VIROLOGY

Medical Laboratory Techniques Department

Title of the lecture: Corona viruses

Dr.: Marwa Fadhil Alsaffar

Assist . Teach. Ola Abbas

MarwaAlsaffar @mustaqbal-college.edu.iq

Corona viruses:

Are a group of viruses that cause diseases in mammals and birds. In humans, corona viruses **cause respiratory tract infections** that are typically mild, such as the **common cold**, though rarer forms such as **SARS, MERS, and COVID-19** can be lethal.

Symptoms vary in other species: in chickens, they cause an upper respiratory tract disease, while in cows and pigs they cause diarrhea. There are yet to be vaccines or antiviral drugs to prevent or treat human coronavirus infections.

General properties:

- Family Coronaviridae, order Nidovirales.

-They are **enveloped** viruses with a positive-sense **single-stranded RNA.** - Nucleocapsid of **helical symmetry**.

-The name coronavirus is derived from the Latin corona, meaning "crown" or "halo", which refers to the characteristic appearance.

.

Transmission:Human to human transmission of coronaviruses is primarily thought to occur among close contacts via respiratory droplets generated by sneezing and coughing.

Severe acute respiratory syndrome (SARS):

In 2003, following the outbreak of severe acute respiratory syndrome (SARS) which had begun the prior year in Asia, and secondary cases elsewhere in the world. The virus was officially named the SARS coronavirus (SARS-CoV). Over 8,000 people were infected, about 10% of whom died.

Middle East respiratory syndrome (MERS)

In September 2012, a new type of coronavirus was identified, initially called Novel Coronavirus 2012, and now officially named Middle East respiratory syndrome coronavirus (MERS-CoV).

Coronavirus disease 2019 (COVID-19)

The 2019 novel coronavirus is now named severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) while the disease associated with it is referred to as COVID-19.

SARS-CoV-2, was identified in China at the end of 2019 and is a new strain of coronavirus that has not been previously identified in humans.

Where do Coronaviruses come from?

Coronaviruses are viruses that circulate among animals but some of them are also known to affect humans. After they have infected animals, they can eventually be transmitted to humans.

A wide range of animals is known to be the source of coronaviruses.

What is the mode of transmission? How (easily) does it spread?

While animals are the source of the virus, this virus is now spreading from one **person to another (human-to human transmission)**. The virus seems to be transmitted mainly via respiratory droplets that people sneeze, cough, or exhale.

The incubation period for COVID-19

(i.e. the time between exposure to the virus and onset of symptoms) is currently estimated at **between two and 14 days**. At this stage, we know that the virus can be transmitted when those infected show (flu-like) symptoms. However, there are still uncertainties as to whether mild or asymptomatic cases can transmit the virus.

Medical information

Symptoms of COVID-19 infection

The virus can cause mild, flu-like symptoms such as:

- **fever**
- **cough**
- **difficulty breathing**
- **pain in the muscles**
- **tiredness.**

More serious cases develop severe pneumonia, acute respiratory distress syndrome, sepsis and septic shock that can lead to the death of the patient. People with existing chronic conditions seem to be more vulnerable to severe illness.

Generally elderly people and those with underlying conditions (e.g. hypertension, heart disorders, diabetes, liver disorders, and respiratory disease) are expected to be more at risk of developing severe symptoms.

Treatment for the COVID-19 disease?

There is no specific treatment for this disease so the approach used to treat patients with coronavirus-related infections is to treat the clinical symptoms (e.g. fever, difficulty breathing).

Supportive care (e.g. supportive therapy and monitoring – oxygen therapy, fluid management and antivirals) can be highly effective for those infected.

When should I be tested for COVID-19?

If you have

- an acute respiratory infection (sudden onset of either a cough, and/or a sore throat, and/or shortness of breath),

AND

in the 14 days before the start of your symptoms, you were either:

- in close contact , with a confirmed or probable case of COVID-19 infection, or travelled to an area where there is ongoing community transmission of COVID-19,
- or worked in or attended a healthcare facility where patients with COVID-19 infections were being treated, you should contact your doctor by phone for advice.

Prevention

1. How can I avoid getting infected?

When visiting areas with presumed ongoing community transmission you should:

- avoid contact with sick people, in particular those with a cough;
- avoid visiting markets and places where live or dead animals are handled;
- follow general rules governing hand hygiene and food hygiene;
- wash your hands with soap and water OR use an alcohol-based disinfectant solution before eating, after using the toilet and after any contact with animals;
- avoid contact with animals, their excretions or droppings.

Wherever you travel, apply general rules governing hand and food hygiene.