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Novel Corona Virus and the Covid-19 Pandemic Issues & Challenges

Editorial

Dear Readers,

We are all aware that we are living in one of the most difficult times today because of the spread of the Novel Corona Virus. Life has almost come to a standstill and we are all struggling to save our lives and that of our dear ones.

In this issue, I have tried to highlight the history of human corona virus, its symptoms and the preventive measures we all have to follow at all times. I am sure by now you are aware of all these but let us remind ourselves of these critical aspects of contacting and preventing the spread of the disease once again. Let us follow this strictly and make it a habit to practise social distancing, hand hygiene and keeping our surroundings clean. I feel it is time we attention to staying fit- mentally and physically and not abstain from practicing meditation and exercising regularly to keep the mind and body sound and free from stress. Let us not panic but help each other cope with this pandemic and take care of our family and I hope and am sure that we shall overcome these trying times with patience and understanding.

Stay Safe and healthy.

Kunjini Prakash Darnal

The name "coronavirus" is derived from the Latin word corona, meaning "crown" or "wreath", itself a borrowing from Greek "korone" garland, wreath". The name was coined by June Almeida and David Tyrrell who first observed and studied human coronaviruses. The word was first used in print in 1968 by an informal group of virologists in the journal *Nature* to designate the new family of viruses. The name refers to the characteristic appearance of virions (the infective form of the virus) by electron microscopy, which have a fringe of large, bulbous surface projections creating an image reminiscent of the solar corona or halo. This morphology is created by the viral spike peplomers, which are proteins on the surface of the virus. Coronaviruses were first discovered in the 1930s when an acute respiratory infection of domesticated chickens was shown to be caused by infectious bronchitis virus. Arthur Schalk and M.C. Hawn described in 1931 a new respiratory infection of chickens in North Dakota. The infection of new-born chicks was characterized by gasping and listlessness.

The chicks' mortality rate was 40–90%.. Fred Beaudette and Charles Hudson six years later successfully isolated and cultivated the infectious bronchitis virus which caused the disease. In the 1940s, two more animal coronaviruses, mouse hepatitis virus(MHV) and transmissible gastroenteritis virus (TGEV), were isolated. It was not realized at the time that these three different viruses were related.

Human coronaviruses were discovered in the 1960s. They were isolated using two different methods in the United Kingdom and the United States. E.C. Kendall, Malcom Byone, and David Tyrrell working at the Common Cold Unit of the British Medical Council Research in 1960 isolated from a boy a novel common cold virus B814. The virus was not able to be cultivated using standard techniques which had successfully cultivated rhinoviruses, adenoviruses and other known common cold viruses. In 1965, Tyrrell and Byone successfully cultivated the novel virus by serially passing it through organ culture of human embryonic trachea. The new cultivating method was introduced to the lab by Bertil Hoorn. The isolated virus when intranasally inoculated into volunteers caused a cold and was inactivated by ether which indicated it had a lipid envelope. Around the same time, Dorothy Hamre and John Procknow at the University of Chicago isolated a novel cold virus 229E from medical students, which they grew in kidney tissue culture. The novel virus 229E, like the virus strain B814, when inoculated into volunteers caused a cold and was inactivated by ether.

The two novel strains B814 and 229E were subsequently imaged by electron microscopy in 1967 by Scottish virologist June Almeida at S. Thomas Hospital in London. Almeida through electron microscopy was able to show that B814 and 229E were morphologically related by their distinctive club-like spikes. Not only were they related with each other, but they were morphologically related to infectious bronchitis virus (IBV). A research group at the National Institute of Health the same year was able

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to isolate another member of this new group of viruses using organ culture and named the virus strain OC43 (OC for organ culture). Like B814, 229E, and IBV, the novel cold virus OC43 had distinctive club-like spikes when observed under the electron microscope.

The IBV-like novel cold viruses were soon shown to be also morphologically related to the mouse hepatitis virus. This new group of IBV-like viruses came to be known as coronaviruses after their distinctive morphological appearance. Human Coronavirus continued to be studied in subsequent decades. The coronavirus strain B814 was lost. It is not known which present human coronavirus it was. Other human coronaviruses have since been identified, including SARS- CoV in 2003, HCoVNL63 in 2004, HCoV HKUI in 2005, MERS- CoV in 2012, and SARS CoV2 in 2019. There have also been a large number of animal coronaviruses identified since the 1960s.

The Novel Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus. Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. Older people, and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness. The best way to prevent and slow down transmission is be well informed about the COVID-19 virus, the disease it causes and how it spreads. Protect yourself and others from infection by washing your hands or using an alcohol based hand rub frequently and not touching your face. The COVID-19 virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes, so it's important that you also practice respiratory etiquette (for example, by coughing into a flexed elbow). At this time, there are no specific vaccines or treatments for COVID-19. However, there are many ongoing clinical trials evaluating potential treatments. WHO will continue to provide updated information as soon as clinical findings become available. COVID-19 affects different people in different ways. Most infected people will develop mild to moderate illness and recover without hospitalization.

Most common symptoms:

- fever.
- dry cough.
- tiredness.

Less common symptoms:

- sore throat.
- diarrhoea.
- conjunctivitis.
- headache.
- loss of taste or smell.
- a rash on the skin, or discolouration of fingers or toes.

Serious symptoms:

- difficulty breathing or shortness of breath.
- chest pain or pressure.
- loss of speech or movement.

It is always better to seek immediate medical attention if you have serious symptoms.

People with mild symptoms who are otherwise healthy should manage their symptoms at home. On average, it takes 5–6 days from when someone is infected with the virus for symptoms to show, however it can take up to 14 days. To prevent infection and to slow transmission of COVID-19, do the following:

- Wash your hands regularly with soap and water, or clean them with alcohol-based hand rub.
- Maintain at least 1 metre distance between you and people coughing or sneezing.
- Avoid touching your face.
- Cover your mouth and nose when coughing or sneezing.
- Stay home if you feel unwell.
- Refrain from smoking and other activities that weaken the lungs.
- Practice physical distancing by avoiding unnecessary travel and staying away from large groups of people.

Transmission

It is recommended 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.

For example, coronavirus can spread when a person coughs or sneezes without covering their mouth, dispersing droplets into the air, touches someone who has the infection touches a surface that has the virus, then touches their own nose, eyes, or mouth. Some animal coronaviruses may spread to humans through contact with feces, though it is unclear whether human coronaviruses can spread in the same way. To prevent transmission, people with symptoms should stay at home, rest, and avoid coming into close contact with other people. Covering the mouth and nose with a tissue or handkerchief while coughing or sneezing can also help prevent transmission. It is important to dispose off used tissues right away and maintain proper hygiene around the home. Regular hand-washing is one of the main ways to help prevent the transmission of coronavirus. People should use plenty of soap and water to wash their hands for at least 20 seconds especially after traveling on public transport, being in a public place, coughing, sneezing, blowing their nose. If a person is not able to use soap and water, they can use a hand sanitizer containing at least 60% alcohol. Washing the hands with soap or hand sanitizer helps kill any viruses on the hands that people may have come into contact with. Avoid touching the face. People should avoid touching their eyes, nose, and mouth with their hands, especially if they are unwashed. This can help limit the spread of germs and reduce the likelihood of them getting sick. The hands come into contact with several surfaces throughout the day, and they may pick up viruses this way. A new report suggests that SARS-CoV-2 can remain on certain surfaces for up to three days. If a person then touches their face, viruses can transfer to the eyes, nose, or mouth and enter the body. Limit contact with others. People should take care to avoid coming into close contact with others — especially those who are older, unwell, or have symptoms of the virus. The Centers for Disease Control and Prevention (CDC) recommends staying 6 feet away from anyone who is coughing or sneezing. This is because when a person coughs or sneezes, small droplets containing the virus leave their mouth and nose. Other people can then breathe these droplets in and catch any virus that the droplets may contain. If a person lives within a community where coronavirus is present, the relevant government will likely have additional instructions on how to implement social distancing. These may include staying home from work or working from home, avoiding contact with anyone who is not a member of the household prohibiting large gatherings of people, closing nonessential services, including bars and restaurants. This is especially important for people at higher risk of getting seriously ill from COVID-19, such as older adults and people with the following underlying health conditions- heart disease, lung disease, diabetes. People at higher risk may also need to take extra precautions, such as self-isolating by staying at home. It is also recommended 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.

Prevention in the workplace

Employers and workers can reduce the risk of coronavirus transmission in the workplace by cleaning and disinfecting all surfaces, regularly encouraging regular hand-washing by putting up posters, supplying hand sanitizer, and providing access to soap and water, communicating clearly to employees that people will need to stay at home if they display any symptoms of COVID-19, even if they are mild using conference calls to hold meetings, rather than meeting face to face, when possible getting employees to work from home whenever possible offering social, financial, and mental health support to help people limit physical contact as much as possible.

Prevention in the household

The most valuable prevention method for the household is keeping all surfaces clean. A person should clean all surfaces that people touch regularly, including light switches, door handles, and countertops. To do so, they can use water and a household detergent. For surfaces that are visibly dirty, a person may wish to use a detergent and then a disinfectant. If a person in the household develops COVID-19, they can take the following steps to help prevent it from spreading:

- staying in a separate room or bedroom
- using a separate bathroom if possible
- cleaning and disinfecting bathroom surfaces after using them
- wearing a face mask when using communal areas
- not sharing food and drink with people who do not have the illness and wearing gloves while cleaning and disinfecting any shared surfaces.

How and when to use face masks

Face masks are only effective if a person uses them correctly. Take the following steps to use and dispose off a face mask correctly-

- Before touching the mask or the face, wash the hands with soap and water for at least 20 seconds.
- Make sure that the mask covers the nose and mouth, with no gaps between the face and the mask.
- While wearing the mask, avoid touching it.
- If a person does touch the mask while wearing it, they should wash the hands again.
- Avoid reusing single-use masks.
- Do not write anything, such as a person's name, on the mask. This damages mask integrity and could allow contaminants to enter.
- Replace a mask if it becomes damp.
- Remove the mask by lifting the string at the back, rather than by touching the front. Discard used masks immediately into a closed garbage bin, then wash the hands again.

People can take steps to prevent the spread of coronavirus and help protect themselves and others. Simple steps such as hand-washing and social distancing can be vital tools in reducing coronavirus's impact. If a person has any symptoms of COVID-19, they should stay at home and wear a face mask around other people. If they experience severe symptoms or have a higher risk of COVID-19 complications, they should seek medical advice as soon as possible.