Review Article

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Novel Coronavirus: Emerging threat to Public Health

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Abstract

Another decade has come up in the arrest of another deadly Coronavirus. On 31st December 2019, the WHO China Country Office was informed of pneumonia like cases of unknown etiology first detected in Wuhan City, Hubei Province of China. This novel type of Coronavirus was isolated on 7th January 2020 following which China shared its genetic sequence on 12 January, 2020 globally for countries to use in developing specific diagnostic kits. The outbreak of novel Coronavirus (2019-nCoV) was declared as a Public Health Emergency of International Concern on 30th Jan, 2020 by WHO. Since, the entire human population is susceptible to coronavirus because no one has ever had it before—and there is no specific treatment like a vaccine, hence we need to seriously depend on infection control, such as washing hands, reducing contact with affected individuals and quarantines.

Keywords: Novel Coronavirus; Public Health Emergency; Epidemiology; Prevention Strategies.

Background

Another decade has come up in the arrest of another deadly Coronavirus. On 31st December 2019, the WHO China Country Office was informed of pneumonia like cases of unknown etiology first detected in Wuhan City, Hubei Province of China. Till 3rd January 2020, a total of 44 such cases were reported to WHO by the national authorities of China.[1] This novel type of Coronavirus was isolated on 7th January 2020 following which China shared its genetic sequence on 12 January, 2020 globally for countries to use in developing specific diagnostic kits.[2]

Problem Statement

The outbreak of novel Coronavirus (2019-nCoV) was declared as a Public Health Emergency of International Concern on 30th Jan, 2020 by WHO. In China, more than 17000 cases have been confirmed and 361 people have died (WHO). There have been 153 additional cases confirmed in 23 countries.Of these, only 7 had no history of travel to China.[3]

India has declared three confirmed case of nCoV in Kerala till now.

A study by Huang et al.[4] reported that by Jan 2, 2020, 41 patients admitted in a designated Wuhan hospital were identified as having laboratory-confirmed 2019-nCoV infection. Majority of these patients were men [30 (73%) of 41] and less than half of these patients had any underlying diseases [13 (32%)], like Diabetes and Hypertension. More than half of these patients [27 (66%) of 41] had been through an exposure to Huanan seafood market. All 41 patients had pneumonia with abnormal findings on chest CT.

Another study by Li et al.[5] observed that the majority of cases (55%) were linked to the Huanan Seafood Wholesale Market. In its early stages, the epidemic doubled in size every 7.4 days. With a mean serial interval of 7.5 days, the basic reproductive number was estimated to be 2.2 (95% CI, 1.4 to 3.9).

Epidemiology:

Mode of Transmission

The primary reservoir for the virus is Bats. It has been reported that snakes were sold in the local seafood market in Wuhan, raising the possibility that the 2019-nCoV might have jumped from the host species - bats - to snakes and then to humans at the beginning of the outbreak.[6] But it yet mysterious that how this virus has adapted to both the cold-blooded and warm-blooded hosts.

Also, the 2019-nCoV has been observed to be growing better in primary human airway epithelial cells than in standard tissue-culture cells, unlike SARS-CoV or MERS-CoV.[7]

The incubation period

Up to 2 weeks, according to WHO.

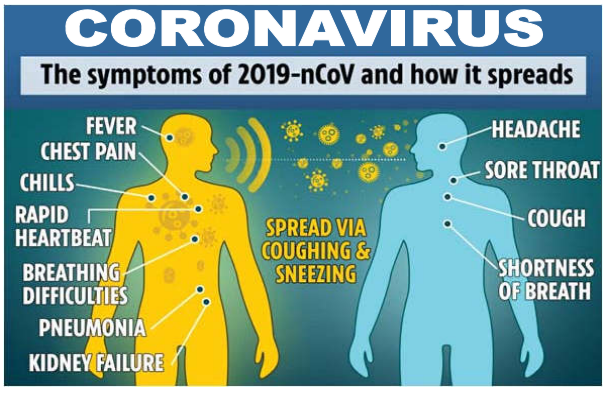
Case fatality rate

It has been observed that 2019-nCoV has the least fatality rate amongst its other counterparts.

1. 2019-nCoV - 3%
2. MERS- 35%
3. SARS-10%
4. Ebola-50%

Symptoms

Since, 2019-nCoV attacks the intraepithelial cells of lung tissue and not just the throat, dyspnoea appears to be a common symptom in majority of the patients along with fever, cough and weakness or muscle ache.



Prevention of this fatal infection

WHO defines Exposure as being within six feet of an infected person for 10 minutes or longer.

It has been observed that coronaviruses last 3 to 12 hours longer on surfaces as compared to other illnesses. So, when an infected person coughs or sneezes, droplets of saliva or mucus can fall on a person making him infected as well.[8]

Hence, following can help in prevention and management of nCoV:

1. Quarantine for two weeks of the LRTI patient
2. Timely diagnosis
3. Strict adherence to universal precautions like:

Washing hands often with soap and water for at least 20 seconds and avoiding touching eyes, nose, and mouth with unwashed hands, avoiding close contact with sick people as well as observing cough etiquettes.

Recommendations

Considerable efforts are required to reduce transmission of the deadly virus following its dynamics of transmission. Measures to prevent or reduce transmission should be implemented in populations at risk. Since, the entire human population is susceptible to coronavirus because no one has ever had it before—and there is no specific treatment like a vaccine, hence we need to seriously depend on infection control, such as washing hands, reducing contact with affected individuals and quarantines.

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