



A REVIEW ON COVID-19 OUTBREAK – AN UPDATE ON THE STATUS

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ABSTRACT

The COVID is a large family of dreadful viruses known to cause illnesses ranging from the common cold to acute respiratory tract infection. The severity of the infection may be visible as pneumonia, acute respiratory syndrome, and even death. The epidemic of coronavirus disease 2019 (COVID-19), originating in Wuhan, China, has become a major public health challenge for not only China but also countries around the world. On December 31, 2019, mysterious cases of pneumonia were detected in the city of Wuhan in China's Hubei Province. On January 7, 2020, the causative agent was identified as a new coronavirus (2019-nCoV), and the disease was later named as COVID-19 by the WHO. There are no treatment options available for the virus as such, limited to the use of anti-HIV drugs and/or other antivirals such as Remdesivir and Galidesivir. For the containment of the virus, it is recommended to quarantine the infected and to follow good hygiene practices. The most common symptoms of COVID-19 are fever, tiredness, and dry cough, a small population of patients appeared gastrointestinal infection symptoms and asymptomatic cases also causes corona virus. In this article, we propose a brief review of the literature in relation of this new pathogen and its disease.

KEYWORDS: covid19, virus, corona. Pandemic.

BACK GROUND

In December 2019, a cluster of pneumonia cases^[1-4], caused by a newly identified β -coronavirus, occurred in Wuhan, China. This coronavirus, was initially named as the 2019- novel coronavirus (2019-nCoV) on 12 January 2020 by World Health Organization (WHO). WHO officially named the disease as coronavirus disease 2019 (COVID- 19) and Coronavirus Study Group (CSG) of the International Committee proposed to name the new coronavirus as SARS-CoV-2, both issued on 11 February 2020. The Chinese scientists rapidly isolated a SARS-CoV-2 from a patient within a short time on 7 January 2020 and came out to genome sequencing of the SARS-CoV-2. As of 1 March 2020, a total of 79,968 cases of COVID-19 have been confirmed in mainland China including 2873 deaths. Studies estimated the basic reproduction number (R₀) of SARS-CoV-2 to be around 2.2, or even more (range from 1.4 to 6.5), and familial clusters of pneumonia outbreaks add to evidence of the epidemic COVID-19 steadily growing by human-to-human transmission. The new virus was identified to be a novel Coronavirus and was thus initially named 2019-nCoV; later, it was renamed severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), and the disease it causes is now referred to as Coronavirus Disease-2019 (COVID-19) by the WHO. The virus was suspected to have begun its spread in the Huanan seafood wholesale market in the Wuhan region. It is possible that an animal

that was carrying the virus was brought into or sold in the market, causing the spread of the virus in the crowded marketplace. One of the first claims made was in an article published in the Journal of Medical Virology, which identified snakes as the possible host. A second possibility was that pangolins could be the wild host of SARS-CoV-2, though the most likely possibility is that the virus originated from bats. Increasing evidence and experts are now collectively concluding the virus had a natural origin in bats, as with previous such respiratory viruses. Similarly, SARS and MERS were also suspected to originate from bats. In the case of MERS, the dromedary camel is an intermediate host. Bats have been known to harbor coronaviruses for quite some time now. Just as in the case of avian flu, SARS, MERS, and possibly even HIV, with increasing selection and ecological pressure due to human activities, the virus made the jump from animal to man. Humans have been encroaching increasingly into forests, and this is true over much of China, as in Africa. Combined with additional ecological pressure due to climate change, such zoonotic spillovers are now more common than ever. It is likely that the next disease X will also have such an origin. We have learned the importance of identification of the source organism due to the Ebola virus pandemic. Viruses are unstable organisms genetically, constantly mutating by genetic shift or drift. It is not possible to predict when a cross-species jump

may occur and when a seemingly harmless variant form of the virus may turn into a deadly strain. Such an incident occurred in Reston, USA, with the Reston virus, an alarming reminder of this possibility. The identification of the original host helps us to contain future spreads as well as to learn about the mechanism of transmission of viruses. Until the virus is isolated from a wild animal host, in this case, mostly bats, the zoonotic origin will remain hypothetical, though likely. It should further be noted that the virus has acquired several mutations, as noted by a group in China, indicating that there are more than two strains of the virus, which may have had an impact on its pathogenicity. However, this claim remains unproven, and many experts have argued otherwise; data proving this are not yet available. A similar finding was reported from Italy and India independently, where they found two strains. These findings need to be further cross-verified by similar analyses globally. If true, this finding could effectively explain why some nations are more affected than others.

ABOUT CORONA

COVID-19 is the infectious disease^[5] caused by the most recently discovered corona virus. This new virus and disease were unknown before the outbreak began in Wuhan, China, in December 2019. What are the symptoms of COVID-19 The most common symptoms of COVID-19 are fever, tiredness, and dry cough. Some patients may have aches and pains, nasal congestion, runny nose, sore throat or diarrhea. 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. 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. Studies to date suggest that the virus that causes COVID-19 is mainly transmitted through contact with respiratory droplets rather than through the air.

Coronavirus (COVID-19) Cases In India

COVID-19 Live Updates^[6-7]: The total number of cases is now 5,85,493, with 18,653 new cases reported in 30th June 2020. Coronavirus Live Updates: India reported the highest one-day coronavirus deaths at 507 this morning,

taking the total number of deaths so far to 17,400. The total number of cases is now 5,85,493, with 18,653 new cases reported in the last 24 hours. The recovery rate is 59.43 per cent, government data shows. The total sample tested till June 30 is 88,26,585. At least 2,17,931 samples were tested on Tuesday, of which 8.55 per cent turned out positive. Around 90 per cent of total infections in India are from ten states - Maharashtra, Tamil Nadu, Delhi, Gujarat, Uttar Pradesh, West Bengal, Telangana, Andhra Pradesh, Haryana and Karnataka.

Modes of transmission of the COVID-19 virus

Respiratory infections can be transmitted through droplets of different sizes: when the droplet particles are >5-10 µm in diameter they are referred to as respiratory droplets, and when they are <5µm in diameter, they are referred to as droplet nuclei. According to current evidence, COVID-19 virus is primarily transmitted between people through respiratory droplets and contact routes. Droplet transmission occurs when a person is in close contact (within 1 m) with someone who has respiratory symptoms (e.g., coughing or sneezing) and is therefore at risk of having his/her mucosae (mouth and nose) or conjunctiva (eyes) exposed to potentially infective respiratory droplets. Transmission may also occur through fomites in the immediate environment around the infected person. Therefore, transmission of the COVID-19 virus can occur by direct contact with infected people and indirect contact with surfaces in the immediate environment or with objects used on the infected person (e.g., stethoscope or thermometer). Airborne transmission is different from droplet transmission as it refers to the presence of microbes within droplet nuclei, which are generally considered to be particles <5µm in diameter, can remain in the air for long periods of time and be transmitted to others over distances greater than 1 m.

Symptoms of corona

Throat infection
Drycough
Difficulty breathing
Fever
Body pain
Tiredness

Coronavirus (COVID-19) Selfcare and Precautions

- Wear a cloth face covering (or face mask, if you have one) if they must be around other people. Cloth face coverings are for use only by people older than 2 years old who are not having trouble breathing. Do not leave a child alone while they're wearing a cloth face covering. To see how to put on and remove cloth face coverings and face masks, clean them, or make your own cloth face covering,
- Cover coughs and sneezes with a tissue, throw the tissue away, and then wash their hands right away. Wash with soap and water for at least 20 seconds, or use alcohol-based hand sanitizer.

- If possible, stay in a bedroom and use a bathroom separate from other people in the home.
- Use separate dishes, glasses, cups, and eating utensils and not share these with other household members. After use, run them through the dishwasher or wash with very hot soapy water.
- Use separate bedding and towels and not share these with other household members.

Medication

Chloroquine approved for emergency use by US FDA

The US Food and Drug Administration (FDA) approved limited emergency use for chloroquine and hydroxychloroquine as a treatment for COVID-19.

The President of the United States, Donald Trump, had announced on 19 March that chloroquine and hydroxychloroquine/Plaquenil, used to treat malaria and arthritis, were approved by the FDA to be tested as a treatment for COVID-19.

Chloroquine is being tested in various clinical trials conducted by government agencies and academic institutions. Other antiviral drugs are also planned to be fast-tracked for testing for coronavirus.

Favilavir, the first approved coronavirus drug in China

The National Medical Products Administration of China has approved the use of Favilavir, an anti-viral drug, as a treatment for coronavirus. The drug has reportedly shown efficacy in treating the disease with minimal side effects in a clinical trial involving 70 patients. The clinical trial is being conducted in Shenzhen, Guangdong province.

Remdesivir (GS-5734) by Gilead Sciences

An ebola drug developed by Gilead Sciences that was found to be ineffective is now being tested in two phase III randomised clinical trials in Asian countries.

The trials are being performed on 761 patients in a randomised, placebo-controlled, double-blind study at multiple hospitals in Wuhan, the epicentre of the novel coronavirus outbreak. The results from the trials are expected to be available over the next few weeks.

According to a report by The New England Journal of Medicine (NEJM), remdesivir, when administered to a coronavirus patient in the US, appeared to have improved the clinical condition.

The University of Nebraska Medical Center is also carrying out clinical trials to test the safety and efficacy of the drug. The first patient to be administered the drug is an evacuee from the Diamond Princess cruise ship.

Biocryst Pharma's Galidesivir, a potential antiviral for coronavirus treatment

The antiviral drug Galidesivir (BCX4430) has shown broad-spectrum activity against a wide range of pathogens including coronavirus. It is a nucleoside RNA polymerase inhibitor that disrupts the process of viral replication. The drug has already shown survival benefits in patients against deadly viruses such as Ebola, Zika, Marburg, and Yellow fever.

Galidesivir is currently in advanced development stage under the Animal Rule to combat multiple potential viral threats including coronaviruses, flaviviruses, filoviruses, paramyxoviruses, togaviruses, bunyaviruses, and arenaviruses.

CONCLUSION

Speculation about worse outcomes among patients on these medications during the COVID-19 pandemic has caused widespread anxiety among patients and their care providers. On the other hand, the harms of indiscriminate withdrawal of these medications on cardiovascular outcomes are well documented. So far not invented target drugs, target drugs going on research in progress and day by day increasing the cases in world wide. We must be constantly aware of infectious threats that may challenge the current infection.

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