six weeks, the virus spread from Wuhan to affect different states of China and, after a few months, it is now present in more than 192 countries. As of April 04, 2020, there have been more than 11,00,000 confirmed cases globally and more than 59000 deaths have been registered. There are multiple drug trials going on and some drugs are found effective to some extent for treatment of this virus and hence with this supportive treatment more than 22,5000 patients cured till today. However, since no vaccine is available, the best way to fight with this new virus is possible by preventive methods only.

Keywords: *Corona Virus; COVID-19; Severe Acute Respiratory Syndrome; Social Distancing; 2019-nCoV*

Abbreviations

SARS: Severe Acute Respiratory Syndrome; nCoV: Novel Corona Virus; MERS: Middle East Respiratory Syndrome; WHO: World Health organization

Introduction

Corona virus (2019-nCoV) was identified first in Wuhan, China. The World Health Organization (WHO) defines this novel virus as Covid-19 and informed about its main symptoms which are shortness of breath, fever, cough and cold [1]. The corona virus is known to the world since 2002 in the form of SARS-CoV and MERS-CoV but the RNA structure of this COVID-19 corona virus is different from other corona viruses [2]. Now the virus reaches over the whole world through unknowingly affected peoples travelled around the world. WHO declared the COVID-19 outbreak as a pandemic officially on 11th March 2020. This article will discuss about structural properties, treatment, prevention, effect of temperature and data on total cases and also positive impacts to the world etc.

Information on corona virus COVID-19

COVID-19 is a positive-sense, single-stranded RNA virus which can get transmitted through person to person in the form of micro respiratory droplets while any affected person sneezes within almost 3 feet of range. The virus transmission is also possible if any person

get in touch with mucosal surface, eye or mouth after touching an object with the virus on it or by shaking hands and hug to another person. The COVID-19 virion diameter is about 50 - 200 nm and consists of four types of main structural proteins: spike protein (S), envelope protein (E), membrane protein (M) and nucleocapsid protein (N) [3]. The spike protein empowers the virus to bind the membrane of the host cell. The spike protein targets receptors on host cells. After attacking the host cells it undergoes structural changes and fuse with the host and this way viral genes enter inside the host cell and infection happens to the person within almost 14 days incubation period [4].

Symptoms, testing and treatment of COVID-19

The data shows that COVID-19 virus incubation period is about 14 days, but it starts showing symptoms within 5 to 7 days after any person getting affected from it. Main symptoms of COVID-19 are fever, cough, tiredness and difficulty in breathing [5].

Real time reverse transcription polymerase chain reaction (RT-PCR) based tests are recommended as diagnostic test for COVID-19. Swab samples taken from the throat and nasal cavity generally used to conduct test for the virus. Sputum samples, blood samples are also useful for testing of COVID-19.

One observation is infection from this virus becomes fatal in age group 65 years and above as mortality rate is very high amongst this age group where the immunity of human is less. Currently, there is no specific antiviral drug or vaccine available for the treatment of CoV-associated pathologies. Most treatment strategies focus on supportive therapy only. There are many newspaper articles citing effectiveness of anti-HIV drugs: ritonavir and lopinavir either alone or in combination with oseltamivir, remdesivir, azithromycin and chloroquine and they showed efficacy at some level which further need experimental support and validation [5].

These virus attacks mainly on respiratory function and hence, there is a possibility of using aerosol formulations such as pressurized metered dose inhalers (pMDI), dry powder inhalers (DPI) and nebulizers, some of which are used as life saving drugs for chronic obstructive pulmonary diseases (COPD), asthma attacks and get relief from shortness of breathing [6,7].

Prevention from COVID-19

The WHO and CDC recommends multiple steps to prevent the transmission and risk of COVID-19 [8]:

1. Washing hands with water and soap thoroughly for minimum 20 seconds.
2. Frequent use of isopropyl alcohol based hand sanitizers and maintain cleanliness and hygiene.
3. Keep minimum three feet distance from another person also known as social distancing is very effective way to prevent transmission.
4. Don't touch mucosal surfaces such as the mouth, nose and eyes without washing your hands from soap and water.
5. If showing any symptoms of virus infection like fever, cough or difficulty in breathing, then immediately try to seek appropriate medical attention.
6. To avoid exposure to other unaffected people please cover nose and mouth when coughing or sneezing.
7. It is also advisable to wear a facemask if present with symptoms or dealing with person with infection of this virus.
8. Frequent disinfection and cleaning of frequently used surfaces like door handles, Switches, Lift buttons and Doors etc. are advised to reduce risk of transmission of virus.

Corona data till 04/04/2020 and effect of temperature on COVID-19 virus

This virus Covid-19 virus start spreading from Wuhan China, and till date spread in almost 192 countries. Total number of confirmed cases till date is more than 1119993 and increasing. Total persons recovered till date is 229834. Total deaths occurred till date are 59247.

One important observation is, there are more number of cases found (almost more than 50000 cases) till date is in countries like China, USA, Italy, Spain, France, Iran and Germany where the current temperature is about 5°C to 20°C. While in countries like India, Pakistan, South Africa the less number of cases found (almost less than 5000 cases) till date where the current temperature is about 35°C to 40°C although these are more crowded countries in the world. This observation can be a key to success for scientists working on development of medicines or vaccine for cure of corona virus.

Negative and positive impacts of COVID-19 on the world

Data shows so many negative impacts of COVID-19 on the earth are so many like almost all countries stops their domestic and international airlines. There is almost 75% of the world's total population is lock down in their homes first time in history to stop transmission of the virus which creates shut down of almost all businesses, services, trains, buses and other public and private transportation. These impacts very huge on Economy of the world. So many countries have shortages of personal protective equipments to fight with this virus. The lock down of people also creates so many other issues which can affect any poor and middle class peoples greatly. There is also some shortage of essential goods for living like milk, vegetables, Grocery to the people due to very limited transportation. The depression amongst the people is also increasing due to stop of earning and expenditure is continue with threat of getting affected from COVID-19.

As any coin has two sides, this COVID-19 crisis creates few temporary and few permanent positive impacts on the world also. The air pollution decreases to a very big extent due to no or few vehicles on road and shut down of almost 80% factories leads to good air quality index. People understands and follows more good habits like stop or minimize eating junk food, maintain cleanliness and maintaining health and hygiene. People are spending more time with their family since some weeks as lock down situation just pause their fast routine life.

Conclusion

The COVID-19 virus is spreading across the world in few months only. It takes almost 67 days to reach at first 100000 cases. Other 100000 cases are confirmed within almost 15 days and next 100000 cases confirmed within next 4 days only. It shows the possibility of community transmission of this virus from one person to another. This virus can be harmful to any age group of human being but with elder age and less immunity patients the mortality is high. Hence only preventive measures are must these days to prevent spreading of this virus. Some supportive treatment with already available anti-viral drugs the patients are getting recovered till date, but no any confirmed treatment available to cure for the virus and no any vaccine has been developed for prevention or cure for this virus. The scientists across the world are continuously trying for development of vaccine to get cure from the virus. We pray to god to get medicine as soon as possible to defeat this virus, save our lives and save world economy too.

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Conflict of Interest

The authors declare that they have no conflict of interest.

Ethical Approval

This article does not contain any studies with human participants/animals performed by any author.

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