

New Immerging Threat to Public Health: COVID-19

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Abstract

There is a new public health crises threatening the world with the emergence and spread of 2019 novel coronavirus (2019-nCoV) or the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The virus originated in bats and was transmitted to humans through yet unknown intermediary animals in Wuhan, Hubei province, China in December 2019. In this time a huge number of the person was died in world and in the India the corona are on the last stage of the 2nd. In this article some precaution and treatment are mentioned.

Keywords: COVID-19; Precaution; HIV; Treatment; Health care; Public Health

Introduction

Over the last few decades, the world has seen the presence of new viruses that have posed major threats to global health. Towards the end of December 2019, several patients in Wuhan, China began to report symptoms similar to pneumonia. The new virus was identified and initially identified as a 2019 nova (2019-nCoV coron). The World Health Organization (WHO) eventually changed the name of the virus to acute respiratory syndrome coronavirus 2 (SARS-CoV-2) [1]. The disease it causes is named coronavirus disease 2019 (COVID-19). Sars-CoV is a specific stranded RNA virus from the Coronaviridae family. Other viruses from the same family include the acute respiratory syndrome coronavirus (SARS-CoV), which originated in 2002, and the Middle East respiratory syndrome coronavirus (MERS-CoV), which is reported in 2012 [2]. As the virus spreads around the world, on March 11, 2020, WHO officially described the outbreak of COVID-19 as a pandemic.

Epidemiology

As of March 18, 2020, the WHO has reported that 200,000 worldwide on Wednesday as the new coronavirus continues to spread outside of China, the original epicenter of the outbreak (Table 1). The virus has now from killed more than 8,000 people around the world, according to JHU, but more than 82,000 people have recovered the virus. Since the first reported case in Wuhan, 109 other countries have declared that they have at least one confirmed case of COVID-19. The WHO has officially classified China as a "very high risk" region for COVID-19 [3] (Table 2).

Mainland India and territories

Among the Health Ministry's 258 figure are 39 foreign nationals, including 17 from Italy, three from the Philippines, two from the UK, one each belonging to Canada, Indonesia and Singapore. The total figure includes four deaths reported from Delhi, Karnataka, Punjab and Maharashtra. "The total number of active COVID-19 cases across India stands at 231 so far," the ministry said, adding that 23 others have been cured/discharged/migrated while four have died (Figure 1 and Figure 2).

What is severe acute respiratory syndrome coronavirus 2?

Sars-CoV-2 is a straightforward, single-stranded RNA virus. The SARS-CoV-2 virion is 50-200 nm in size and contains four main proteins; spike (S), envelope (E), membrane (M), and nitocapsid (N) [4]. The S protein allows this virus to bind to the host cell surface. Angiotensin-converting enzymes 2 (ACE2) receptors in host cells have been found to be the target of S proteins. Then there are systematic changes to interact with the host, and this ultimately allows the viral genes to enter the host cell [5-8].

Genomic comparisons have shown that Sars-CoV-2 is similar to the *Rhinolophus sinicus* bat and 96% similar to the *Rhinolophus affinis* bat [8,9]. One group of researchers found that a single sample of the virus had 99% similarity to pangolins and suggested that the animal could be a mediator of the virus [10,11].

According to the Centers for Disease Control and Prevention (CDC), SARS-CoV-2 transmission occurs most commonly in individuals with respiratory droplets of up to 180 cm. This virus can also be diagnosed by contacting the mucosal surface after touching the infected object [12].

What are the clinical symptoms of COVID-19?

While the time of the virus was initially thought to be 14 days, many cases have been reported in shorter periods. A study by Guan et al. calculated the migration time between four days and the minimum width of two days and the maximum width of seven days. In their research, the most common finding in the imaging was the surface-glass opacity on CT (56.4%) [13]. They found that 43.8% had an admission fever and 88.7% at hospital admission. Cough was also a common symptom and was seen in 67.8% of patients. The Chinese Center for Disease Control and Prevention reported that 87% of confirmed cases were in adults aged 30 to 79 years. Mortality rates and cases increase with age; the mortality rate was 8% in patients aged 70 to 79 years and was 15% in those 80 years or older [14].

A study involving 10 children revealed that most presented with fever (80%) while 60% had a cough [15]. All children presented with soft and gentle symptoms. Studies have also reported that patients have been continuously disinfected in the respiratory tract and laundry, or during their birth. The second study involved nine HIV-infected infants aged 1-11. Four out of nine patients presented with the flu; one baby did not have any symptoms but was diagnosed with the virus. None of the infants needed ventilation or had to be admitted to intensive care [16].

How are patients tested for SARS-CoV-2?

Samples from the upper respiratory tract were used to test the virus. Polymerase chain reaction (PCR) was used to identify their viral RNA. If the test is positive, the SARS-CoV-2 diagnosis is confirmed. Negative

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| S. N. | States | Confirmed Case |
|-------|----------------|----------------|
| 1 | Delhi | 26 |
| 2 | Kerala | 40 |
| 3 | Uttar Pradesh | 24 |
| 4 | West Bangal | 19 |
| 5 | Telangana | 19 |
| 6 | Kernataka | 15 |
| 7 | Andhra Pradesh | 3 |
| 8 | Ladakh | 10 |
| 9 | Rajasthan | 15 |
| 10 | Panjab | 2 |
| 11 | Odisha | 2 |
| 12 | Madhya Pradesh | 4 |
| 13 | Tamil Nadu | 3 |
| 14 | Gujarat | 7 |

Table 1: Number of confirmed cases linked with COVID-19 in India as of March 21, 2020 (reported by the WHO).

| S. N. | Country/Other | Total cases | Total deaths |
|-------|------------------|-------------|--------------|
| 1 | China | 81,008 | 3,255 |
| 2 | Italy | 47,021 | 4,032 |
| 3 | Spain | 21,571 | 1,093 |
| 4 | Germany | 19,848 | 68 |
| 5 | USA | 19,650 | 264 |
| 6 | Iran | 19,644 | 1,433 |
| 7 | France | 12,612 | 450 |
| 8 | South Korea | 8,799 | 102 |
| 9 | Switzerland | 5,615 | 56 |
| 10 | UK | 3,983 | 177 |
| 11 | Netherlands | 2,994 | 106 |
| 12 | Austria | 2,649 | 6 |
| 13 | Belgium | 2,257 | 37 |
| 14 | Norway | 1,959 | 7 |
| 15 | Sweden | 1,639 | 16 |
| 16 | Denmark | 1,255 | 9 |
| 17 | Canada | 1,087 | 12 |
| 18 | Malaysia | 1,030 | 3 |
| 19 | Australia | 1,023 | 7 |
| 20 | Portugal | 1,020 | 6 |
| 21 | Japan | 1,007 | 35 |
| 22 | Brazil | 970 | 11 |
| 23 | Czechia | 833 | |
| 24 | Diamond Princess | 712 | 8 |
| 25 | Israel | 705 | 1 |

Table 2: Number of confirmed cases and deaths related to COVID-19 outside of India as of March 21, 2020 (reported by the WHO).

tests with strong suspicion, such as clinical symptoms or exposure, can be repeated using samples from other respiratory sites [17,18].

Treatment of COVID-19

There are a number of antiviral regimens that help patients with severe viral symptoms. Lopinavir and ritonavir have not been used in other clinical trials. Lim et al. reported that these drugs helped their patient as they progressed through treatment and viral load decreased significantly [19]. Four COVID-19 patients were identified by Wang et al. study in Shanghai, China, and they are developing with the combination therapy of lopinavir and ritonavir [20]. In Singapore, certified hospital admissions are offered antiviral treatment including lopinavir and ritonavir. While some patients reported improvement in

their symptoms, four patients suffered nausea, vomiting, or diarrhea, and three patients showed high liver test results [21].

Many other therapies such as Remdesivir (Gilead Science, Foster City, CA), peptide (EK1), inhibitors of neuraminidase, chloroquine, and arbidol have also been suggested [22]. There are many research groups trying to investigate a potential vaccine. The role of boat proteins in viral injury and pathogenesis is an available target for prevention [23].

How to prevent COVID-19?

The CDC recommends numerous measures to protect the transmission and risk of SARS-CoV-2. Washing your hands regularly for 20 seconds using soap and water is advisable. Laundry detergents containing at least 60% alcohol can also be used as an alternative. The

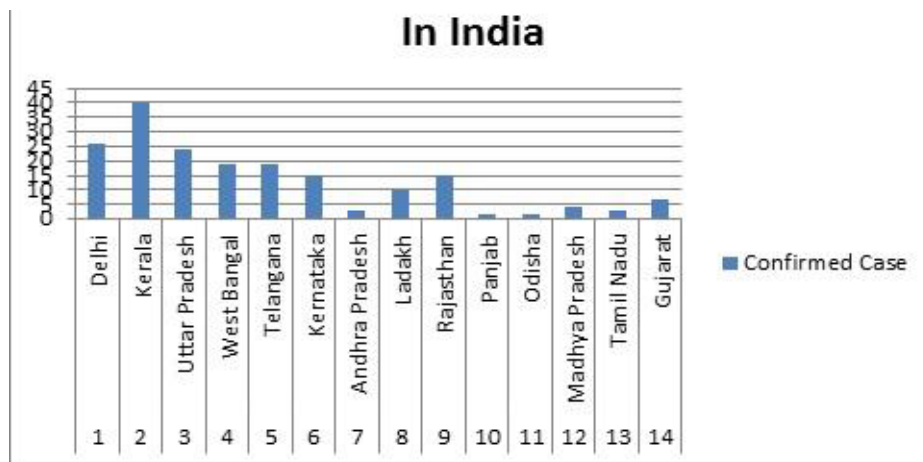


Figure 1: A graphical presentation of the total cases.

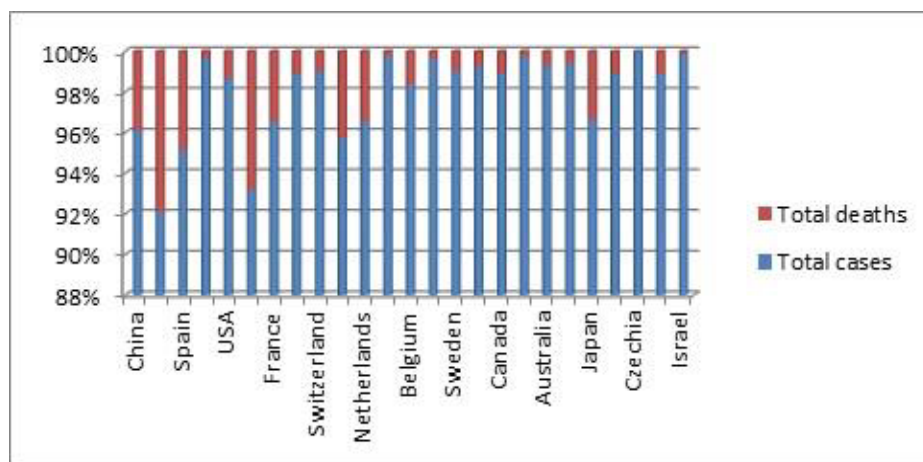


Figure 2: A graphical presentation of the total cases and death rate.

public was also told to avoid touching mucosal eye pieces such as mouth and nose and hands that had not been washed. Anyone showing symptoms of the virus should try to get proper medical attention. They should also limit their exposure to other unaffected people and cover their nose and mouth when coughing or sneezing. They were also advised to wear a facemask when introducing symptoms. Regular hygiene is recommended for groups at risk of contracting the virus [24].

Practice Points from an Indian Perspective

At the time of writing this article, the risk of coronavirus in India is extremely low as compared to other countries. But that may change in the next few weeks.

Health care providers should take a walking history of all patients with respiratory symptoms, and any international travel in the past 2 weeks and contact with patients traveling overseas. They should establish a program to diagnose patients with respiratory illnesses in the foreign department and provide them with a simple surgical mask. They should use the surgical mask itself while examining such patients and regularly practicing hand hygiene. Suspected cases should be referred to government-designated institutions to isolate and examine them (in Mumbai, at this time, it is a Kasturba hospital). Testing kits are not yet available in India. Patients receiving severe

pneumonia and acute respiratory distress should be monitored for a history of mobility and subjected to detection and classification by drops. Regular destruction of the top surfaces should be done. They should be tested for etiology using multiple PCR panels if transplant approval is required and if no pathogen is identified, submit SARS-CoV-2 test samples. All doctors should keep themselves updated on the latest developments including the spread of the disease worldwide. Unimportant exports should be avoided at this time. People should stop spreading myths and false information about the disease and try to alleviate the shock and anxiety of society.

Conclusion

Elderly and uninfected patients are at higher risk of a deadly virus. While some treatment protocols have shown some promise, there is currently no proven cure for the virus and no vaccine has been started. With proper preventive measures, the virus can be contained and people protected.

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