

History, Symptoms and Preventive Measures of Coronavirus Disease-19 (COVID-19): Mini Review

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Abstract

In 1968, term 'coronavirus' was first coined. It shows crown-like morphology when observed under electron microscope. CoVs are summarized into four genera such as Alphacoronavirus, Betacoronavirus, Gammacoronavirus and Deltacoronavirus. Betacoronavirus was further classified into four lineages A, B, C and D. Total 06 species of human coronaviruses have been discovered including OC43, 229E, NL63, HKU1, SARS-CoV and MERS-CoV. A novel (new) coronavirus is recently discovered in December 2019 in Wuhan city of China. The coronavirus belongs to family- Coronaviridae; largest family in Nidovirales order. Chinese authority declared it as a novel coronavirus (nCoV-19). MERS-CoV was detected in camel serum- being almost identical to human coronaviruses. Bats have been a natural reservoir of coronaviruses lineages and thought as ancestor for all coronavirus lineages. In India, 9 deaths have been reported till 24 March 2020. The Print reports that with current rate India can see 30000 COVID-19 deaths by May, as no hospital bed by June. It concludes that its clinical signs and symptoms are almost similar to pneumonia. It indicates to researchers to work on genetic configuration (genome) of coronavirus to develop more specific vaccine to save life of society and world.

Keywords: nCoV-19 (COVID-19); SARS-CoV; MERS-CoV; Bat; Transmission

Introduction

In 1968, term 'coronavirus' was first coined. It shows crown-like morphology when observed under electron microscope [1]. CoVs are summarized into four genera such as Alphacoronavirus, Betacoronavirus, Gammacoronavirus and Deltacoronavirus. Betacoronavirus was further classified into four lineages A, B, C and D. Alphacoronavirus and Betacoronavirus have been identified from bats (mode of transmission) in Asia, Africa, Europe, Australia, North and South America [2]. Total 06 species of human coronaviruses have been discovered including OC43, 229E, NL63, HKU1, SARS-CoV and MERS-CoV. A novel (new) coronavirus is recently discovered in December 2019 in Wuhan city of China [3]. The coronavirus belongs to family- Coronaviridae; largest family in Nidovirales order [4]. Chinese authority declared it as a novel coronavirus (nCoV-19 or COVID-19) [5].

Origin

In 2005, discovery of novel coronaviruses was came in nature being related to human SARS-CoV and termed as SARS-Like coronaviruses, which were isolated from horseshoe bats. In Middle East such as (United Arab Emirates, Kingdom of Saudi Arabia, Oman and Jordan) Africa and Asia (South Korea and Thailand) MERS-CoV was detected in camel serum- being almost identical to human coronaviruses [6].

Figure 1: Structure of novel coronavirus (2019-nCoV).

Genetic sequences (genome) of coronaviruses are made up of one continuous RNA strand with positive polarity; ranges 27000 to 32000 nucleotides. It forms largest continuous RNA genomes among known mammalian viruses. Betacoronavirus 1 has been detected in variety of animals such as cows, dogs, horses, deer, humans, camels, waterbucks and giraffes worldwide [7]. W.H.O. states that novel coronavirus and other known species of coronaviruses found in Rhinolophus sub-species of bat. Bats have been a natural reservoir of coronaviruses lineages and thought as ancestor for all coronavirus lineages [8].

Mode of transmission [9]

It transmits from one body to another by following means:

- Coughing/exhaling (droplets spread-out in approximately 1 meter area)
- Passively touching the contaminated surfaces (desks, tablets, telephones etc.)
- Shaking hands and touching eyes, nose and mouth (with contaminated)
- Engaging with animals/pets or animal products.

Symptoms

- High Fever
- Dry Cough
- Dyspnea (breathing difficulty)
- Headache
- Body pain
- Pneumonia.

The severity of symptoms becomes high if the person is already suffering from medical conditions (diseases) such as diabetes mellitus, coronary artery diseases, myocardial infarction etc.

Epidemiology

It originated from Wuhan City, China but has become epidemic with worldwide reach and infecting a large population. Globally total confirmed cases- 72469, new cases- 10955, death- 2531 and new deaths- 333 on COVID-19, confirmed by W.H.O. on March 15, 2020. In India, 9 deaths have been reported till 24 March 2020.

The Print (News Channel) reports that with current rate India can see 30000 COVID-19 deaths by May, as no hospital bed by June.

Preventive measures

Ministry of Health and Family Welfare of India (GOI) aware citizens with 'Do The Five': Help stop coronavirus (and W.H.O.) includes as follows:

- Wash hand frequently
- Cough into Elbow
- Don't touch face
- Keep safe distance/space
- Stay at home, if you can

Conclusion

Coronavirus has become epidemic due to its worldwide reach and virulence. Being high fatal and deadly, it's essential to be familiar with every insights regarding origin, transmission ways and clinical symptoms arises after infection. Mode of transmission and symptoms are most critical and must be abided successfully invade or entry of such life-threatening virus.

Still, not any vaccine or full proof method for same is developed meanwhile prevention is solely act before problem and problem. It concludes that its clinical signs and symptoms are almost similar to

pneumonia. So prior precautions are important to overcome form it. It indicates to researchers to work on genetic configuration (genome) of coronavirus to develop more specific vaccine to save life of society and world.

Conflict of Interest

Authors declare no conflict of interest.

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