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Corona: A riddle

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Abstract

Coronaviruses typically affect the respiratory tracts of birds and mammals, including humans. Doctors associate them with the common cold, bronchitis, pneumonia, severe acute respiratory syndrome (SARS), and coronavirus disease 2019. They can also affect the gut. These viruses are typically responsible for common colds. However, coronaviruses are also behind some more severe outbreaks. Over the past 70 years, scientists have found that coronaviruses can infect mice, rats, dogs, cats, turkeys, horses, pigs, and cattle. Sometimes, these animals can transmit coronaviruses to humans. Most recently, authorities identified a new coronavirus outbreak in China that has now reached other countries: COVID 19.

Keywords: Viruses, outbreaks & syndrome

Introduction

A new-fangled coronavirus has resulted in scrappy outbreak of viral pneumonia in China. Researchers in the beginning isolated a coronavirus in 1937. They ascertain a coronavirus responsible for an infectious bronchitis virus in birds that had the latent to devastate poultry stocks. Scientists first establish facts of human coronaviruses in the 1960s, in the noses of people with the common cold. Common human coronaviruses includes 229E, NL63, OC43, and HKU1 [1].

The coined term “coronavirus” comes as of the crown-like projections on their surfaces. “Corona” in Latin means “halo” or “crown” [2].

Amid humans, coronavirus infections mainstream frequently transpire during the winter months and early spring. Person-to-person conduction has been demonstrated, but to our acquaintance, transmission of the novel coronavirus that causes coronavirus disease 2019 (COVID-19) from an asymptomatic carrier with normal chest computed tomography (CT) conclusion has not been reported. Moreover, we discuss how studies purposeful on the adaptive immune response will be key in informing the development of vaccines and remedial monoclonal antibodies [3].

Therefore, a synchronized global response is dreadfully needed to prepare health systems to meet this unparalleled challenge. Countries that have been unfortunate enough to have been exposed to this disease already have, paradoxically, very valuable lessons to pass on [4].

Aims & Objectives

- To aware and explain the different types of human coronavirus, their symptoms, and how people transmit them.
- We also spotlight on three chiefly dangerous diseases that have broaden due to coronaviruses: COVID-19, SARS, and MERS.

Covid-19

In 2019, Center for Disease Control and Prevention underway monitoring the outbreak of a new coronavirus, SARS-CoV-2, which causes COVID-19. The system first considered the virus in Wuhan, China [5].

Since then, the virus has broaden to almost each country, leading the World Health Organisation (WHO), to assert this as a pandemic [6].

The new coronavirus has been accountable for millions of infections globally, causing hundreds of thousands of deaths. The United States is the most affected country [7].

The first people with COVID-19 had associates to an animal and seafood market. This suggested that animals to begin with transmitted the virus to humans. However, people with a supplementary recent diagnosis had no links with or revelation to the market, confirming that humans can pass the virus to each other. In the past, people have broaden respiratory

conditions that develop from coronaviruses through close physical contact^[8].

On February 17, 2020, the director general of the WHO obtainable at a media briefing the following updates on how frequently the symptoms of COVID-19 are severe or fatal, using data from 44,000 people with a confirmed diagnosis:

Stage of severity	Rough percentage of people with COVID-19
Mild disease from which a person can recover	More than 80%
Severe disease, causing breathlessness and pneumonia	Around 14%
Critical disease, including septic shock, respiratory failure, and the failure of more than one organ	About 5%
Fatal disease	2%

The WHO report that the two groups most at risk of experiencing severe illness due to a SARS-CoV-2 infection are older adults and people who have other health conditions that compromise their immune system^[9].

According to the CDC, children are not at higher risk of COVID-19 than adults. "Pregnant [women] have had a higher risk of severe illness when infected with viruses from the same family as COVID-19 and other viral respiratory infections." The CDC also recommends that infants born to mothers with suspected or confirmed COVID-19 go into isolation.⁽¹⁰⁾

Symptoms of COVID-19

Symptoms vary from person to person with COVID-19. It may produce few or no symptoms, but it can also lead to severe illness and may be fatal. Common symptoms includes- fever, breathlessness, cough, body aches, runny/congested nose, sore throat, headache, chills, repeated shaking with chills, new loss of taste or smell. It may take 2–14 days for a person to notice symptoms after infection with the virus. No vaccine is currently available for COVID-19^[11].

However, scientists have now replicated the virus. This could allow for early detection and treatment in people who have the virus but are not yet showing symptoms.

According to the CDC, the following groups have a higher risk of developing serious illness from COVID-19: people aged 65 years or older, people living in a nursing home or care facility, people of any age who have serious underlying medical conditions, including chronic lung disease, serious heart conditions, severe obesity, a compromised immune system, or diabetes. The CDC advise that although there have been reports of complications in young children, these are rare. COVID-19 most commonly produces mild symptoms in children^[12].

General symptoms of coronaviruses

Cold- or flu-like symptoms usually set in around 2–4 days after infection and are typically mild. However, symptoms vary from person to person, and some cases can be fatal.

Symptoms may include: sneezing, a runny nose, fatigue, a cough, a fever, a sore throat, exacerbated asthma^[13].

There is currently no cure for coronaviruses that cause symptoms resembling the common cold. Treatments include self-care and over-the-counter medication. People can take the following steps: resting and avoiding overexertion,

drinking plenty of water, avoiding smoking and smoky areas, taking acetaminophen for pain and fever, using a clean humidifier or cool mist vaporizer^[14].

A doctor can diagnose the virus responsible by taking a sample of respiratory fluids, such as blood or mucus from the nose.

Types

Coronaviruses belong to the subfamily Coronavirinae in the family Coronaviridae.

Different types of human coronavirus vary in how severe the resulting disease becomes and how far they can spread.

Doctors currently recognize seven types of coronavirus that can infect humans.

Common types include:

- 229E (alpha coronavirus)
- NL63 (alpha coronavirus)
- OC43 (beta coronavirus)
- HKU1 (beta coronavirus)

Rarer strains that cause more severe complications include MERS-CoV, which causes Middle East respiratory syndrome (MERS), and SARS-CoV, the virus responsible for severe acute respiratory syndrome (SARS)^[15]

In 2019, a new strain called SARS-CoV-2 started circulating, causing the disease COVID-19^[16].

Transmission

The CDC recommends that all people wear cloth face masks in public places where it is difficult to maintain a 6-foot (2-meter) distance from others. This will help slow the spread of the virus from asymptomatic people and people who do not know that they have contracted it. People should wear cloth face masks while continuing to practice physical distancing. Researchers believe that the viruses transmit via fluids in the respiratory system, such as mucus^[17].

For example, coronaviruses can spread in the following ways:^[17]

- Coughing and sneezing without covering the mouth can disperse droplets into the air.
- Touching or shaking hands with a person who has the virus can pass it between individuals.
- Making contact with a surface or object that has the virus and then touching the nose, eyes, or mouth can spread it.
- Some animal coronaviruses, such as feline coronavirus, may spread through contact with faeces.

However, it is unclear whether or not this also applies to human coronaviruses. Coronaviruses will infect most people at some time during their lifetime. To prevent transmission, people should stay at home and rest while their symptoms are active. They should also avoid coming into close contact with other people^[18].

Covering the mouth and nose with a tissue or handkerchief while coughing or sneezing can also help prevent transmission. It is important to dispose of any tissues after use and maintain proper hygiene around the home^[19]

SARS

SARS is a contagious disease that develops after infection with the SARS-CoV coronavirus. It can lead to a life threatening form of pneumonia^[20]

During November 2002, the virus started in the Guangdong Province in southern China, eventually reaching Hong Kong. From there, it rapidly spread around the world,

causing infections in many countries ^[10]. SARS-CoV can infect both the upper and lower respiratory tracts ^[21].

The symptoms of SARS develop over the course of a week and start with a fever. Early on in the disease, people develop flu-like symptoms, such as: dry coughing, chills, diarrhoea, breathlessness, ache, pneumonia, severe lung infection usually develops. At its most advanced stage, SARS causes failure of the lungs, heart, or liver ^[22].

According to the CDC, authorities marked 8,098 individuals as having contacted SARS during its outbreak from which 774 infections were fatal. This equates to a mortality rate of 9.6%.

Complications are more likely in older adults. According to one source, over half of those who died from the infection were more than 65 yrs of age. Authorities eventually controlled SARS in July 2003 ^[23].

MERS

MERS spreads due to the coronavirus known as MERS-CoV. Scientists first recognized this severe respiratory illness in 2012 after it surfaced in Saudi Arabia. Since then, it has spread to other countries ^[24].

The virus has reached the U.S. However, only two people in the U.S. have tested positive for MERS-CoV. This was in 2014. Because of this, the CDC states that the risk of MERS in the U.S. is very low ^[25].

Symptoms of MERS include fever, breathlessness, and coughing. The illness spreads through close contact with people who already have an infection. However, all cases of MERS have links to individuals recently returning from travel to the Arabian Peninsula ^[26]. A recent study on MERS found that the disease is fatal in 35.2% of people who contact it ^[27].

Conclusion

The outbreak of COVID-19 swept across China rapidly and has spread to 85 countries/territories/areas outside of China as of 5 March 2020. (9) Scientists have made progress in the characterization of the novel coronavirus and are working extensively on the therapies and vaccines against the virus. We have summarized the current knowledge of SARS-CoV-2 as follows: Firstly, the emerging pneumonia, COVID-19, caused by SARS-CoV-2, exhibits strong infectivity but less virulence, compared to SARS and MERS, in terms of morbidity and mortality.

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