

Current Status and Novel Strategies for Prevention and Treatment of Corona Virus

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Abstract- In early 2020, a new virus began generating headlines all over the world because of the unprecedented speed of its transmission. A novel strain of corona virus — SARS-CoV-2 — was first detected in December 2019 in Wuhan, a city in China's Hubei province with a population of 11 million, after an outbreak of pneumonia without an obvious cause. The virus officially named SARS-CoV-2 has affected thousands, with a rising death till now over 62,784. The virus has now spread to over 208 countries (Till 5 April 2020) across the globe, and was characterized as a pandemic by the World Health Organization (WHO) on 11 March 2020. The disease caused by an infection with SARS-CoV-2 is called COVID-19, which stands for corona virus disease 2019.

Index terms- COVID-19, CORONAVIRUS, SARS-CoV-2

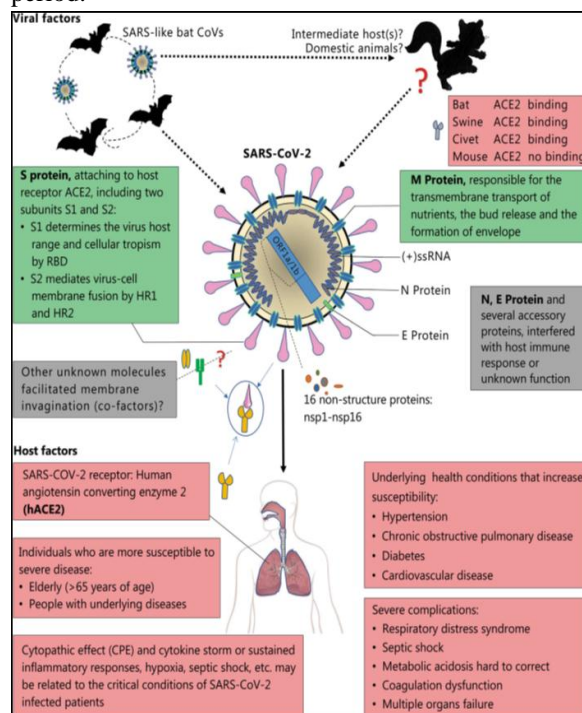
INTRODUCTION

SARS-CoV-2 belongs to a family of single-stranded RNA viruses known as coronaviridae, a common type of virus which affects mammals, birds and reptiles. In humans, it commonly causes mild infections, similar to the common cold, and accounts for 10–30% of upper respiratory tract infections in adults. More serious infections are rare, although coronaviruses can cause enteric and neurological disease. The incubation period of a coronavirus varies but is generally up to two weeks.

Previous coronavirus outbreaks include Middle East respiratory syndrome (MERS), first reported in Saudi Arabia in September 2012, and severe acute respiratory syndrome (SARS), identified in southern China in 2003. MERS infected around 2,500 people

and led to more than 850 deaths while SARS infected more than 8,000 people and resulted in nearly 800 deaths. The case fatality rates for these conditions were 35% and 10%, respectively.

SARS-CoV-2 is a new strain of coronavirus that has not been previously identified in humans. Although the incubation period of this strain is currently unknown, the United States Centers for Disease Control and Prevention indicate that symptoms may appear in as few as 2 days or as long as 14 days after exposure. Chinese researchers have indicated that SARS-CoV-2 may be infectious during its incubation period.



SYMPTOMES

Doctors are learning new things about this virus every day. So far, we know that COVID-19 may not initially cause any symptoms for some people.

Peoples may carry the virus for 2 days or up to 2 weeks Trusted Source before you notices symptoms.

Some common symptoms that have been specifically linked to COVID-19 include:

- Shortness of breath
- Having a cough that gets more severe over time
- A low-grade fever that gradually increases in temperature



These symptoms may become more severe in some people. Call emergency medical services if you see any of the following symptoms:

- Trouble breathing
- Blue lips or face
- Persistent pain or pressure in the chest
- Confusion
- Excessive drowsiness

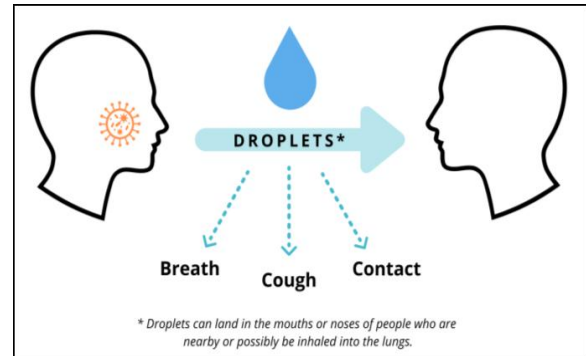
In severe cases, the coronavirus can cause pneumonia, severe acute respiratory syndrome, kidney failure and death

The full list of symptoms is still being investigated.

CAUSES

Coronaviruses are zoonotic, this means they first develop in animals before developing in humans. For the virus to pass from animal to humans, a person has to come into close contact with an animal that carries the infection.

Once the virus develops in people, coronaviruses can be spread from person to person through respiratory droplets. This is a technical name for the wet stuff that moves through the air when you cough or sneeze. The viral material hangs out in these droplets and can be breathed into the respiratory tract, where the virus can then lead to an infection.



The 2019 coronavirus hasn't been definitively linked to a specific animal. Researchers believe that the virus may have been passed from bats to another animal either snakes or pangolins and then transmitted to humans. This transmission likely occurred in the open food market in Wuhan, China.

HIGHER RISK

Older people and people with certain health conditions have a higher risk for severe complications if they contact the virus. These health conditions include:

- Lung conditions, such as COPD and asthma
- Certain heart conditions
- Immune system conditions, such as HIV
- Cancer that requires treatment
- Severe obesity
- Other health conditions, if not well-controlled, such as diabetes, kidney disease, or liver disease

Pregnant women have a higher risk of complications Trusted Source from other viral infections, but it's not yet known if this is the case for the 2019 coronavirus.

TREATMENT

There's currently no treatment specifically approved for COVID-19, and no cure for an infection, although treatments and vaccines are currently under study. Instead, treatment focuses on managing symptoms as the virus runs its course.

Other coronaviruses like SARS and MERS are also treated by managing symptoms. In some cases, experimental treatments are tested to see how effective they are. Examples of therapies used for these illnesses include:

- Antiviral or retroviral medications

- Breathing support, such as mechanical ventilation
- Steroids to reduce lung swelling
- Blood plasma transfusions

COMPLICATIONS

The most serious complication of a SARS-CoV-2 infection is a type of pneumonia that's been called 2019 novel coronavirus-infected pneumonia (NCIP). Results from a 2020 study Trusted Source of 138 people admitted into hospitals in Wuhan, China, with NCIP found that 26 percent of those admitted had severe cases and needed to be treated in the intensive care unit (ICU).

About 4.3 percent of these people who were admitted to the ICU died from this type of pneumonia. It should be noted that people who were admitted to the ICU were on average older and had more underlying health conditions than people who didn't go to the ICU.

So far, NCIP is the only complication specifically linked to the 2019 coronavirus. Researchers have seen the following complications in people who have developed COVID-19:

- Acute respiratory distress syndrome (ARDS)
- Irregular heart rate (arrhythmia)
- Cardiovascular shock
- Severe muscle pain (myalgia)
- Fatigue
- Heart damage or heart attack

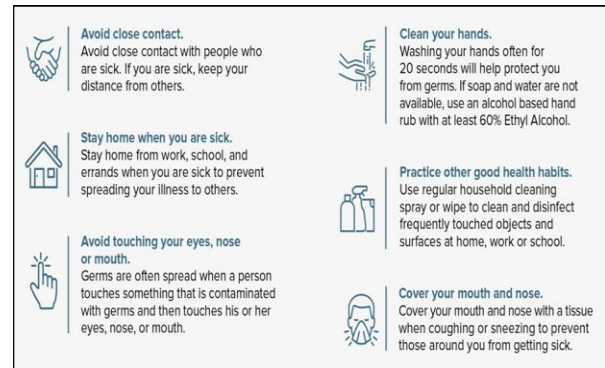
PREVENTIONS

The best way to prevent the spread of infection is to avoid or limit contact with people who are showing symptoms of COVID-19 or any respiratory infection. The next best thing you can do is practice good hygiene and social distancing to prevent bacteria and viruses from spreading.

Prevention tips

- Wash your hands frequently for at least 20 seconds at a time with warm water and soap.
- Don't touch your face, eyes, nose, or mouth when your hands are dirty.
- Don't go out if you're feeling sick or have any cold or flu symptoms.

- Stay at least 3 feet Trusted Source (1 meter) away from anyone who is coughing or sneezing.
- Cover your mouth with the inside of your elbow whenever you sneeze or cough. Throw away any tissues you use right away.
- Clean any objects you touch a lot. Use disinfectants on objects like phones, computers, utensils, dishware, and doorknobs.



TYPES OF CORONAVIRUS

A coronavirus gets its name from the way it looks under a microscope. The word corona means “crown,” and when examined closely, the round virus has a “crown” of proteins called peplomers jutting out from its center in every direction. These proteins help the virus identify whether it can infect its host.

The condition known as severe acute respiratory syndrome (SARS) was also linked to a highly infectious coronavirus back in the early 2000s. The SARS virus has since been contained.

COVID-19 vs. SARS

This isn't the first time a coronavirus has made news — the 2003 SARS outbreak was also caused by a coronavirus. As with the 2019 virus, the SARS virus was first found in animals before it spread to humans. The SARS virus is thought to Trusted Source have come from bats and then transferred to another animal, and then to humans. Once transmitted to humans, the SARS virus began spreading quickly among people.

What makes the novel coronavirus so newsworthy is that a treatment or cure hasn't yet been developed to help prevent its rapid spread from person to person. SARS has been successfully contained.

CONCLUSION

The outbreak of COVID-19 swept across China rapidly and has spread to 204 countries/territories/areas. Scientists have made progress in the characterization of the novel coronavirus and are working extensively on the therapies and vaccines against the virus.

In recent study the US the FDA has begun case-by-case approval for the use of blood plasma of recovered patient for treatment of some Covid-19 patients. The treatment is based on the possibility that the plasma obtained from a donor recovered patient would contain antibodies that helped in negating the virus.

Stay calm and follow your doctor's instructions if you're diagnosed with COVID-19 so you can recover and help prevent it from spreading.

ABBREVIATIONS

- CoV: Coronavirus
- SARS-CoV: Severe acute respiratory syndrome coronavirus
- SARS-CoV-2: Severe acute respiratory syndrome coronavirus-2
- MERS: Middle East respiratory syndrome
- NCIP: NISO Circulation Interchange Protocol
- COVID-19: Coronavirus disease 2019
- ARDS: Acute Respiratory Distress Syndrome
- ICU: Intensive Care Unit
- E protein: Envelope protein
- N protein: Nucleocapsid protein
- ACE2: Angiotensin-converting enzyme
- RBD: Receptor-binding domain
- WHO: World Health Organization

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