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INTRODUCTION TO CORONA VIRUS

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ABSTRACT

Corona virus family is a preexisting group of infective agents that predominantly affected animals and to some extent affected human beings. It usually caused mild infections. However the severe infection of SARS and MERS were also caused by virulent organisms falling under this family. Towards the end of the year 2019, a new form of this family of virus was identified. It was said to be responsible for the disease outbreak in Wuhan, China. By the beginning of 2020, this virus had spread to various countries in the world leading to a declaration of public health emergency of international concern by January 2020 and finally labeled as a pandemic by March 2020. This article discusses the impact of COVID 19 and its repercussions in clinical practice.

Key words: Covid 19, aerosol, personnel protection.

INTRODUCTION

Coronaviruses are large group of viruses that cause illness in humans and animals. The outbreak of Novel coronavirus disease (CQVID-l9) was initially noticed in a seafood market in Wuhan city in Hubei Province of China in mid-December has now spread to over 200 countries/territories. Current available evidence for COVID-19 suggests that the causative virus (SARS-CoV-2) has a zoonotic source closely related to bat-origin. SARS like coronavirus is an enveloped RNA beta Corona virus. Direct person-to-person transmission occurs through close contact, mainly through respiratory droplets that are-released when the infected person coughs, sneezes, or talks.[1] These droplets may also land on surfaces, where the virus remains viable. Infection can also occur if a person touches art infected surface and then touches his or her eyes, nose, or mouth.

Pathophysiology

The median incubation period of the disease is 5.1 days (range 2-14 days). The time period during which an individual with COVlD l9 is infectious is not certain. As per the current scenario, the period of infectivity starts 2 days prior to the onset of symptoms and lasts up to 8 days. The extent and role played by pre-clinical/ asymptomatic infections in transmission still remain under investigation. [2]

Autopsy findings in China and European countries showed endothelial damage of pulmonary vasculature, micro vascular thrombosis and hemorrhage linked to extensive alveolar arid interstitial inflammation that ultimately result in COVID-19 vasculopathy, pulmonary Intravascular coagulopathy, hypercoagulability, ventilation perfusion mismatch, and refractory ARDS. Hypoxemia, secondary to ARDS may also activate the coagulation cascade [2].

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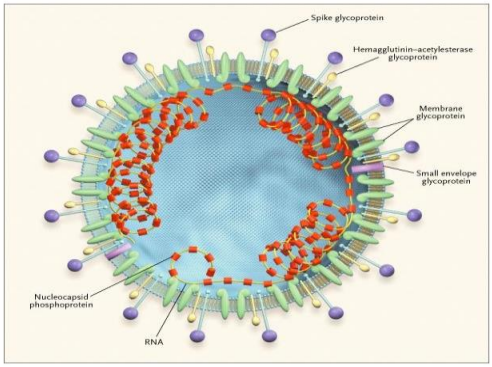
Clinical Symptoms

The various signs and symptoms reported by COVID positive individuals include fever, Cough, fatigue, shortness of breath, expectoration, myalgia, rhinorrhea, sore throat and diarrhea. As per recent updated guidelines, loss of taste and loss of smell often precede the onset of respiratory symptoms. The severity of symptoms show wide variations. Older people and individuals with compromised immune systems show more severe symptoms. They also have other associated symptoms like fatigue, reduced alertness, reduced mobility, diarrhoea, loss of appetite, delirium, and absence of fever. Similarly children might not have reported fever or cough as frequently as adults. Apart from this quite a number of positive patients are largely asymptomatic and report to be positive on testing.[3]

Transmission

Possible modes of transmission for SARS-CoV-2, include contact, droplet, airborne, fomite, fecal oral, blood borne, mother-to-child, and animal-to-human transmission. Infection with SARS-CoV-2 primarily causes respiratory illness ranging from mild disease to severe disease and death, and some people infected with the virus never develop symptoms. Transmission of SARS-CoV-2 can occur through direct, indirect, or close contact with infected people through infected secretions such as saliva and respiratory secretions or their respiratory droplets, which are expelled when an infected person coughs, sneezes, talks or sings. Respiratory droplets are >5-10 μm in diameter whereas droplets <5μm in diameter are referred to as droplet nuclei or aerosols.[4]

Figure 1 : Structure of Corona Virus



MANAGEMENT

Patients with suspected or confirmed moderate COVID-19 (pneumonia) is to be isolated to contain virus transmission. Patients with moderate disease may present to an emergency unit or primary care/outpatient department, to be encountered during community surveillance activities, such as active house to house search or by telemedicine. The defining clinical assessment parameters are Respiratory Rate of more than or equal to 24 and1 oxygen Saturation (Sp02) of less than 94% on room air (range 90-94%).

Recognize severe hypoxemic respiratory failure when a patient with respiratory distress is failing standard oxygen therapy. Patients may continue to have increased work of breathing or hypoxemia even when oxygen is delivered via a face mask with reservoir bag (flow rates of 10-15 L/f min, which is typically the flow required to maintain bag, inflation; Fib2 0.60-0.95). Hypoxemic respiratory failure in.-ARDS-commonly results from ;intrapulmonary ventilation perfusion mismatch or shunt and usually requires mechanical ventilation.

Protection for Medical Personal

Routine visits to be avoided and non-elective surgeries to be postponed by at least 4 weeks. All emergency & invasive procedures -consider all as COVID positive and test (CT chest, CBC , LDH, AST/ALT) if well within normal proceed with routine OT precautions and perform surgery. If COVID positive and surgery can be postponed if possible and manage with conservative line.

During surgery the operation trolley should be prepared and kept covered. Once the preparations are done, only then should the patient be brought inside the theater. During intubation, minimum personnel should be there within the OT. The surgical team should wait outside till intubation has been done. The electro cautery should be used at the lowest power setting and charring of tissues should be avoided to minimize the creation of smoke. Prevention and management of aerosol dispersal to be done. During operations, whether laparoscopic or via laparotomy, instruments should be kept clean of blood and other body fluids.[5]

CONCLUSION

COVID-19 is undeniably here to stay for a long time; as a result, it may forever change the way we practice dentistry. While providing our treatment, we must heighten our compassion for patients and enhance our sense of camaraderie and professionalism with staff and colleagues. With these factors in mind, we can get through this successfully, together [6].

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