

Prevention and Management of Corona Virus Disease 2019 (COVID-19) epidemic

What is Corona Virus?

Coronavirus are large group of viruses, enclosed within an envelope of protein spikes, which resembles a crown (Latin, corona). There are different types of virus that cause respiratory diseases and sometimes gastrointestinal symptoms. Respiratory diseases can range from common cold to pneumonia and most people experience mild symptoms. However, sometimes one may experience severe symptoms from other virus including severe acute respiratory syndrome (SARS-CoV). It appeared first time in China in 2003. Another one was the Middle East respiratory syndrome (MERS-CoV), which was reported from Saudi Arabia in 2012.

What is the COVID-19?

Coronavirus diseases 2019 (COVID-19) is a highly infectious disease with a long incubation period caused by SARS-CoV-2. These are a group of highly diverse, enveloped, positive-sense, single-stranded RNA viruses. They cause several diseases among humans and animals involving respiratory, enteric, hepatic and neurological systems with high severity.

COVID-19 is caused by the most recently identified coronavirus. This new virus and the disease were unknown before its outbreak in Wuhan, China, in December 2019. It initially occurred in a group of people as symptoms of pneumonia who were associated with sea food and animal market at Wuhan. The disease then spread from affected people to others including family members and healthcare workers.

Scientists around the world are now focusing on its genome and the 27 proteins that it is known to produce, seeking to deepen their understanding and find ways to stop it in its tracks.

Psychological Consequences of COVID-19

According to the Behavioral Immune System (BIS) theory, the uncertainty and low predictability of COVID-19 not only threaten people's physical health but also affect their mental health, especially in terms of emotions and cognition.

- People are likely to develop negative emotions (e.g., aversion, anxiety, etc.) and negative cognitive assessment for self-protection.
- These negative emotions keep people away from potential pathogens when it refers to the disease.

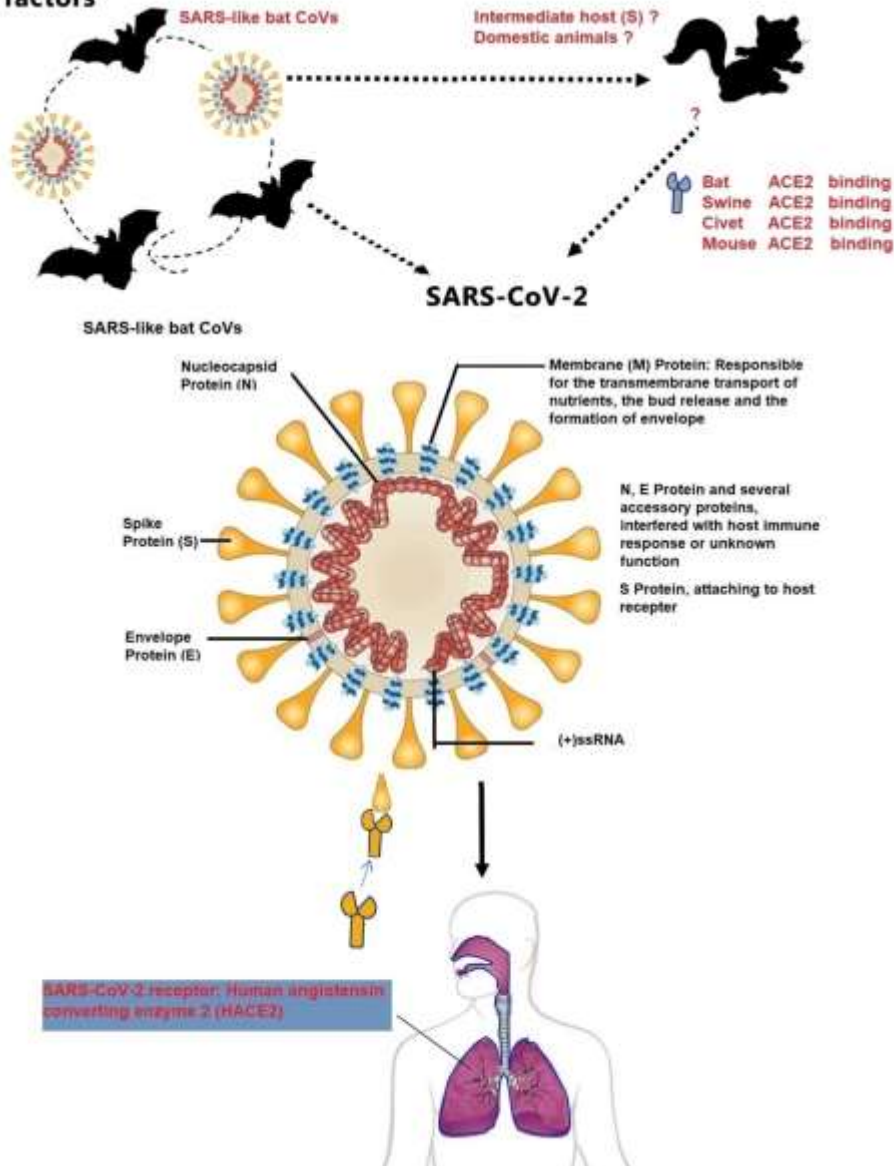
- Long-term negative emotions may reduce the immune function of people and destroy the balance of their normal physiological mechanisms.

How does COVID-19 spread?

The major route of transmission of COVID-19 is through droplet and close contact

- Between people who are in close contact with one another (within about 6 feet).
- Respiratory droplets produced when an infected person coughs or sneezes. These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.
- Spread from contact with contaminated surfaces or objects.

Viral factors



S glycoprotein of SARS-CoV-2 binds to host cell receptors, angiotensin-converting enzyme 2 (ACE2), which is a critical step for the virus entry. ACE2, found in the lower respiratory tract of humans, is known as cell receptor for SARS-CoV and it regulates both the cross-species and human-to-human transmission.

Symptoms

1. The main symptoms include a self-reported fever, fatigue, dry cough, myalgia, and dyspnea.
2. The uncommon symptoms include sputum production, headache, hemoptysis, and diarrhoea.
3. Pneumonia is present in most SARS-CoV-2 infected patients; few cases complained of pleuritic chest pain.
4. Most adults or children with SARS-CoV-2 infection presented with mild flu-like symptoms. Few patients were in critical condition and rapidly developed acute respiratory distress syndrome, respiratory failure, multiple organ failure, even deaths.

Incubation period

The incubation period of COVID-19 was 14 days, suggesting the complicated challenge to contain the outbreak.

One of the studies confirmed positive of SARS-COV-2 nucleic acid in patients that met the discharge criteria. It is suggested that the patients who meet the current discharge criteria should be quarantined in a hospital for another 7 days and follow-up viral testing is necessary for them.

Testing for COVID-19

Laboratory tests can identify the virus that causes COVID-19 in respiratory specimens. State and local public health departments have received test kits from CDC while medical providers are getting test kits developed by commercial manufacturers.

- These tests are conducted through Real-Time Reverse Transcriptase (RT)-PCR Diagnostic Panels; it can provide results in 4 to 6 hours.
- Most of the patients had normal or decreased white blood cell counts and lymphocytopenia.
- For severe patients, the neutrophil count, D-dimer, blood urea, and creatinine levels were significantly higher and the lymphocyte counts continued to decrease.
- In some cases inflammatory factors interleukin (IL)-6, IL-10, tumor necrosis factor- α (TNF- α) increase, indicating the immune status of the patients.

Which groups of people are at higher risk of getting infected?

It is highly transmissible in humans, especially in the elderly. People with medical conditions like high blood pressure, heart problems, respiratory disease/asthma, cancer or diabetes are at higher risk for developing serious complications.

Most patients were 30-79 years of age.

Family members and contacts of patients confirmed to have COVID-19.

How to avoid getting COVID-19 or spreading it?

1. Frequent HAND Wash for 20 seconds, with soap and water or alcohol-based hand rub:
After coming home from outside or meeting other people especially if they are unwell;
After having touched your face, coughing or sneezing; Before preparing food, eating or feeding children; and Before and after using the toilet, cleaning, etc.
2. Cover face while coughing: Cover your nose and mouth with a disposable tissue or flexed elbow when you cough or sneeze.
3. Don't touch your Face: Do not touch your eyes, nose or mouth if your hands are not clean.
4. Keep a safe distance: Maintain a safe distance of at least one metre from others when in public places, especially if they are having symptoms such as cough, fever, etc.
5. Avoid direct droplet contact.
6. Stay at home
7. Avoid physical contact like handshakes, hand-holding or hugs; and
8. Avoid touching surfaces such as tabletops, chairs, door handles, etc.

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