



A BRIEF REVIEW OF THE NOVEL CORONAVIRUS (2019-NCOV) OUTBREAK

Ritwik Ghosh*

Final Professional MBBS Student Calcutta National Medical College
*Corresponding Author

Saikat Das

Final Professional MBBS Student Calcutta National Medical College

ABSTRACT

The 2019-nCoV infection cases from Wuhan, China were first reported to the World Health Organization (WHO) on 31st December 2019. To this day, the disease has spread to 4 continents and there has been a significant number of deaths due to the disease. WHO has categorized the risk to high in case of the whole world. 2019-nCoV has a distinct lineage within the coronavirus family. It has an incubation period of about 2-14 days and is capable of direct human to human transmission. In order to contain this epidemic, the Chinese government has imposed restriction of movement across the country. Other countries have imposed travel ban to China in order to contain the epidemic

KEYWORDS : 2019-ncov, Wuhan Coronavirus, World Health Organization, Brief Review**INTRODUCTION**

The 2019-nCoV associated pneumonia cases were reported to the World Health Organization (WHO) on 31st of December 2019 by the Chinese government. These cases were from Wuhan, Hubei Province, China [1]. From that time, the number of deaths due to this disease has increased rapidly. The disease has also spread to 4 continents according to the confirmed cases reported to the WHO. As of February 1st 2020, there are 11953 confirmed cases globally. Among these cases, 11821 confirmed cases (98.89%) are from China. According to WHO's risk assessment, the risk at global level is high [2]. In this review, we have aimed to discuss the causative agent characteristics, transmission dynamics and preventive measures associated with this outbreak.

METHODS

Here we have systematically reviewed the different articles published from 2019 to 2020 for this purpose from different databases of PubMed, Cochrane Library, etc. Keywords related to the study aim and included in the search string were: Wuhan coronavirus, 2019-nCoV. The aim of this article is to give a brief review of the 2019-nCoV outbreak.

2019-NCOV CHARACTERISTICS

Among the 6 species of coronavirus known to be causing human infections, 4 only cause cold symptoms. The other two, SARS-CoV (severe acute respiratory syndrome coronavirus) and MERS-CoV (Middle East respiratory syndrome coronavirus) are zoonotic in origin. The SARS-CoV is responsible for the 2003 outbreak in Guangdong, China. The MERS-CoV is responsible for the 2012 outbreak in the Middle East. Both of them have been reported to cause severe respiratory problems and fatalities [3]. The 2019-nCoV is an addition to these pathogenic species of coronaviruses and is responsible for the current outbreak in Wuhan, China.

The study by Paraskevis et al. used RDP4 and Simplot v3.5.1 and discordant phylogenetic clustering in individual genomic fragments to investigate the genome of 2019-nCoV. It showed that the 2019-nCoV genome has a distinct lineage within the beta coronavirus family. It supports the hypothesis that 2019-nCoV originated from bats [4].

TRANSMISSION DYNAMICS

The study by Li et al. showed that the mean incubation period was 5.2 days. In every 7.4 days, the epidemic doubled in size during the early stages. There is evidence that the disease can get transmitted from one human to another directly [4]. More recent estimates show that 2019-nCoV has an incubation period of 2-14 days and is also potentially capable of asymptomatic transmission [2,6].

CLINICAL PRESENTATION

According to the symptoms of the infected patients, the disease is mild in nature. The patients usually show respiratory illness with fever, cough, and shortness of breath [3].

TREATMENT

No specific antiviral treatment is currently available for the 2019-nCoV infection. So symptomatic treatment is recommended [3].

CURRENT SCENARIO

The Chinese authorities announced on 7th January 2020, that the outbreak in Wuhan is caused by 2019-nCoV [7]. Chinese researchers released the viral genome sequences to the Global Initiative on Sharing All Influenza Data (GISAID) on 10th January 2020 [8]. As of 1st February 2020, there have been 11821 confirmed cases in China. Other western pacific countries like Japan, Republic of Korea, Singapore, Australia, etc have also reported a number of confirmed cases. Confirmed cases have also been reported from South East Asia, USA, Canada, Europe and UAE [2]. With each passing day, the 2019-nCoV infection is spreading rapidly and the death toll is rising.

To prevent further spread of the disease, the Chinese authorities have restricted movement in the Hubei Province. These restrictions have been imposed in 16 cities affecting approximately 50 million people [9]. Several countries like the USA, North Korea, Kyrgyzstan, etc have put travel ban to China in order to contain the outbreak [1].

CONCLUSION

The 2019-nCoV outbreak is currently a major concern for healthcare workers all around the globe. Due to the mild nature of the disease and its ability to be transmitted directly between humans, it will be very hard to contain the disease. Even though China has established cordon sanitaire in the Hubei province, its effectiveness in controlling the spread of the disease is yet to be assessed. In order to bring this outbreak in control, the scientific community must conduct thorough research to fully understand the disease and find a suitable global action plan. Till then, we will have to rely on the conventional non pharmaceutical preventive measures and symptomatic treatment.

ABBREVIATIONS

2019-nCoV: 2019- novel coronavirus
WHO: World Health Organization
SARS-CoV: Severe acute respiratory syndrome coronavirus
MERS-CoV : Middle East respiratory syndrome coronavirus
GISAID: Global Initiative on Sharing All Influenza Data

REFERENCES

1. Phelan AL, Katz R, Gostin LO. The Novel Coronavirus Originating in Wuhan, China: Challenges for Global Health Governance. *JAMA*. Published online January 30, 2020.
2. World Health Organization. Novel coronavirus (2019-nCoV) situation report-12.
3. W. Graham Carlos, MD, Charles S. Dela Cruz MD, PhD, Bin Cao, MD, Susan Pasnick, MD, Shazia Jamil, MD AJRCCM Articles in Press. Published on 31-January-2020 as 10.1164/rccm.2014P7
4. D. Paraskevis, E.G. Kostaki, G. Magiorkinis, et al., Full-genome evolutionary analysis of the novel corona virus (2019-nCoV) rejects the hypothesis of emergence as a result of a recent recombination event, *Infection, Genetics and Evolution*(2019), <https://doi.org/10.1016/j.meegid.2020.10421>
5. Li Q, Guan X, Wu P et al. Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia. *N Engl J Med*. 2020; (published online Jan 29. DOI:10.1056/NEJMoa2001316.)
6. US Centers for Disease Control and Prevention. 2019 Novel coronavirus, Wuhan, China: symptoms. <https://www.cdc.gov/coronavirus/2019-ncov/about/symptoms.html>. Published January 26, 2020.
7. European Centre for Disease Prevention and Control (ECDC). Risk assessment: Outbreak of acute respiratory syndrome associated with a novel coronavirus, Wuhan, China; first update. Stockholm: ECDC; 22 Jan 2020. Available from: <https://www.ecdc.europa.eu/en/publications-data/risk-assessment-outbreak-acute-respiratory-syndrome-associated-novel-coronavirus>
8. Eurosurveillance editorial team. Note from the editors: novel coronavirus (2019-nCoV). *Euro Surveill*. 2020;25(3):pii=2001231. <https://doi.org/10.2807/1560-7917.ES.2020.25.3.2001231>
9. Shih G, Lynch DJ, Denyer S, Shamma B. Chinese coronavirus infections, death toll soar as fifth case is confirmed in U.S. https://www.washingtonpost.com/world/asia_pacific/coronavirus-china-latest-updates/2020/01/26/4603266c-3fa8-11ea-afe2-090eb37b60b1_story.html. Published January 26, 2020.