



Review Article

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The Outbreak of Novel Coronavirus- COVID-19- A hit to the Nation

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Abstract

The novel coronavirus also known by the name of COVID- 19 is a new single-stranded enveloped RNA virus that is newly recognized in humans. The coronavirus or CoV is responsible for attacking the respiratory system and results in illness in which the affected person suffers from cold to extremely severe illness like Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS). CoV is a zoonotic disease and there are still many CoV circulating in animals that have not still affected the human population. December 31st of 2019 was the day when pneumonia cases were observed in Wuhan city, Hubei Province of china whose actual cause was not known and was reported to the WHO office in China. Investigations were carried out by Chinese authorities working in the WHO office and ultimately on January 7 the novel coronavirus was isolated and declared as the cause of upcoming cases off illness due to the virus spread in the city. As far as the latest report (7 July 2020) from WHO, globally 11,327,790 cases of coronavirus have been confirmed and 532,340 deaths have occurred. In this review, we will highlight the basic features, epidemiology, sign, and symptoms of the virus and discuss the risk factor, transmission, special recommendation, advice for healthcare workers, public and travelers, and myths related to CoV.

Keywords: COVID-19, Endemic, hygiene, myths, WHO, transmission, recommendation.

INTRODUCTION

The novel coronavirus also known by the name of Covid- 19 is a new strain of large family of viruses that are newly recognized in humans. The coronavirus or CoV is responsible for attacking the respiratory system and results in illness in which the affected person suffers from cold to extremely severe illness like Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS). COVID-19 belongs to four subfamilies, namely, α , β , γ , δ coronavirus while α , β viruses originate from bats and γ , δ from pigs and birds. The genetic makeup of the COVID-19 outbreak in China revealed that the virus was similar but distinct from, severe acute respiratory syndrome coronavirus (SARS-CoV). The closest genetic similarity as that found in a coronavirus was similar to the one isolated from bats [1]. CoV is a zoonotic disease and there are still many CoV circulating in animals that have not still affected the human population. December 31st of 2019 was the day when pneumonia cases were observed in Wuhan city, Hubei Province of china whose actual cause was not known and was reported to the WHO office in China. Investigations were carried out by Chinese authorities working in the WHO office and ultimately on January 7 the novel coronavirus was isolated and declared as the cause of upcoming cases off illness due to the virus spread in the city. As far as the latest report (3rd April 2020) from WHO, globally 972303 cases of coronavirus have been confirmed and 50233 deaths have occurred. [2] The first confirmed case of the coronavirus infection has been reported in India, the second most populated country, on 30th January 2020 in the state of Kerala. While, other states like Mumbai, Delhi, Hyderabad, Patna, Bangalore, Jaipur, Rajasthan, and Punjab has also shared current suspected cases of coronavirus [3].

Coronavirus belongs to the family of single-stranded enveloped RNA virus that is infecting humans as well as animals. Since the morphology of the virus is as of the spherical virions that have a core-shell and bear a resemblance to solar corona, hence it was termed as coronavirus [4,5]. The incubation period of the virus is estimated to be between 1-12.5 days. The virus was successful in making its transmission from animals to humans and also from infected humans to other individuals. The mode of transmission is mainly via droplets sprayed from the affected individuals, direct contact with infected persons and with ones already having

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respiratory secretions, contaminated surfaces and other types of equipment. The initial sign was the detection of pneumonia which further lead to interpret the existence and spread of CoV [6,7].

During the initial stage sign and symptoms of the virus includes fever >38C including respiratory symptoms like cough, difficulty in breathing, rhinorrhea, weakness, nausea, vomiting, diarrhea, headache, and malaise. The seriousness of the condition requires hospitalization when the infected person presents with all of the above-stated symptoms with pneumonia and bronchitis. The mode of transmission is given as a pictorial representation in figure 1 below.

Infection Prevention and Control (IPC) should be undertaken as an ongoing activity assisted by the national program as well as by the IPC committee, and health care staff. Inadequate measures to prevent and control the infection may lead its transmission to several other people, staff, tourists and the entire community. The suspected person needs to be investigated and tested in case of severe acute respiratory infection which includes a history of fever, cough which requires hospitalization or history of travel and tour to china or a person is a resident of china in the 14 days from the onset of symptoms. Also, in case the patient had contact with suspected or a confirmed case of CoA infection or had worked in a health care center where patients with confirmed or probable COVID-19 were being treated for needs to be tested for the virus. Patients ≥60 years of age are more susceptible to get infected than children who might be less likely to become infected and in case of infection, they may present with milder symptoms or even asymptomatic [8].

Standard precautions, transmission-based precautions, and COVID-19 specific recommendations

The constituents of standard precautions to be taken for preventing COVID-19 includes: maintaining hand hygiene using alcohol-based hand rub product and soaps, respiratory hygiene to reduce the spread of germs which cause cold and flu-like symptoms, safe handling, maintaining at least 1m distance between yourself and anybody else, cleaning and disinfecting all types of equipment, cleaning the environment, waste management, safe injection practice and preventing injury, safety handling and cleaning of soiled linen. According to the World Health Organization (WHO), one should avoid close contact with infected people suffering from acute respiratory infections. A medical mask should be worn while traveling and in health care centers and while being ill. In the case of travelers who are suspected of being infected, they should seek medical aid and also share their travel history with the physician. Standard precaution regarding analyses of all health care activities and the determination of personal protective equipment is required for appropriate protection.

Fallacy about COVID-19

The major misconception about COVID-19 has been that low-temperature conditions and snow can help in eradicating the virus. This is not practically possible since the normal temperature of the human body remains around 36.5 °C to 37 °C, irrespective of the weather. Another myth is that hot showers prevent the infection due to CoV. The extremely hot water bath may result in burning your body. People are assuming that coronavirus won't get transmitted via goods that are manufactured in China or any other city/country that has reported cases of coronavirus. The assumption is not true since the virus stays on surfaces for a few hours to several more days, therefore it is important to disinfect the surfaces and maintain hand hygiene. Ultraviolet lamps should not be used to sterilize hands since the rays may irritate the skin membrane. The virus is very novel and needs a different and its

vaccination hence, no pneumonia vaccines will work in killing the infection. Eating garlic will help to eradicate the viral infection is another myth. Although garlic has some good antimicrobial properties there is no verification till now which scientifically proves the statement and neither it has protected anyone from COVID-19. The use of antibiotics to treat the infection is completely false, since bacterial infections are treated with antibiotics, and coronavirus is an infection due to viruses. Although, antiviral therapy is also ineffective in this case. Till now there is no vaccination available to combat the disease.

Specific recommendations on the use of masks

1. A normal healthy person who is not infected from CoV needs to wear a mask to cover his/her nose and mouth while taking care of the infected person.
2. You need to wear a mask or cover your mouth with a handkerchief while sneezing or coughing.
3. Do not reuse the same mask over and again.
4. While removing the mask make sure you do not touch it from the front, rather use your hands from backward direction and remove it and discard it.
5. Dispose of the mask in an appropriate manner and place and wash your hands with an alcohol-based hand rub or soap and water.
6. Health care professionals must use gloves, eye, and N95 masks while treating patients susceptible or infected from COVID-19 and those having a travel history to china.

Mortality rates due to the novel coronavirus are been increasing and all that we can do for now is to take precautions. There is no vaccine available for now but the research is going on. The rest of the myths for prevention have been stated. By following the specific recommendations and reducing traveling to other countries and crowded places may reduce the risk of getting infected by 10%, the size of the peak population will get reduced by 20-47% and cumulative infected cases and mortality rates will decrease by 23-49%.⁽⁸⁾No antiretroviral therapy can eradicate the infection [9].

CONCLUSION

The plague of the novel coronavirus can immobilize the health care system and requirements. Everyone irrespective of the age can be infected but the geriatric population and those with comorbid conditions are more vulnerable to get infected. By, maintaining good hands and respiratory hygiene and preventing exposure to an infected person one can restrain himself/herself from getting infected. Coronaviruses will cause its outbreak with different-mutant strains in a similar manner in the upcoming years too. But with scientific collaboration, we may have more techniques to fight against coronaviruses by knowing the genomic structure.

Conflict of interest

The authors declare no conflict of interest.

Contribution of author

I would like to thank Mr. Amit Sharma who is also the co-author, for his amazing skills in making this pictorial representation to show transmission factors of COVID-19.

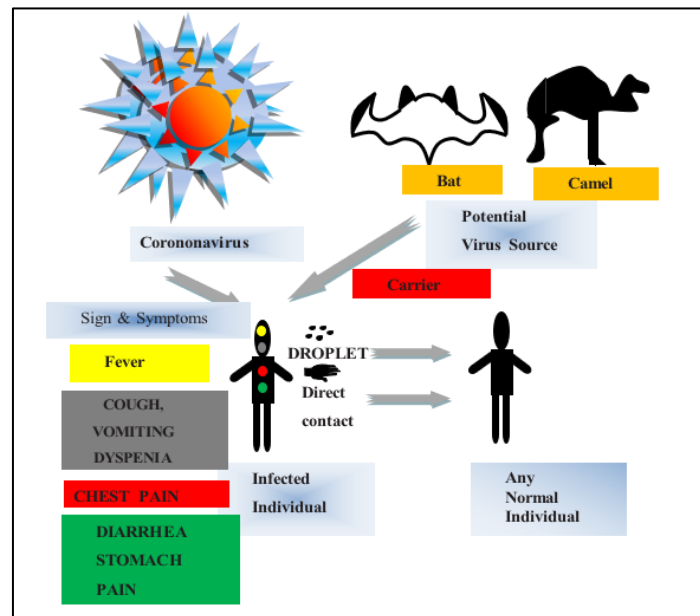


Figure 1: Transmission of COVID-19

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