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## REVIEW ARTICLE

### COVID 19: A SHORT REVIEW ON DISEASE ACROSS BORDERS

<sup>1</sup>Dr. Dharmendra Bhadouria, <sup>2</sup>Dr. Anjali Bhadouria and <sup>3</sup>Dr. Himanshu Singh

<sup>1</sup>PG Resident, Department of Pathology, Index Medical College Hospital and Research Centre

<sup>2</sup>Senior Dental Surgeon, Ayushmaan Polyclinic, Rajgarh, Madhya Pradesh, India- 465661

<sup>3</sup>Senior Lecturer, Department of oral Pathology and oral Microbiology, Index Institute of Dental Sciences, Indore, Madhya Pradesh, India-452016

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#### ABSTRACT

Corona virus family is a group of enveloped viruses. They are single stranded RNA genomes. Novel Corona virus mainly causes respiratory disease. As the Corona virus disease rolled out across the world, we must prepare for the threat which is related to this pandemic. Rapid diagnosis and isolation is very important in case of Corona virus diseases. In this review, we are trying to provide as much as possible the basic information about the Corona virus.

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#### INTRODUCTION

Novel coronavirus, which is considered as major etiological agent of Covid-19 (corona virus diseases 2019), first appeared in city Wuhan, China. Novel coronavirus is officially identified as SARS-CoV-2 (severe acute respiratory syndrome corona virus 2) (WHO, 2020). Novel coronavirus was analyzed from patient's throat swab sample on January 7. WHO (World Health Organization) titled the diseases as coronavirus disease 2019 (Covid-19) (Hui *et al.*, 2020; Gorbalenya *et al.*, 2020). Covid-19 was announced as a extensive health emergency on 30<sup>th</sup> January 2020 by WHO (World Health Organization). Subsequently, it is announced as a pandemic through WHO (World Health Organization) on 11<sup>th</sup> March 2020 (Gallegos, 2020; Ramzy, 2020).

**Corona Virus origin and classification:** Coronavirus is acknowledged as a large family of RNA (single-stranded) viruses, that associated with Nidovirales order. This order comprises of arteriviridae, roniviridae as well as coronaviridae families. Coronaviridae family can be further subdivided into coronavirinae subfamilies as well as torovirinae subfamilies. Also, coronavirinae can be subclassified to 4 various types i.e. Alpha, Beta, Gamma and Delta coronavirus (Burrell, 2016; Kramer, 2006). Alpha coronavirus comprised of human coronavirus-229e

(HCoV-229 e) as well as human coronavirus-NL63E. Beta coronavirus shows presence of humancorona virus-OC43, SARS-HCoV (Severe Acute Respiratory Syndrome Human Coronavirus), MERS-CoV (Middle Eastern Respiratory Syndrome Coronavirus) as well as Human Coronavirus-HKU1. Gamma coronavirus shows presence of viruses of birds as well as whales. Delta Coronavirus shows presence of viruses which is restrained from birds as well as pigs (Fehr, 2015). These categorization is established on the ground of phylogenetic clustering. Range of viral RNA genome is in between 26-32 kilobases in length (Lu, 2020). Population from all age groups are hypersensitive or susceptible. Coronavirus infection is disseminated from enormous droplets which came out by symptomatic patients midst sneezing and coughing. These infectious and contaminated droplets may dispersed upto 1 to 2 m and can settled down on the surfaces. The virus may be shattered by using different types of disinfectants which includes hydrogen peroxide and sodium hypochlorite. The incubation time period of the Coronavirus is from 2 days to 14 days. It has been found that Angiotensin receptor 2 is the type of receptor through which the virus invades and enters into the respiratory mucosa (Cheng, 2019).

**Clinical features:** The clinical features seen in Covid 19 patients are of wide variety, which extent from asymptomatic environment to ARDS (Acute Respiratory Distress Syndrome) as well as multi organ dysfunction. The most intermittent and

persistent clinical features includes cough, headache, myalgia, sore throat, fatigue and breathlessness. At the end of the first week, the diseases can headway to respiratory failure and pneumonia. Even death can also occur. This progression is directly related with profound hike in inflammatory cytokines which consist of IL2, IL7, IL10, TNF-alpha, MIP1a (Chen, 2020). Along with respiratory illness, few gastrointestinal clinical features are seen. They are consist of nausea, abdominal pain as well as diarrhoea. These gastrointestinal disturbances thought to occur due to the binding of virus glycoprotein to intestinal ACE 2 (Angiotensin Converting Enzyme) receptors (Wany *et al.*, 2020). Interestingly, it is observed that substantial figure of death takes places in age group of 60 years as well as in those patients who had already experienced co-morbid conditions or diseases like cardiovascular diseases, hypertension as well as diabetes (The novel corona virus pneumonia emergency response epidemiology, 2019).

**Diagnosis:** Various types and number of diagnostic test are now available there to substantiate if the patient is suffering from Coronavirus or not. Those patients who are applicable for SARS-CoV- 2 examination, the diagnostic sample must be taken from upper respiratory tract (i.e nasopharyngeal swab as well as oropharyngeal swab) and if possible, sample can also be taken from lower respiratory tract (i.e sputum, bronchoalveolar lavage as well as tracheal aspirate.). The virus can also be seen present in stool, as well as in blood also if case is severe<sup>14</sup>. The X-ray of chest primarily shows presence of the bilateral infiltrates. CT imaging can also be done. CT imaging frequently shows presence of ground glass opacities as well as infiltrates and sub segmental consolidation (Huang *et al.*, 2020). Presently ,for confirming the Covid cases, RRT-PCR (Real Time Reverse Transcription). For fast detection, an advanced kit is made for the purpose of detection of serum immunoglobulin which provides test results in 15 minutes in suspected cases of Covid (The novel coronavirus pneumonia emergency response epidemiology, 2019).

**Laboratory findings:** Various other important laboratory investigations are routinely non-specific in nature. The white blood cell (WBC) count is generally either normal or low. The platelet count is generally normal or mild low. The ESR as well as CRP are mostly elevated. The prothrombin time, CPK, LDH, ALT/AST level is seen to be elevated (Huang, 2020; Wang, 2020). Neutrophil lymphocyte ratio is a prognostic indicator of severe illness in covid19 patients (Jingyuan Liu, 2019). Some patients shows presence of elevated level of Creatine Kinase, Creatinine, C-reactive-protein, Elevated Aspartate Aminotransferase (Bai, 2020).

**Treatment:** Few patients requires vital organ support. Antibiotics could be immediately started if it is suspected that there is presence of secondary bacterial infection, after sending the diagnostic sample for culturing (World health organization, 2020). It has been observed that few medicines like Chloroquine as well as Remdesivir are found effective in vitro. Advanced therapies which includes Leronlimab, Brilacidin are being tested in affiliation with some other distinct Antivirals like Lopinavir, Ritonavir and Oseltamivir (Wang, 2020). Recently, plasma from the Covid recovered patients is used for treating the patients (Chen, 2020).

**Preventive measures:** It has been observed that the best way to paused the spread of Covid infection is prevention of the

hand hygiene which usually comprises the application of alcohol-based hand rubs before as well as after contact with each and every patient. It is further suggested that to follow hand hygiene before as well as after food preparation, before eating and even after removing the face masks as well as hand gloves (World health organization, 2020). The health care workers are suggest to always wear personal protective equipment. Also, always use n95 masks and eye shields during taking of Swab samples.

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