

SARS-Cov-2 Family: Characteristics and Clinical Manifestation and Presentation of Covid – 19: Descriptive Minireview

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ABSTRACT

Corona virus is not a single virus, but rather a large family of coronaviruses that cause disease in humans and animals. The severity of symptoms of infection with one of the types of coronavirus in humans ranges from the common cold to severe acute respiratory infection (SARS). The Middle East Respiratory Syndrome Corona virus (MERS-CoV) was first discovered in April 2012, when it was not known to humans, and it was causing severe illness in people with it and the death of half of the cases of infection. With the emerging corona virus (19-COVID), which has led to the death of a large number of people and confused life in all countries of the world nearly 6 million people have died all over the world. The aim of this descriptive minireview, generally, is to shed light on the SARS-CoV-2 family : Characteristics and Clinical manifestation and presentation of Covid – 19

KEYWORDS: novel coronavirus, SARS-Cov-2, infections, Clinical manifestation and presentation, Covid – 19.

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INTRODUCTION

Corona virus is new (CoV) when it arises from a new strain of coronavirus. The disease caused by the new coronavirus that first appeared in “Wuhan” China was called coronavirus disease and this disease was previously called “2019 novel coronavirus” or “2019 -nCoV” and finally Covid-19. The “Covid-19” virus is a new virus related to the same family of viruses as the virus that causes “Severe Acute Respiratory Syndrome” (SARS) and also MERS, and some types of common cold.

The novel coronavirus SARS-CoV-2

This new type of corona virus appeared in China, and it received several names such as: the new corona virus, the emerging corona virus, covid 19, the new mutated corona virus, or the nCov19 virus acute respiratory disease); Where the initial reports of the start of its spread were recorded in mid-December of 2019, and the recorded cases of infection are still rising rapidly in a large outbreak in the middle of 2021, and the total confirmed infections with the new virus have reached 200 million since the beginning of its outbreak, and caused the death of nearly 6 million people, and the Chinese authorities announced that the first cases of the new

virus originated in the Chinese city of Wuhan, and it has spread widely since that time, despite China was taking firm anticipatory measures to confront the spread of the new virus by closing the city of Wuhan, and some surrounding cities. It was forbidden to travel to or from it by all means of transportation. Although, these firm the virus has spread all over the world.

COVID-19 or SARS-COV-2 - (CORONA- VIRUS-DISEAS-2019):

This virus is descended from the Corona viruses, so named due to its crown-like structure. These viruses contain genetic material of the type RNA and a special enzyme that works to copy many of its RNA called RNA dependent RNA polymerase, as this enzyme is not present in other retroviruses such as HIV (Human Immune Deficiency Virus Syndrome) or AIDS AIDS (Acquired Immune Deficiency Syndrome). Numerous researches since the emergence of the novel disease are trying to find a drug that hinders the work of this enzyme and thus prevents its reproduction.

The new COVID-19 virus is given this name to distinguish it from other viruses of the same family. At least six other types of the coronavirus family are known to infect humans, some

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of which cause relatively mild colds, and two of them: SARS and MERS

Severe Acute Respiratory Syndrome

Which first appeared as a prominent strain of the Corona virus family in 2003, and bats played a role in transmitting infection to animals and then to humans.

And the second - MERS (Middle East Respiratory Syndrome), which first appeared in Saudi Arabia in 2012 and had camels as a source of infection, but in both cases the victims were less than those caused by COVID-19, which came from the Chinese region of Wuhan and bats as a source of infection and transmitted by respiratory droplets issued by a person infected, arising from coughing, sneezing, or contact with contaminated surfaces, which spread in late 2019.

To date, there is no vaccine that provides broad and specific protection against infection with the virus. However, there are several stages in the life cycle of the virus that can be targeted within a therapeutic intervention.

In fact, the coronavirus family includes seven different types of viruses that can infect humans; Four of them - the most common - cause infection with colds or colds, in addition to the two dangerous types that cause serious infections in the respiratory tract and lungs, known as Middle East respiratory syndrome (MERS), and SARS, or what is known as severe acute respiratory syndrome. Severe acute respiratory syndrome, the Wuhan coronavirus, is the new type that was recently added to the list of coronaviruses that can infect humans.

Reproduction of SARS-CoV-2

Adhesion: This is done with the help of proteins present in the envelope of the Corona virus, called proteins S1 and S2. The S1 proteins bind to the receptors on the blood vessels of the alveoli. They are transmembrane proteins that have an outer end and an inner end towards the cytoplasm. These receptors are called ACE2 - Angiotensin Converting Enzyme), an enzyme that works on Converting the inactive Angiotensin 1 to Angiotensin 2 8 amino acids, which in turn raises blood pressure in different ways, while S2 contributes to the entry of the virus into the cell.

This method is familiar to retroviruses, for example, the HIV virus binds to the CD4 receptors found on T-helper white blood cells by means of gp120 protein, a protein present in the envelope of the virus and another protein that contributes to the entry of the virus into the cell called gp41, which binds to another receptor CCR5 in order to penetrate cell.

Injection: During which virus RNA is injected into the cell cytoplasm.

Viral RNA transcription: In this stage, viral RNA is transcribed by a special enzyme called RNAdRNAP (RNA dependent RNA polymerase) into many copies.

Translation: The organelles of the host cell (in the lungs) are used to make new copies and translate them into proteins on the ribosomes of the host cells, and then these proteins mature

in the rough endoplasmic reticulum - RER and Golgi apparatus. These proteins are viral envelope proteins and enzymes.

Virus body formation: budding or assembling virus parts to form new viruses where they are budding - budding by taking advantage of the host cell membrane and then leaving the cell by budding and spreading in the body and then infection.

The cause of the novel corona virus

Coronaviruses are zoonotic; meaning that it is capable of transmitting from animal to human; Corona virus infection is common in certain types of animals, specifically mammals and birds,[6] but in some rare cases these viruses may evolve and become capable of transmitting infection from animal to human, and they may then have the ability to transmit infection from an infected person. To another human,[4] for example, according to scientific evidence, the Corona virus that causes respiratory syndrome in the Middle East was transmitted from camels to humans,[7] while the Corona virus that causes SARS was transmitted from civet cats to humans,[8] and these viruses had the ability to transmit infection from one infected person to another person as well. The Corona virus that causes Middle East Syndrome caused a large number of infections and hundreds of deaths in its first outbreak in 2012 and then in 2015, while the Corona virus that causes SARS infection caused the death of 774 people in 2003, and measures have been taken. Since 2015, no new SARS infections have been recorded. [9] Given the available information on the new Corona virus, reports indicated that the first cases of infection originated with people from the market for selling fish and animals in In the Chinese city of Wuhan, the animal through which the infection began to be transmitted to humans has not been identified with certainty so far, and evidence and reports from the World Health Organization and the Centers for Disease Control and Prevention indicate that the new Corona virus also has the ability to transmit infection from an infected person to another, which Explains its rapid rate of spread

Symptoms of Covid-19 infection

The patient may not show any symptoms indicating that he has the disease, and he may show some initial symptoms similar to the symptoms of the flu, such as: cough, high fever, shortness of breath and runny nose, and it may also cause some of the more serious symptoms if the infection descends into the sewers. The lower respiratory tract, such as: acute pneumonia that leads to damage to the alveoli, and this may result in blood coming out during coughing and swelling of the lung tissue, causing significant damage to it, and this virus may cause lung failure, which prevents oxygen from reaching the blood, and thus a severe shortage in the supply of cells With oxygen, which affects the various functions of the body, and thus leads to death, in addition, it may cause some other symptoms; Such as vomiting and diarrhea leading to dehydration

Vulnerability to Coronavirus

People who take ACE-lowering medicines - because these medicines block the action of the enzyme ACE-2, which works on the production of angiotensin II from the inactive angiotensin I, and thus raises blood pressure. The cells in the lungs accelerate the production of this enzyme ACE-2 in response to that, then its level rises in the cell membranes, which increases the possibility of the Corona virus being associated with it because, as we mentioned, it is a future of the Corona virus. It is noteworthy that angiotensin II residues in the blood bind to the ACE-2 receptor for their catabolism. Since this ACE-2 receptor is also present in the membranes of cells of the intestines, kidneys, and epithelial cells of blood vessels, some patients have shown cases of diarrhea and digestive problems.

-Patients with type-1 and type-2 diabetes have high levels of ACE-2 receptors without any relationship to taking blood pressure medications, knowing that the levels of immune NK cells are low in these patients, which reduces their exposure to the virus.

CONCLUSION

Coronavirus is a viral disease, and it expresses a severe and acute respiratory syndrome accompanied by a severe rise in body temperature, and acute lower respiratory infection, and there are several types of corona virus, including the virus that causes Middle East respiratory syndrome.) for short (MERS), Severe acute respiratory syndrome, and the new coronavirus 2019 (2019-nCoV).

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