

## CHAPTER-I I

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## CHAPTER-11

# CASCADE EGRESSION OF SOME CORONAVIRUSES CONCERNING SARS-COV-2 VIRUS, ITS EXPANSION AND INDICATIONS' ERUPTION

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**Keywords**

CORONAVIRUSES

SARS-CoV-2

COVID-19

The present chapter describes brief information about corona viruses and COVID-19 which is also known to be SARS-CoV-2. The chapter envisions brief information on the basic of COVID-19, its symptoms and its theory which is reported to be circulated across the globe. The chapter marks interesting information regarding the spread and its complications associated.

**I. Introduction**

Coronaviruses belong to Coronaviridae family. They are classified into 4 genera: Alphacoronavirus, Betacoronavirus, Gammacoronavirus and Deltacoronavirus. Gammacoronavirus and Deltacoronavirus infect birds but some of them infect mammals. Alphacoronavirus and betacoronavirus infect humans and animals. Seven Coronaviruses' species can infect Humans. Three species cause severe infections. They are SARS-CoV, MERS-CoV and SARS-CoV-2 (nCOVID-19). In 2002, Severe Acute Respiratory Syndrome (SARS-CoV) had transmitted from civet cats to humans. In 2012, Middle East Respiratory Syndrome (MERS-CoV) had transmitted from dromedary camels to humans. In October 2019, Severe Acute Respiratory Syndrome (SARS-CoV-2) emerged in Wuhan, Hubei province, China. It transmits to humans from animals. It is zoonotic. Until May,2020, it was impossible to prove or disprove the theories of SARS-CoV-2 emergence. Scientists found

that SARS-CoV-2 isn't derived from any previously used virus backbone or from laboratory. They believe it is originated via natural selection. There are two characteristics in the virus make it different from previous known coronaviruses. They are the mutations in the RBD portion of the spike protein and its distinct backbone. Researches established two hypothesis of the emergence of COVID-19, according to its genomic sequence data and other related viruses' data. 1-A natural selection happened in a non-human host and then the pathogenic version transmitted to humans. Scientists suggest the bat as the first host for COVID-19 as it is very similar to two bat-derived SARS-like coronaviruses (bat-SL-CoVZC45 and bat-SL-CoVZXC21). They suggest that there is a second intermediate host involved between bats and humans. 2-A pathogenic version of the virus is evolved within humans after it had transmitted from an animal. The host is pangolin. There might be an intermediate host such the civets or the ferrets. Another study suggests the snake as an intermediate host of COVID-19. The study found that 4 regions of the spike protein of COVID-19 were the same as HIV-1. A new study in ACS Journal of Proteome Research, suggests pangolin as the most likely intermediate host for COVID-19. They found that there are only 5 amino acids differences in the RBD portion of the spike protein between human and pangolin viral protein compared with 19 differences from the bat coronavirus compared to COVID-19 protein. They concluded that there might be another intermediate host but not the snake [1-7].

## **2. According to some facts and theories:**

An animal sold at Wuhan seafood market might be the intermediate host. The second host is uncertain till now, there is a suggestion that it might be the Snail. This suggestion is based on some facts. It guides lights to make genomic sequence data of snail to get sure. Since the snail's meat contains higher protein than chicken and lower fat with several minerals and amino acids, France is the first consumer of snails followed by Italy, Spain and Germany. Snails are farmed in America and Africa too. Their meat is more expensive than other animals' meat [1]. Based on recent studies more than 300 million people are affected by many Snail-transferred diseases.

Snails were an intermediate host of Schistosomiasis [2]. Land snails' season is winter (typically October through April). They may also appear in Summer [3]. Snails can enter bat's caves. They can be very close to it.

### **3. The spread of SARS-CoV-2 around the world:**

SARS of 2002 originated from Beijing, China spread to 29 countries, infected 8096 people and killed 774 people within one year. MERS of 2012 originated from Saudi Arabia, infected 2494 people and killed 858 people. SARS-CoV-2 of 2019 originated from Wuhan, China and has spread to 210 countries. Its infection rate is drastically increasing even after its first report since the six months [5-8].

### **4. The symptoms of nCov-2019:**

Symptoms appear 2-14 days after exposure to the virus. People with these symptoms or combinations of symptoms may have COVID-19.

#### **Mild infection:**

**Fever:** Fever comes when body temperature exceeds above 99. Usual body temperature is around 98.6 F. Fever is not come under any disease but it is a sign that your body is trying to fight an illness or infection. Infection is the most cause of fever. It can be treated through medicine or putting cold bandage on head and other body parts.

**Dry cough:** A cough is a reaction action that clears your airway of irritants and mucus. There are two types of cough that is productive and non-productive. A productive cough produces phlegm or mucus, clearing it from lungs. A nonproductive cough, is dry cough which doesn't produce phlegm or mucus. Common causes of dry cough are Asthma, Gastroesophageal reflux disease, Postnasal drip and viral infection. One can cure with medicine, taking OTC cough suppressants and adding honey to drink hot water to soothe irritated throat.

**Lethargy:** It is a lack of energy and enthusiasm. It happens when most of the people feeling low and lazy. It can be treated by taking lemon water or instant energy juice to get energized.

**Dehydration:** Dehydration occurs when your body lose more fluid than you take in. And your body doesn't have enough water or fluid to carry out its normal functions. It can

be treated by refilling the fluid level in the body by consuming liquids like water, sports drink, electrol, frozen water etc.

**Severe infection:** There are many type of severe infection which have different symptoms like discoloration of skin in patches, less urination, low blood clotting or excess bleeding. There are many more visible infection that are caused in the body due to some sort of reaction in body which can be caused through anti-allergy or if it is more severe than you can contact to your doctor. It can a symptom of COVID-19 which is pandemic disease worldwide.

**High fever:** Normally in the hectic lifestyle and busy schedule in the hot season body temperature reaches to 99 but if it rises to 100 or more don't take it normal you must directly contact to the doctor it can be prior symptoms many diseases so don't take it casual before it become more severe issues as COVID-19 which is worldwide high fever is the most prior indication of it.

**Shortness of breath:** If your affected by corona virus then the most affected part of your body is chest as it directly attacks to chest result in difficulty of breathing and shortening of breath. So if you feel like you feel like shortening of breath make sure you must visit to the doctor for your test.

**Chest pain:** As I mentioned chest is the most affected parts when COVID-19 attacks you so it includes severe aching which resulting in shortening of breath. If you feel uncomfortable in chest and think it must be COVID-19 attack you must visit to the nearest COVID-19 hospital.

**Hemoptysis:** It is the disease in which patient start coughing up of blood or mucus of blood stained from the bronchi, larynx, trachea and may be from lungs. In other way, bleeding from airway is hemoptysis. It may affect your lungs and turn many diseases like lung cancer, infections like tuberculosis, bronchitis, pneumonia and many cardiovascular conditions. One can recover from this by Bronchial artery embolization, bronchoscopy and surgery.

Also doctors can recommend few medicines like Antibiotics for tuberculosis and antibiotics, Chemotherapy for lung cancer and steroids for inflammatory conditions.

## Complications

**ARDS (Acute Respiratory Distress Syndrome):** It occurs when fluid develop in the small elastic air sacs in lungs. The fluid keeps lungs from filling with enough air, which makes flow of less oxygen and reach to bloodstream. This remove the organs of the oxygen which need to be function. It can be treated by oxygen therapy to raise the oxygen level in your blood through resting tubes in your nose, a face mask or a tube placed in windpipe.

**Pneumonia:** It is the infection which inflames the air sacs on one or both lungs. The air sacs fill with pus or fluid which causes coughing with phlegm or pus, fever and difficulty in breathing. It can be treated by fever medicine to control fever, anti-inflammatory drugs, drink plenty of fluids etc.

**Sepsis:** It is a life threatening infection and body normally release chemicals into the bloodstream to fight an infection. Sepsis happens when body's releases chemicals into the bloodstream to fight an infection. It can damage multiple organ system of a body. It is treated by antibiotic by giving directly into vein. This disease can cause death too.

**Multi organ failure:** MOF that is multi organ failure is a syndrome that shows a complicated and dynamic pathophysiologic pathway primary to organ functional derangement and ultimate death. Severe disease can cause death and shock begins an inflammatory cascade that cannot be reversed in some patients. It is treated by antimicrobial therapy or surgery, regular cardiovascular monitoring required, and to disrupt the pathogenesis of multiple organ dysfunction syndrome. During COVID-19 people need take preventive measures strictly otherwise any above discuss disease can harm more if infected by coronavirus and lead to death in many cases. Symptoms like loss of taste, smell and lethargy is also towards coronavirus [9,10].

## Conclusion

COVID-19, a very serious and dangerous virus which is declared as a pandemic worldwide. It was firstly noted in the Wuhan in China and got spread in the world, people are scared but some out of them are taking is casual so them it's quite uneasy for them to suffer in this pandemic. As I described how dangerous it is and the symptoms of COVID-19 that uncomfortable it makes you when it attacks

so its better to take precaution is it is rightly “masksare more comfortable than a ventilator” means it’s better to wear mask else you will have to on ventilator which is next level uncomfortable. So try to avoid getting accumulated in a small place and be at social distance to avoid attacking the corona virus on your body. Basically it attacks to those who has weak immune system so try to add the thing in your meal that increases your immune system so there is low risk to get affected by this virus. Family is more important so Make yourself and your family immune system strong, ask them to wear masks and be at a social distance of at least 6feets to save yourself and your family from this dangerous pandemic.

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