Overview of the Introduction to the New Coronavirus (Covid19): A Review

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ABSTRACT
The word corona means “crown,” and when examined closely, the round virus has a “crown” of proteins called peplomers jutting out from its center in every direction. This paper looks at the cause, effects of COVID19 and treatment. Also, comparing with similar forms of this virus and possible means of transfer, symptoms were distinguished and preventive methods such as hand washing, touching of surfaces, being calm, avoid panic, personal hygiene, etc. This paper made clear insight into previous studies and hope which were and are being proved by some acceptable sources. The paper suggests some procedures for controlling and having a unified whole management to inhibit the pandemic issue.

Keywords: COVID19; Crown; Virus; Washing; Risk
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INTRODUCTION
A coronavirus gets its name from the way it looks under a microscope. The word corona means “crown,” and when examined nearly, the round virus has a “crown” of proteins called peplomers jutting out from its center in every direction. These proteins help the virus identify whether it can infect its host. The condition known as severe acute respiratory syndrome (SARS) was also linked to a highly infectious coronavirus back in the early 2000s. The SARS virus has since been included and found to be successfully curable (WHO, 2020; NHB, 2020). The disease is caused by the virus severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), previously referred to as the 2019 novel coronavirus (2019-nCoV) (CDC, 2020). It is primarily spread between people via respiratory droplets from coughs and sneezes (Campbell, 2020; CDC, 2020). Lungs are the organs most affected by COVID-19 because the virus accesses host cells via the enzyme ACE2, which is the most abundant in the type II alveolar cells of the lungs. The virus uses a special surface glycoprotein, called “spike”, to connect to ACE2 and intrude the hosting cell (Letko et al., 2020). The density of ACE2 in each tissue correlates with the severity of the disease in that tissue and it has been suggested that decreasing ACE2 activity might be protective (Zhang et al., 2020; Zheng et al., 2020) though another view is that increasing ACE2 using Angiotensin II receptor blocker drugs could be protective and that these hypotheses need to be tested by determining the clinical patient records (Jin et al., 2020 ; WHO, 2020). As the alveolar disease progresses respiratory failure might develop and death might ensue. ACE2 might also be the path for the virus to assault the heart causing acute cardiac injury. People with existing cardiovascular conditions have the worst prognosis.

The virus is thought to have an animal origin. It was first transmitted to humans in Wuhan, China, in November or December 2019, and the primary source of infection became human-to-human transmission by early January 2020.

COVID-19 vs. SARS
In early 2020, a new kind of virus began generating headlines all over the world because of the unprecedented speed of its transmission. From its origins in a food market in Wuhan, China in December 2019 to countries as far-flung as the United States and
the Philippines, the virus (officially named COVID-19) has infected tens of thousands, with a rising death toll now over 2,000. But despite the global panic in the news about this virus, you are unlikely to contract COVID-19 unless you have been in contact with someone who recently traveled to certain parts of China. There is no need to worry about the 2019 coronavirus if you have not recently traveled to China or been in contact with someone who have been diagnosed with the virus. Information on the new coronavirus is coming out rapidly. The accuracy of the following information is subject to change. This is not the first time a coronavirus has made news, the deadly 2003 SARS outbreak was also caused by a coronavirus. As with the 2019 virus, the SARS virus was first found in animals before it spread to humans. The SARS virus is thought to have come from bats and then was transferred to another animal, and then to humans. Once transmitted to humans, the SARS virus began spreading quickly among people. What makes COVID-19 so newsworthy is that a treatment or cure has not yet been developed to help prevent its rapid spread from person to person. SARS has been successfully contained and treated.

**What are the symptoms?**

Doctors are learning new things about this virus every day. So far we know that COVID-19 may not initially cause any symptoms. Any individual can carry the virus for 2 days or up to 2 weeks. Some common symptoms that have been specifically linked to the 2019 coronavirus include: feeling short of breath, having a cough that gets more severe over time, a low-grade fever that gradually increase body temperature. The full list of symptoms is still being investigated. If you experience any of the symptoms above and have traveled to China in the past 14 days, or have been in close contact with someone with confirmed COVID-19 within the last 14 days, call your doctor right away. The symptoms of COVID-19 are similar to that of the influenza (flu) virus. The flu virus is much more common and much more deadly than the 2019 coronavirus. At least 6.8 percent of Trusted Source of people who developed the flu during the 2019–2020 flu season in the United States have died (as of February, 2020), compared to around 2 percent trusted Source of those diagnosed with the 2019 coronavirus (WHO, 2019). Here are some common symptoms of a flu infection: cough, runny or stuffy nose, sneezing, sore throat, fever, headache, fatigue, chills, body aches and lacking taste and smell.

**How are coronaviruses diagnosed?**

Diagnostic guidelines released by Zhongnan Hospital of Wuhan University suggested methods for detecting infections based upon clinical features and epidemiological risk. These involved identifying people who had at least two of the following symptoms in addition to a history of travel to Wuhan or contact with other infected persons: fever, imaging features of pneumonia, normal or reduced white blood cell count, or reduced lymphocyte count (Jin, 2020; Daniel and Annie S, 2019).

A study published by a team at the Tongji Hospital in Wuhan on 26 February 2020 showed that a chest CT scan for COVID-19 has more sensitivity (98%) than the polymerase chain reaction (71%). False-negative results may occur due to PCR kit failure, or due to other issues with the sample or issues performing the test. False-positive results are likely to be rare (Sauder et al., 2006; Bai, 2020; Ahandani, 2018). The 2019 coronavirus can be diagnosed similarly to other viral infections: using a blood, saliva, or tissue sample. In the United States, only the CDC Trusted Source currently can diagnose a COVID-19 infection (Ciota et al., 2007; Shi et al., 2008). Talk to your doctor right away if you think you have a coronavirus infection, especially if you’ve traveled to China in the past 14 days. Your doctor will speak to local public health officials to provide guidance on whether testing for the virus is needed. A laboratory technician will either draw a sample of your blood with a needle or use a cotton swab to take a small sample of saliva or respiratory secretions from your nose or the back of your throat (WHO, 2020; CDC, 2020; Alinia-Ahandani et al., 2018). The sample is then sent to a testing facility to confirm the presence of viral material or antibodies that respond to the virus.

**How to prevent coronaviruses?**

Preventive measures to reduce the chances of infection in locations with an outbreak of the disease are similar to those published for other coronaviruses: stay at home, avoid travel and public activities, wash hands with soap and hot water often, practice good respiratory hygiene and avoid touching the eyes, nose, or mouth with unwashed hands (Hoffmann et al., 2019; Iwata-Yoshikawa et al., 2019; Gao et al., 2020; Alinia-Ahandani et al., 2020). Social distancing strategies aim to reduce contact of infected persons with large groups by closing schools and workplaces, restricting travel and canceling mass gatherings. The best way to prevent the spread of this virus is to avoid or limit contact with people who are showing symptoms of the virus and have traveled to China in the past 14 days. The next best thing you can do is practice good hygiene to prevent bacteria and viruses from spreading:

(i) Wash your hands frequently for at least 20 seconds at a time with warm water and soap.
(ii) Do not touch your face, eyes, nose, or mouth when your hands are dirty.
(iii) Do not go out if you’re feeling sick or have any cold or flu symptoms.
(iv) Cover your mouth with the inside of your elbow whenever you sneeze or cough. Throw away any tissues you use to blow your nose or sneeze right away.
(v) Keep any objects you touch a lot clean. Use disinfectants on objects like phones, computers, utensils, dishes, and door handles.
(vi) First and foremost, do not panic. You do not need to wear a mask or be quarantined unless you have been diagnosed with this coronavirus. Following simple hygiene guidelines may help prevent you from developing this and other viruses. The 2019 coronavirus probably seems scary when you read the news about new deaths, quarantines, and travel bans to and from China. But in context, the coronavirus is much less severe and widespread than more common and more threatening infectious conditions, like the flu.
(vii) Stay calm and follow your doctor's instructions if you are diagnosed with a coronavirus infection so that you can recover and help prevent it from spreading.

South Korea declared a health ‘red alert’ last week as cases soared there. Investigators have not yet been able to determine the source of several of the country’s 833 known cases. Today, the UN granted the International Federation of Red Cross and Red Crescent Societies an exemption from sanctions on North Korea so it could help the impoverished country deal with Covid-19. We also do not know the source of many of the 165 cases in northern Italy, and there are a handful of similarly untraceable cases in seven other countries (Praveen, 2020; Lu and Drug, 2020; Wang et al., 2020). Until now, efforts to fight the virus have focused on containment, in which all detected cases and their contacts are quarantined. But when there is enough infection about, people catch it without it being obvious who they got it from (WHO, 2020). Once the virus spreads "in the community" this way, like flu, containment becomes impossible. That is the "window" Tedros fears is closing. As containment fails, countries enter the "mitigation" phase of epidemic response, with quarantine replaced by actions such as closing schools, canceling mass gatherings and similar "social distancing" measures (WHO, 2019; WHO, 2020; CDC, 2020). This is aimed not at preventing the epidemic, but slowing it, so cases won't peak so fast that they overwhelm medical facilities. It is possible, even likely, that community spread of the virus may eventually happen in the US, Nancy Messonnier of the US Centers for Disease Control and Prevention said on 21 February (Iwata-Yoshikawa et al., 2020; Gao et al., 2020; Zhou et al., 2020). The US is using random screening for the virus in six cities, including Honolulu, which gets heavy air traffic from Asia. Research finds new ways COVID-19 can be spread. Researchers are studying how people infected shed the virus and what impact it's having on affected populations. Testing and confirmation of COVID-19 infection are currently carried out by oral swabs. But research published February 17,2019 in Emerging Microbes and Infections finds evidence that there's an oral-fecal transmission route. The scientists reported that COVID-19 genetic material was detected in both anal swabs and blood samples. Chinese researchers conducted the study in Wuhan, China, hospital, and analyzed samples collected from about 180 patients (WHO, 2020; CDC, 2020). Recommended measures to prevent the disease include frequent hand washing, maintaining distance from other people and not touching one's face (CDC, 2020). The use of masks is recommended for those who suspect they have the virus and their caregivers but not for the general public (Li et al., 2019; Beeching et al., 2020; Cascella et al., 2020). There is no vaccine or specific antiviral treatment for COVID-19; management involves treatment of symptoms, supportive care and experimental measures. Crucially, evidence of COVID-19 was found in anal swabs and blood— even when it wasn't detected using oral swabs. According to the study, this was particularly true for those people receiving supportive care for several days. Findings also suggest that timing is an important factor. On day 1 of the illness, 80 percent of oral swabs were COVID-19-positive, but by day 5, 75 percent of anal swabs were positive, while only half of the oral swabs showed infection, according to the study. This means that sneezing isn't the only way for transmission; blood and fecal matter can carry the virus, even when conventional testing comes back negative.

**Coronavirus study finds who most at risk is**

Although medical staff, people with illneses, and older adults are most at risk, more than 80 percent of COVID-19 cases have been mild, according to a new report from the Chinese Center for Disease Control and Prevention (China CDC, 2020). The Hubei province in China, where the infection is believed to have originated, is the hardest hit, according to the report. The province's death rate is almost 3 percent, compared with just under a half percent in the rest of the country. In the United States, the Americans who were evacuated from the Diamond Princess cruise ship on U.S. charter flights are being tested and treated for COVID-19, according to the University of Nebraska Medical Center. They'll be held in the new National Quarantine Unit, which was designed to safely monitor Americans after exposure to an infectious disease. The unit is nearby the Nebraska Biocontainment Unit Team, which cared for three people who contracted Ebola in 2014. The information currently available about the different COVID-19 clusters of cases in four Regions in Italy is limited. The situation is dynamically evolving, with more cases expected in the coming days. The risk assessment for the EU/EEA might change when more data become available. The clusters are currently limited to a few Regions in northern Italy. No close contacts or other related cases have been reported to be linked to other European countries. The possibility of
new introductions from other countries outside China in
the EU/EEA appears to be increasing as the number of
non-EU/EEA countries reporting cases keeps going up.
Among the increasing number of countries reporting
COVID-19 cases are Israel, Lebanon, Iran, and Egypt,
while the number of cases in countries outside of China
(South Korea, Japan) has been increasing over the last
couple of weeks. This also increases the possibility of cases
being introduced from other countries outside China by
travelers to the EU/EEA. The impact of sustained
transmission in the EU/EEA would be moderate to high,
especially for elderly populations with comorbidities,
given that the reported case severity is high among
these groups (Bull et al., 2005; Eigen, 1993; Alinia-
Ahandani et al., 2019; Shi et al., 2008, WHO, 2020;
CDC, 2020).

The current event in Italy indicates that local
transmission may have resulted in several clusters for
which an epidemiological link to areas where ongoing
transmission is presumed, was not apparent. The
accumulated evidence from clusters reported in the
EU/EEA and the UK indicates that once imported, the
virus causing COVID19 can transmit rapidly. This may
emanate from cases with mild symptoms that do not
provoke healthcare-seeking behaviour. The increases
in cases and the number of countries outside China
reporting those cases increases the potential routes of
importation of the infection into the EU/EEA and the UK.
If a significant increase in COVID-19 cases were to
coincide with a high level of influenza activity, the
potential impact on healthcare systems would be
moderate to high. The increased number of cases
would require additional resources for testing, case
management, surveillance, and contact tracing.
Increased transmission could result in further pressure
on healthcare systems. This situation would be
exacerbated should a substantial number of healthcare
workers become infected (WHO, 2020; Alinia-
Ahandani et al., 2020).

As governments and health officials worldwide grapple
with the epidemic of severe acute. With as many as
72,000 cases, the national security strategy for COVID-
19 within China has shifted to so-called wartime control
measures, putting cities on lockdown and affecting an
estimated 760 million people. Regional identification,
isolation, and treatment implementation have brought
a range of high-tech and militarized approaches (Gurwitz,
2020; Mahtani, 2020; WHO, 2020). Identification of
suspected cases has included extensive efforts in
contact tracing, using everything from transportation
documents to mobile phone hotlines. Harsh criticism
has been levied about the silencing of dissenting voices
in China, including Dr. Li Wenliang, who was arrested
after raising concerns about the virus on social media
and subsequently died from COVID-19. Other concerns
have been raised about reported measures such as
isolation and mass round-ups and quarantining of
people at makeshift medical facilities for unspecified
durations. Western media have also reported that some
residential areas have been sealed off in a grid system,
with checkpoints and monitoring of movements,
effectively detaining residents. Some internal public
transport and external travel to China have been halted
via advisories and bans restricting commercial flights.
However, there is little evidence that travel bans
effectively halt the spread of infectious diseases, and
instead, they can hamper supply chains, lead to stigma
and mistrust, and might violate the principles of the
International Health Regulations, as outlined in a
Comment published in The Lancet (WHO, 2020;
Alinia-Ahandani et al., 2020).

Research and vaccine

There’s currently no treatment specifically approved for
the 2019 coronavirus, and no cure for an infection,
although treatments and vaccines are currently under
study. Instead, treatment focuses on managing
symptoms as the virus runs its course (WHO, 2020;
CDC, 2020). Seek immediate medical help if you think
you have COVID-19. Your doctor will recommend
treatment for any symptoms or complications that
develop. Other coronaviruses like SARS and MERS do
have vaccines and treatments. Some treatments for
these similar viruses include: antiviral or retroviral
medications, breathing support like mechanical
ventilation, steroids to reduce lung swelling, blood
plasma transfusions (Ciota et al., 2007; Li and Clercq,
2020; Steenhuyse, 2020; Praveen, 2020). Because of its key role in the transmission and
progression of the disease, ACE2 has been the focus of
a significant proportion of research and various
therapeutic approaches have been suggested. There is
no available vaccine, but research into developing a
vaccine has been undertaken by various agencies.
Previous work on SARS-CoV is being utilized because
SARS-CoV-2 and SARS-CoV both use ACE2 enzyme
to invade human cells (CDC, 2020). Three vaccination
strategies are being investigated. First, researchers aim
to build a whole virus vaccine. The use of such a virus
is inactive or dead, aims for a prompt immune response
of the human body to a new infection with COVID-19.
A second strategy, subunit vaccines, aims to create a
vaccine that sensitizes the immune system to certain
subunits of the virus. In the case of SARS-CoV-2 such
research focuses on the S-spike protein that helps the
virus invade the ACE2 enzyme. A third strategy is the
nucleic acid vaccines (DNA or RNA vaccines, a novel
technique for creating a vaccination). Experimental
vaccines from any of these strategies would have to be
tested for safety and efficacy. No drug has yet been
approved to treat coronavirus infections in humans by
the WHO although some are recommended by the
Korean and Chinese medical authorities (WHO,
2020). Trials of many antivirals have been started in
patients with COVID-19 including oseltamivir,
lopinavir/ritonavir, ganciclovir, favipiravir, baloxavir marboxil, umifenovir, interferon alfa but currently, there are no data to support their use. Korean Health Authorities recommend lopinavir/ritonavir or chloroquine and the Chinese 7th edition guidelines include interferon, lopinavir/ritonavir, ribavirin, chloroquine and/or umifenovir. Research into potential treatments for the disease was initiated in January 2020, and several antiviral drugs are already in clinical trials. Although, completely new drugs may take until 2021 to develop. Several of the drugs being tested are already approved for other antiviral indications or are already in advanced testing. Remdesivir and chloroquine effectively inhibit the coronavirus in vitro. Remdesivir is being trialled in US and China (CDC, 2020). Preliminary results from a multicentric trial announced in a press conference and described by Gao, Tian and Yang, suggested that chloroquine is effective and safe in treating COVID-19 associated pneumonia, improving lung imaging findings (Figures 1 and 2) (Salehi et al., 2019), promoting a virus-negative conversion, and shortening the disease course (Gao et al., 2020; WHO, 2020; CDC, 2020). Recent studies have demonstrated that initial spike protein priming by transmembrane protease serine 2 (TMPRSS2) is essential for entry of SARS-CoV-2, SARS-CoV and MERS-CoV via interaction with the ACE2 receptor (Hoffmann et al., 2020; Iwata-Yoshikawa et al., 2020). These findings suggest that the TMPRSS2 inhibitor Camostat approved for clinical use in Japan for inhibiting fibrosis in liver and kidney disease, postoperative reflux esophagitis and pancreatitis might constitute an effective off-label treatment option (related reports in website, 2020). The rapid approval means that Actemra (tocilizumab) – an interleukin-6 inhibitor – can be used to treat patients infected with the new coronavirus who have developed serious lung damage and also have elevated levels of IL-6 in the blood. Prior research has suggested that elevated levels of IL-6 – a biomarker for inflammation and a high-level immune response – is associated with a higher mortality rate in people with community-acquired pneumonia. Actemra’s approval stems from China’s hope that the drug could be able to interrupt ‘cytokine release syndrome’ (CRS), a runaway form of systemic inflammatory response that can occur as a complication of some diseases or infections. But the cited sources in this approving aren’t enough and we try not to tell so more. The vaccine race is anybody’s game. Dennis O’Brien on May 7th pointed there is new technology being deployed by both Moderna and Pfizer/BioNTech, known as messenger RNA. That’s allowed those companies to move at incredibly fast speeds but it’s also a drawback in that no drug or vaccine based on mRNA has ever reached the market, so there are many questions, including about safety and efficacy. The team at Oxford is using an approach they’ve already tried in other coronaviruses, so they may have a head start (they started their trials in humans in April). Meanwhile, Johnson and Johnson, which has tremendous credibility in vaccine
development in outbreak scenarios after developing an Ebola vaccine, says it aims to start human trials in September 2020. On the front of the treatment, other than Gilead’s Remdesivir, which has received its share of ink in the last month, one of the nearest-term hopes is Regeneron’s antibody approach. The company successfully developed an antibody-drug for Ebola that proved effective in a clinical trial in the Democratic Republic of Congo, and it’s doing the same thing for Covid-19, with plans to enter human trials in June 2020. They expect they could get data on how well their drug works one to two months later. If it does work, it could provide a bridge to a vaccine and other drugs (specifically, easier-to-take pills in development for Covid-19 at Pfizer and other drug companies, and in the lab of AIDS research pioneer David Ho (https://www.cnbc.com/2020/05/07). The expectation is pills like this could be taken earlier in the course of the disease or even preventively. Iranian scientists are working on some potential vaccines or some drugs based on medicinal plants which had mostly positive effects on COVID19.

The international COVID-19 response has been focused on avoiding a pandemic, of which many experts suggest we could be in the early stages. As of February 18, 2020, WHO reported 804 total confirmed cases and three deaths in 25 countries outside China? In addition to confirmed cases from travelers to Wuhan and on cruise ships, countries including Singapore, Japan, Thailand, and South Korea have identified clusters of locally transmitted cases (CDC,2020; WHO,2020). The numbers are small, but the rate of secondary and tertiary transmission is of grave concern and misinformation and fear are rampant. Thousands of medical workers in China are thought to have COVID-19 and, as countries implement scaled-up diagnosis and surveillance, the risks from inadequate protective gear and shortages in testing kits are heightened (Mahtani et al., 2020; WHO,2020). The first confirmed case in Africa (in Egypt) is worrying, as weak primary health-care systems could undermine preparedness. WHO has called for more investment in surveillance and preparedness, but governments have been slow to take heed. A huge amount of funding has been committed for vaccine platforms but, even with four candidates in development, there is unlikely to be a viable vaccine for at least another 12–18 months. Dozens of clinical trials of treatment are underway, but it will be weeks or months before the results are known (https://www.who.int/health-topics/coronavirus;https://www.cdc.gov/coronavirus/2019-ncov/index.html; Zhou et al., 2020; Alinia-Ahandani et al., 2019).

CONCLUSION

The World Health Organization (WHO) has declared the 2019–20 coronavirus outbreaks a pandemic and a Public Health Emergency of International Concern (PHEIC) (WHO, 2020; CDC, 2020). Evidence of local transmission of the disease has been found in multiple countries across all six WHO regions. Staying at home and having self-quarantine are the best ways for controlling the virus. It’s also so essential for having information for those who are related to ill ones or have some special symptoms. Absolutely some in danger countries like Iran must be assisted soon cause of the United States’ sanctions which won’t let money transfer between banks or sending free aims. All regions have to build united thought for inhabitation as soon as possible.

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