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Review Article

A RECENT REVIEW ON: CORONAVIRUS DISEASE 2019

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ABSTRACT

Coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was first identified in December 2019 in Wuhan, the capital of China's Hubei province and has rapidly spread all over the world. Until August 2020, >25 million cases of SARS-CoV-2 infection had been confirmed worldwide, causing >800,000 deaths. This disease was named by the World Health Organization (WHO) as COVID-19. Similar to SARS and Middle East Respiratory Syndrome, which are also caused by corona virus infections, COVID-19 mainly causes severe respiratory system damage; however, it also causes damage to multiple organs, including the gastrointestinal tract, the cardiovascular system and the nervous system. According to the WHO, common signs of infection include fever, cough, and respiratory difficulties like shortness of breath. Serious cases can lead to pneumonia, kidney failure, and even death. The main aim of the present review article was to summarize the current knowledge of COVID-19, such as the transmission process, diagnostic methods, clinical feature pathological characteristics, and treatment measures.

Keywords: Coronavirus disease 2019, Transmission process, Symptoms, Clinical features, Treatment.

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INTRODUCTION

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by coronavirus 2 that causes acute respiratory infections severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The disease was discovered in Wuhan, the capital of China's Hubei Province, in December 2019 and has since spread to the rest of the world, culminating in the continuation of the 2019-2020 coronavirus epidemic. There has been an epidemiological link to the Wuhan marine market that also sells wildlife, which closed on January 1, 2020. One case of pneumonia that was not previously reported was reported to the World Health Organization (WHO) on December 31, 2019; and the Wuhan Municipal Health Commission said they were monitoring the situation closely. On January 11 and 12, more information was revealed [2].

On January 12, 2020, the WHO acquired the 2019-nCoV gene sequence, identified as group B CoV 2B with at least 70% genetic sequence in SARS-CoV and renamed 2019-nCoV [1]. On January 11, five more 2019-nCoV episodes from Chinese institutes (Chinese CDC, Wuhan Institute of Virology, Chinese Academy of Medical Sciences, and Peking Union Medical College were posted on the GSAID website, which allows researchers around the world to move on. investigates the novel CoV. On January 17, China had 62 confirmed cases, as well as three exports of infected travelers found in Thailand (2) and Japan (1) During the Chinese New Year, where According to January 30, 2020, the WHO called the disease Public Health [3] Emergency of International Concern, and March 11, 2020, on April 2, 2020, the number of patients diagnosed with COVID-19 worldwide exceeded one million, downloaded two million on April 15, 2020, 3 million on April 27, 2020, and four million on May 9, 2020. It took 83 days to reach the first million worldwide, and just 14 days to reach the second and third million [5]. Because this is an emerging epidemic, these figures are constantly changing. The number of people tested, the delivery of healthcare, demographics, and accurate reporting have all contributed to mortality rates from one country to another. Italy has a CFR of 13.98% (death rate per 100 certified cases) and a death rate of 505.44/100,000 people. In the United Kingdom, the corresponding figures are 14.53% and 469.24 million deaths per million. As of November 5, 2020, these figures in the United States were 5.98% and 240.26 million deaths per million, respectively. As of April 2, about 300 million people in the United States, or about 90% of the population, are under some form of closure. As of March 26, 1.7 billion people were under some form of global closure, growing to 2.6 billion people two days later, accounting for more than a third of the world's population. More than 421 million students have dropped out of school since March 04, 2020 due to the closure of schools due to COVID-19. More than 200 countries have closed the country, affecting about 98% of the world's student population, according to UNESCO monitoring [6].

HISTORY OF ILLNESS ASSOCIATED WITH CORONAVIRUS

Coronavirus has a long history dating back to the 1930s. Avian coronavirus, formerly known as infectious bronchitis virus in chickens, especially in infected chickens became the first. Was divided into the 1930s followed by coronaviruses of two animals, the mouse hepatitis virus and the transmissible gastroenteritis virus in the 1940s [60]. Human coronavirus (HCoV) is a clock that is historically known to cause the majority of minor respiratory infections. David Tyrrell and Bynoe The first discovered in 1965 claimed that a virus called B 814 caused the common cold in adults. Hamre and Procknow [61] first developed a virus they called 229 E, based on tissue culture from samples obtained from flu medical students. Almeida and Tyrrell performed electron microscopy in the vaginal fluid infected with B814 and detected particles such as chicken bronchitis. Tyyrell *et al*., in the late 1960s, demonstrated in addition to zoonotic viruses and human problems, that they are naturally similar and new. A type of coronavirus virus was named [62]. By the end of 2002, the SARS epidemic broke out in Guangdong province, China. In 2017, Chinese scientists led by Zheng-Li and Jie of the Wuhan Institute of Virology, China traced the origins of rats to horses with mimicocks. As a consultant, SARS was a relatively rare disease; at the end of the epidemic in June 2003, the incidence was 8422 cases with CFR ranging from 0% to 50% depending on the patient's age group. The mortality rate was 9.6%. In the United States, only eight people had a case study for evidence of SARS-CoV infection during the 2003 outbreak. The WHO announced that acute Respiratory Syndrome was reported on May 07, 2003 [63]. In September 2012 another novel coronavirus emerged in Saudi Arabia, first identified as Novel Coronavirus 2012 and then HCoV-Erasmus Medical Center after Dutch Erasmus Medical Center tracked the virus. In May 2013, the Coronavirus Study Group of the International Committee on Taxonomy of Virus approved an official appointment, the Middle East Respiratory Syndrome Coronavirus (MERS-CoV), also approved by the WHO [64]. MERS-CoV, also known as Camel fever, is believed to be derived from

bat-infected bats. At the end of 2017, fewer than 2000 cases with a death toll of 36% were reported. Several incidents have occurred in the Arabian Peninsula and the recent outbreak in 2015 in South Korea with 184 confirmed cases of infection and 19 deaths. Only two people in the U.S. have been tested for the MERS-CoV virus, both in 2014. Occasional eruptions remain, especially in the Arabian Peninsula. The tests include testing of reverse transcription-polymerase chain reaction respiratory and serum specimens [65].

VIROLOGICAL CHARACTERISTICS OF (SARS-COV-2)

COVID-19 is produced by SARS-CoV-2, which has been identified as the seventh coronavirus to infect humans. SARS-CoV and MERS-CoV, both with high mortality rates, are two types of coronavirus known to cause human infections. Coronavirus is divided into four categories based on genetic factors: -CoV, -CoV, -CoV, and -CoV [7]. Extensive follow-up showed that the coronavirus found in low respiratory samples of COVID-19 patients belonged to the CoV family. Coronavirus has a crown-like appearance under electron microscopy. They cover the bacteria with the RNA genome of one of the world's largest fibers. The genome organization and pattern of exposure of all coronaviruses are the same, with two large scattering study frames (ORF1a/b) comprising 16 non-structural proteins, followed by ORFS of four key structural proteins: spike (S), envelope (E), membrane (M), and nucleocapsid (N). Spike protein is essential for binding receptors and is important in determining host tropism and transmission capacity. It is divided into two functional domains: The S1 receptor domain and the S2 cell membrane binding domain. The CoV receptor-binding (RBD) domain is usually found in the C-terminal S1 domain. The structure of SARS-CoV-2 spike protein's cryogenic electron microscopy Cryo-EM has been shown to have 10 to 20 times more binding compounds in human enzyme 2 that converts angiotensin angiotensin-converting enzyme 2 (ACE2) than (SARS-CoV). SARS-CoV-2 had similar successive similarities in SARS-CoV genomes than MERS-CoV genomes, according to a phylogenetic analysis of evolutionary history. SARS-CoV-2 shared 96.2% of its gene sequence with the RaTG13 bat [8], meaning that the bat, which has been shown to be a natural environment full of many SARS-related coronaviruses, could also be the first host of coronavirus. SARS-CoV-2. The identity of the central recipient in the transmission path is unknown [9-11].

IMPACT OF COVID-19 ON NCDS BY FIELD

Heart disease

Patients with pre-existing cardiovascular disease (CVD) are among those most at risk for side effects from COVID-19. In its first report of an outbreak, the Chinese Center for Disease Control noted the mortality rate of infected patients.

The previous CVD was 10.5%, higher than that of chronic respiratory disease or cancer [66,67].

US data also suggest that those living with CVD are among the three groups most at risk of COVID 19 infection. Infection or search for ischemia in a serious illness - however, these findings are associated with an increase in mortality. In addition, the first wave of COVID-19 was associated with a decrease and delay in the delivery of critical care MIs in the United States and Europe, which could contribute to increased morbidity, mortality, and post-infarct complications such as heart disease. Particularly challenging for former physicians, coronavirus cardiomyopathy can be identified as an ST-elevation myocardial infarction (STEMI), which shows chest pain, dyspnea, and a higher ST-segment electrocardiogram (ECG). This has introduced cardiologists to the problem of opening a catheterization laboratory - on the other hand, STEMIs are life-threatening and should be addressed for 90 min with invasive angiography for coronary percutaneous intervention (PCI). On the other hand, using STEMI cascade therapy is risky for exposing cath laboratory staff and viral machines. As a result of this conflict, many Chinese institutions are treating patients with a suspected pattern of COVID-19 and STEMI on ECG with drug thrombolytics instead of administering a systematic cath laboratory. Although PCI is superior to STEMI management thrombolytics, these providers have made a trade-off between waiting for the results of the SARS-CoV-2 test and delaying coronary artery remodeling. Indeed, Hong Kong hospitals that continued to use the first PCI line at STEMI have reported that the balloon timing department, an important quality metric associated with an increase in MI mortality has been expanded since the outbreak of COVID-19. Overtime delays, local contraceptive rules, and PPE requirements severely hamper the operation of the cath laboratory in both emergency and emergency procedures, a problem that is exacerbated only in small/low volume areas. Disruption extends to select but life-saving laboratory procedures such as aortic replacement, reset valve, or canceled. Although communities of cardiologists have long published guidelines for the determination and prioritization of such procedures, the imminent arrival of the flu season may strengthen these programs as well. In addition to myocardial injury, SARS-CoV-2 may be associated with cardiac arrhythmias. Up to 16.7% of patients admitted to COVID-19 hospitals in one study reported abnormal heartbeat. This concern is exacerbated by the off-label use of hydroxychloroquine (HCQ) and azithromycin as a potential antibacterial agent (despite a lack of data to support its effectiveness) as it may increase the risk of ventricular tachyarrhythmias with extended QT intervals. Researchers also explored the role of ACE inhibitors (ACEi) and angiotensin-II receptor blockers (ARB) in the path of SARS-CoV-2 infection. Coronaviruses use ACE2 as a coreceptor to attack alveolar cells in the lungs. It was noted early in the epidemic that patients with CVD, high blood pressure and diabetes (all conditions commonly treated with ACEi and ARBs) were at risk of SARS-CoV-2 infection and side effects. At present, it is not clear whether these drugs regulate ACE2, increase SARS-CoV-2 exposure, or if they act as competing agonists, thus having a protective effect [68]. Increasing observational evidence suggests that they do not increase risk or improve outcomes, but further research is needed to determine this effect. Considering the widespread use and effects of reducing ACEi/ARB's mortality in the above diseases, large US cardiac communities have issued a joint statement to avoid discontinuing their use in patients who are already taking them [69].

Pulmonology

Chronic respiratory infections are among the major causes of SARS-CoV-2 infection and death. Smoking has been cited in many studies as an independent risk factor for exposure to COVID-19, which has a higher mortality rate than men due to higher smoking rates in men. These findings may extend beyond tobacco and respiratory products. In addition, the body's action of sharing tobacco with hookahs, a common cultural practice in some cultures, may indicate the transmission of SARS-CoV-2 transmission. With respect to systemic complications, bronchoscopy (used for diagnostic confirmation in suspected cases of COVID-19 with poor nasopharyngeal examination) represents a significant risk factor especially for operators given a near airway [44]. In addition, there has been direct competition for mechanical ventilators between patients with COVID-19-related respiratory failure and patients with a significant increase in chronic obstructive pulmonary disease without COVID-19 infection. This problem is compounded by the fact that SARS-CoV-2 is easily rewarded with a very flowing nasal cannula, bag valve mask and compressed airflow (e.g., to protect health workers. Although, many patients who survive severe COVID-19 infections recover fully. At the clinic, there have also been reports of chronic lung damage, called post-COVID-19 fibrosis.

Hematology/Oncology

Patients with hemoglobinopathies such as sickle cell disease and thalassemia are at greater risk for side effects from COVID-19 [70]. Patients receiving chemotherapy or bone marrow transplants are also unable to protect themselves because of the many myelosuppressive effects of this treatment. Indeed, China's COVID-19 data suggest that cancer survivors, in addition to patients with active cancer, are at greater risk of death or exposure to SARS-CoV-2. On the other hand, those who use chemotherapy or immunosuppressive therapy may show a superior

immune response, thereby reducing the risk of cytokine storm, a feared complication of COVID-19 [71].

Neurology

Those living with bipolar disorder suffer from COVID-19's pathophysiologic and social effects. First, there are growing reports of COVID-19-related stroke and intermittent ischemic stroke, many of which may be from thrombotic. Patients with chronic degenerative diseases especially respiratory tissues (e.g., amyotrophic lateral sclerosis and myasthenia gravis) are at greater risk for respiratory failure [72] [73].

TRANSMISSION AND ORIGIN

The WHO has officially named the novel coronavirus pneumonia as COVID-19 [12]. On December 30, 2019, the Wuhan Health Commission of China issued an urgent proclamation that anonymous pneumonia patients should be admitted to various hospitals across the country, prompting the Chinese government, which appointed trained specialists to investigate and test new forms of pneumonia. It has finally been confirmed that this type of pneumonia is caused by a virus. Based on the information obtained from the patients, it was initially thought that the virus may have originated in the Wuhan HuaNan Seafood Market. Chinese experts gradually realized that the virus was spreading rapidly among humans. The number of people infected with the virus increased dramatically in a short period of time, and cases of pneumonia were first reported outside China in mid-January, 2020. By the end of January 2020 the epidemic would stop spreading, and national resources were organized to combat the novel coronavirus. By the end of February 2020, the number of new cases of pneumonia had dropped steadily in China, and the number of patients discharged from hospitals was steadily rising [74]. By early March, outside Wuhan, the number of suspicious diseases in China had stabilized, and the epidemic was regarded as an effective control. However, the COVID-19 outbreak is much worse compared to the previous SARS outbreak. As of August 2020, according to a report by the Health Commission [13], the number of people infected with COVID-19 in China has exceeded 90,000, with more than 4700 deaths. Although the disease has had a devastating effect on the Chinese people, this has been greatly reduced due to the strict measures imposed by the Chinese government. With regard to foreign countries, Thailand confirmed the first reported case of COVID-19 in early January 2020 [14]. By February 2020, 24 countries around the world had reported confirmed cases of COVID-19 [15]. Due to a lack of awareness of new coronavirus pneumonia, the number of cases in many countries is growing rapidly. As of August 2020, the United States of America was the country with the highest number of confirmed cases (>6 million cases), while Brazil was the country with the highest number of validated cases per day (>50,000 cases). In the case of Asia, India had more than 3 million people diagnosed with COVID-19, with one million cases confirmed in Russia.

On the African continent, a total of 57 countries reported more than a million cases. Similar comparisons with a background analysis of the COVID-19 genome mutation, obtained from the 2019 coronavirus library published by the National Genomics Scientific Data Center, revealed that the sequence between SARS-CoV-2 (COVID-19) and SARS-CoV, which caused the outbreak in 2003, was 80%, while it was 50% in MERS-CoV. In addition, SARS-CoV-2 was associated with SARS-CoVs in a phylogenetic tree of SARS-related coronaviruses [16]. SARS-CoV-2 belongs to the "Coronavirus" family, a form of "cor. "coronavirus," as well as "severe respiratory-related coronavirus" strains, including SARS-CoV. Based on the currently available analysis, COVID-19 appears to be more contagious than SARS-CoV. In addition, it has been reported that COVID-19 exhibits very high similarity (88%) with SARS-isolated coronavirus-like coronavirus (bat-SL-CoVZC45) genes. Bat-SL-CoVZC45 was first isolated from domestic bats in February 2017. In addition, SARS-CoV-2 is also closely related to the bat-isolated coronavirus, RaGT13-CoV, which has 96% nucleotide ownership, indicating that SARS-CoV-2 could also be taken from bats. However, whether SARS-CoV-2 was transmitted directly from bats to humans or to the president is unclear. Other studies have suggested that pangolins can also be carriers of SARS-CoV-2. Notably, SARS-CoV-2 incorporates a unique peptide injection (PRRA); however, this feature is not found in the pangolin-infected coronavirus. Therefore, an in-depth diagnostic study may provide the information needed to prevent these diseases [17,18].

SYMPTOMS

Types 229E, NL63, OC43, and HKU1 are common human coronaviruses that cause mild to moderate upper respiratory tract diseases. Such as a common cold the majority of people become infected. At some point in their lives, they will come into contact with these viruses. These ailments are typically quite temporary. A period of time symptoms may include the following:

- A stuffy nose
- Headache
- Cough
- Throat irritation
- Fever
- A overall sensation of unwellness
- Human coronaviruses can produce a variety of symptoms
- Illnesses of the lower respiratory tract, such as Bronchitis or pneumonia. This is more common in the United States. people who have a heart condition, people who have a lung ailment, people who have a lung disease Immune systems that are impaired, newborns, and the elderly adults. There are two more human coronaviruses; MERS-CoV SARS-CoV has been linked to frequently, this result in severe symptoms. MERS Fever, cough, and shortness of breath are common signs, which can lead to pneumonia. MERS has claimed the lives of about three or four out of every ten patients. MERS instances are still being reported, mostly on the Arabian Peninsula. Fever, chills, and body pains were common SARS symptoms, which frequently developed to pneumonia. Since 2004, no human cases of SARS have been documented anywhere on the planet [19].

RADIOLOGICAL AND PATHOLOGICAL FEATURES

The affected lung lobe had visible alveolar edema, proteinaceous exudates, pneumocyte hyperplasia that responds in the early stages of infection, and mild inflammation [21]. On physical examination, the entire lung had bronzing faces and the appearance of widespread constipation, as well as necrosis of the bleeding area in the cut areas. Proteinous and serious release of alveoli, hyaline membrane development, and infiltration of inflammation by multinucleated syncytial cells were all detected in histological studies. Alveolar epithelial cells of type II had significant hyperplasia, with necrosis and desquamation in some cases. Infection is found in epithelial cells and macrophages. In addition, the alveolar septal arteries were blocked due to alveolar edema. The presence of monocytes and lymphocytes in the alveolar cavity, as well as micro thrombosis, was significant. Association of alveolar exudate and lung interstitial fibrosis was observed in some areas. Bronchi were bound by mucus, even a mucus plug, with a portion of mucosal epithelial desquamation [22-24]. In addition, some organs were partially affected by pathology [22]. Lymphocytes, local bleeding and necrosis, and macrophage hyperplasia in the atrophic spleen all decreased significantly. A small number of monocytes, lymphocytes, and/or neutrophils invade the cardiac interstitium due to cardiomyocyte damage and necrosis.

The renal tubular epithelium deteriorated and collapsed, and protein extraction was found in the glomerulus and inside the hyaline cast. Deterioration, necrosis, and inflammation of the hepatocytes were also observed. Congestion, constipation, and certain neurological disorders were found in the brain. Microthrombosis, on the other hand, is found in a variety of organs. Radiological imaging is important in making diagnostic and therapeutic decisions. According to Guan *et al*., 86.2% of patients had abnormalities in their computed tomography (CT) images on the chest, with more than 75% of those affected in both lungs, mainly peripheral and diffuse [25]. Patients with varying degrees of severity had significant differences in chest ulcers. Patients with mild conditions

have unilateral and localized ground-glass opacity (GGO), which progresses to bilateral or multilobular lesions. GGOs are transformed into joint lesions as the disease progresses, showing a mixed pattern or pure consolidation, and the latter is more common in critically ill patients admitted to the intensive care unit [26,27]. Zhao *et al*. found that 48.5% of CT images showed reticular patterns, and 28.7% showed interlobular septal intensity, which is associated with interstitial involvement in viral pneumonia. Only 6% of COVID-19 patients had solid tumors, unlike flu pneumonia, which usually had a neutral GGO and large hard tumors [28-30]. Other lesions include swelling of the surrounding pleura, vascular enlargement, bronchial wall stiffness, traction bronchiectasis, air bronchogram, pericardial effusion, and so on [31]. A follow-up CT scan can help monitor disease progression and evaluate treatment outcomes [32]. Some dynamic images were frequently rotated, revealing the combination of absorption and formation of new ones. Radiological imaging reveals an increase in ulcers or large lesions as the disease progresses, and some of them even become "white lungs" with severely affected lungs [33].

CLINIC FEATURES

COVID-19 has a wide range of clinical symptoms, ranging from asymptomatic to acute respiratory distress syndrome (ARDS) and multiple organ failure. Fever (not all), cough, sore throat, headache, fatigue, headache, myalgia, and dyspnea are common clinical symptoms. Conjunctivitis is also mentioned. As a result, it is difficult to distinguish some respiratory diseases. In a small percentage of patients, the condition can develop into pneumonia, respiratory failure, and death by the end of the first week. Inflammatory cytokines such as IL2, IL7, IL10, GCSF, IP10, MCP1, MIP1A, and TNF are all associated with this progression [26]. The median time from onset of symptoms to dyspnea was 5 days, hospitalization was 7 days, and ARDS was 8 days. In a published series, 25–30% of affected patients require critical care. Severe lung injuries, ARDS, shock, and severe kidney damage are among the problems shown. Recovery begins in the 2nd or 3rd week. The average length of hospital stay for the injured was 10 days. Older people and those with co-morbidities are at greater risk of side effects and death (50–75% of fatal cases). The mortality rate for inpatients ranges from 4% to 11%. The mortality rate is estimated to be between 2% and 3% [34]. Patients from outside Hubei Province were reported to have milder diseases than those in Wuhan [35]. Similarly, except for China, the mortality rate and mortality rate were found to be below. This may be due to bias, as cases reported in Wuhan involve more severe cases, or maybe due to Asian sensitivity to the virus due to increased expression of the ACE2 receptor in the respiratory mucosa [36]. Infections in newborns, infants, and children have also been found to be less severe than in adults. There were 14 men and 20 women among the 34 youths admitted to a hospital in Shenzhen, China, between January 19 and February 7. The median age of the children was 8 years and 11 months, 28 of whom had a family member infected with the virus, and 26 of them were visiting or living in the Chinese Province of Hubei. All patients had no symptomatic (9%) or had a mild form of the condition. No cases were difficult or serious. Fever (50%) and cough (25%) were the most common symptoms (38%).

No deaths were reported and all patients recovered with symptomatic treatment. There is also a single case of severe pneumonia and multiple organ dysfunctions in a child [37]. Similar to the reported cases of newborns [38], cases of newborns have been reported to be mild [39].

TREATMENT

SARS-CoV-2 is widely distributed through respiratory and human contact droplets, according to current epidemiological data. Increased levels of aerosols and human waste are also considered as potential vectors. COVID-19 has an incubation period of approximately 114 days, with an average incubation period of 37 days [40]. In addition, symptoms of the upper respiratory tract, such as fever (the most common), cough, and runny nose, are more common in people with the virus. In addition, diarrhea and nervous system disorders are often recognized [41,42]. As a result, people with the above symptoms and who live in areas where viral pneumonia is common are considered to be at high risk. Most adults and children infected with SARS-CoV-2 experience mild symptoms such as the flu, but a small percentage of patients, especially those with CVD and diabetes, are at risk for severe respiratory problems, respiratory failure, multiple organ failure, or even death [43].

COVID-19 is a serious infectious disease, and all forms of treatment require aggressive isolation measures. As a result, disrupting the transmission station, protecting vulnerable people, and actively disarming carriers are important. Several countries around the world, especially China and the countries that have been hit by the epidemic, are currently using strict isolation methods, including the implementation of temporary closures. COVID-19 patients are treated individually or in combination. Antibiotics and rapid inhalation of effective hydrogen-oxygen compounds are the most popular therapies for COVID-19 patients [44]. It is a good idea to keep track of your body temperature and oxygen level regularly. Inflammatory mechanical respiration or extracorporeal membrane oxygenation (ECMO) may be used in people with severe COVID-19 infection [45]. Plasma treatment obtained from recovering patients also appears to be an effective treatment [46]. Antibiotics, such as oseltamivir and acyclovir, as well as systemic glucocorticoids, such as methylprednisolone have also been used in the treatment of COVID-19 patients. Their effectiveness, however, is controversial [47]. Two anti-malarial drugs, chloroquine and HCQ, can change the pH of cells and store them in a protonated way for lysosomes. The virus's ability to release genes from the cell and reproduce itself has been shown to be damaged by these factors [48,49]. The combination of chloroquine and HCQ has been shown in studies to be effective. In the treatment of COVID-19, remdesivir and azithromycin have shown great promise [50,51]. One study found that patients taking lopinavir and ritonavir had significantly lower viral load [52]. Captopril is classified as an ACEi2 due to the way ACE2 mediates SARS-CoV attacks in the human body. It works by reducing the inflammatory response in unhealthy people [51]. Lymphopenia and lymphocyte dysfunction are symptoms of COVID-19 immunopathology [53]. Some researchers have suggested various immunotherapeutic methods in response to the effects of COVID-19, such as increased lymphocyte function or reduced inflammation. To increase lymphocyte function, NK-cell-based drugs and immunomodulators are used. Mesenchymal stem cell-based therapies, T-cell-based therapies, and other therapies may be used to reduce inflammation [54]. The coronavirus protein S binds to the target protein entering the receptor site, allowing the viral DNA to be released into the host cell for regeneration [55]. As a result, the S protein has been used as an immunogen for antibody production [56].

Monoclonal antibodies are more expensive and more complex to make than drugs with smaller molecules. They are different from other drugs because their fixed domains can attach to Fc - ++++++++++++++++++++++++++++++++++ videos -gamma receptors on immune cells, allowing them to engage with the immune system. The immune system is an integral part of many vaccines and will likely be needed to develop an effective SARS-CoV-2 vaccine. It has been reported that vaccines that induce selective antibodies (RBD) antibodies (SARS-CoV-2) may be particularly effective [57]. At present, more than 100 COVID-19 vaccines are being researched, including antiretroviral drugs, vector-based vaccines, and a new generation of safe recombinant protein vaccines [58]. Unfortunately, none of this has received FDA approval for large-scale clinical use. A wide range of technological platforms tested, including nucleic acids (DNA and RNA), viral-like particles, peptides, viral vectors (repetitive and non-repetitive), repetitive proteins, depleted viruses, and inactive viruses [59], is an important factor. In the area of research and development of the SARS-COV-2 policy, potential vaccines should also go through the same clinical trial phase. Even in the event of an epidemic, this is very important.

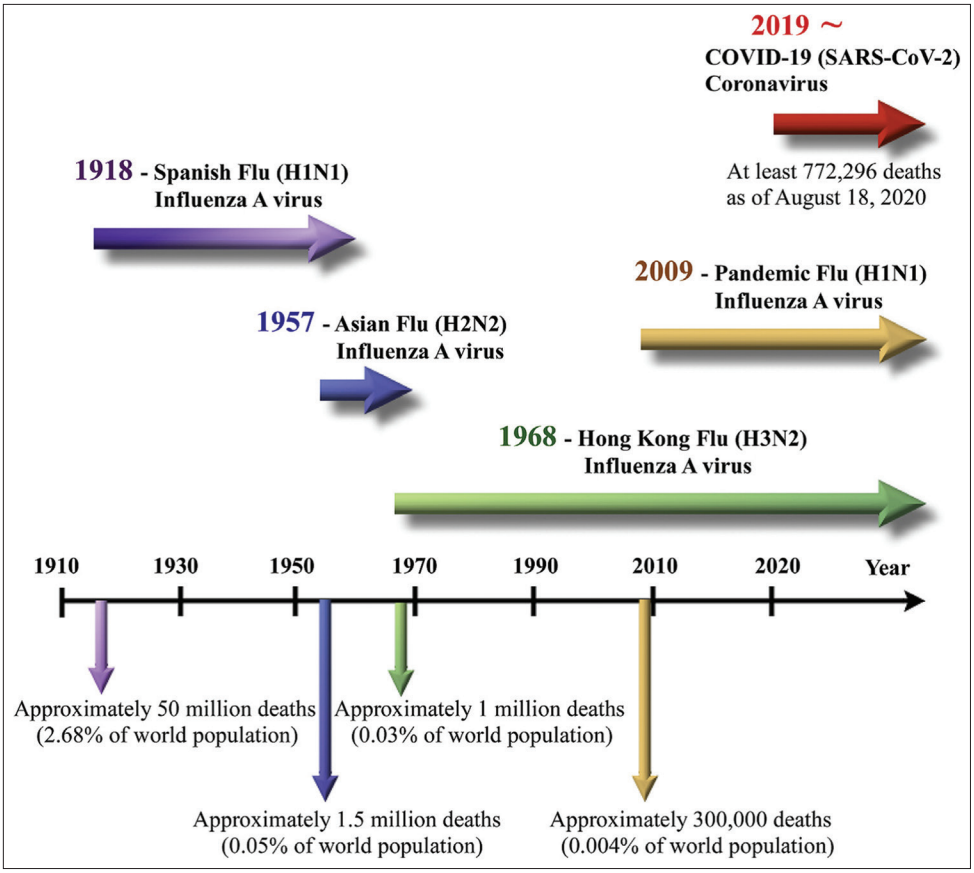

Fig. 1: (Liu YC *et al.* 2020) A timeline of five pandemics (since 1918) and the globally circulating viruses afterward [4]

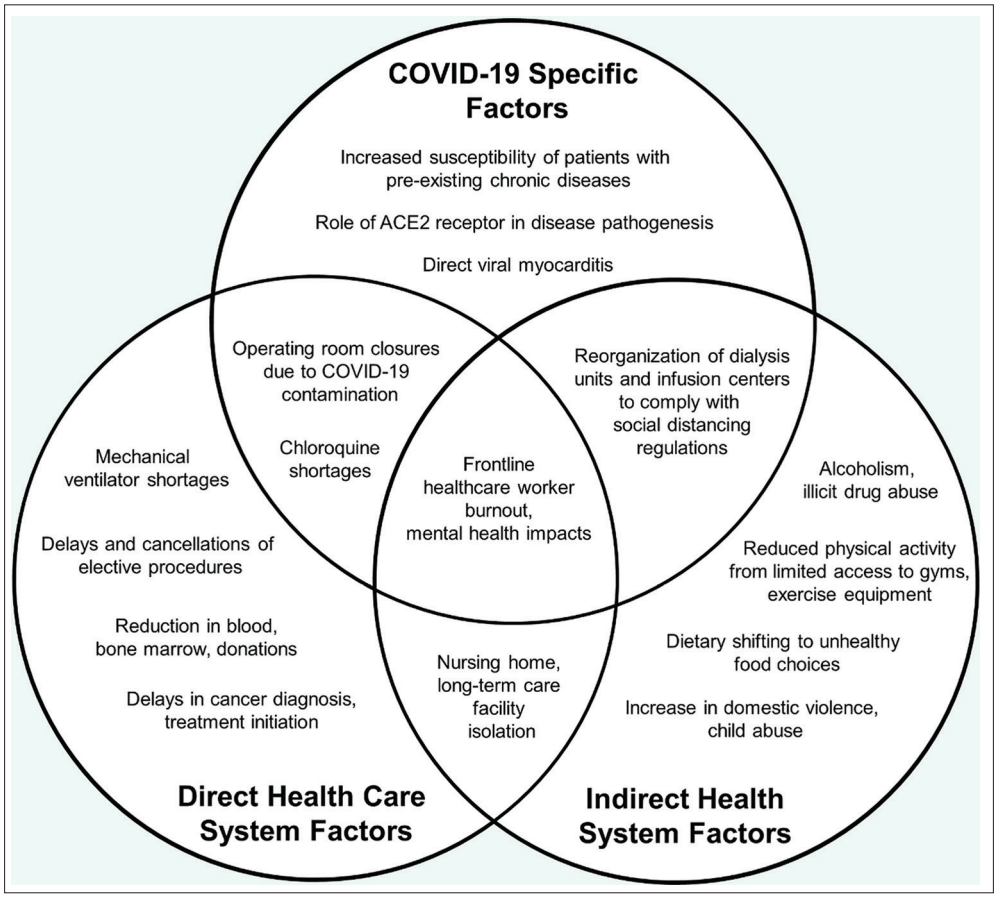

Fig. 2: (Chang AY *et al* 2021) Example impacts of COVID-19 on NCDs' [66]

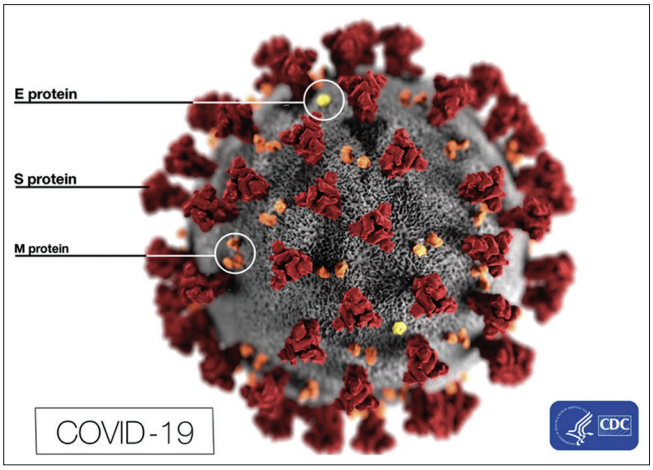

Fig. 3: (Chavez S *et al.* 2021) Describe the electron microscope image depicts the spikes on the outer surface of the (COVID-19) in addition to several protein- particles [20]

RESPONSE TO THE PANDEMIC

Coronavirus makes clear what has always been true. Your life is as safe as that of those with the worst insurance, the most neglected someone in your community. The height of the floor, not the roof Anand Giridharadas @AnandWrites. On March 26, 2020, dozens of UN human rights experts insist on respecting everyone's rights during COVID-19 including health care and government rights the obligation to provide life-saving interventions [76]. Organization for Economic Co-operation and Development introduced a timely delivery platform again more information about policy responses in countries worldwide, as well as ideas and advice. The Solidarity Trial is a program started in March 2020 by the WHO drug testing and drug combinations which includes Remdesivir, Chloroquine, and HCQ combination, Ritonavir/lopinavir, and Ritonavir/lopinavir and interferon-beta against SARS CoV-2.n. According to the WHO Director-General, the purpose of the case "Significant reduction in production time strong evidence of what drugs do." The first patient's case was one of Oslo University Hospital, Norway[74, 75]. To move forward there must be a huge investment in community health and emergency preparedness. USA uses approx. $ 275 per person per year (2.5% of all health-care spending) without spending twice as much per person on health care as measured by other Organization of Economic Development and Cooperation. Global health inclusion, dual sharing of data between low-income countries and high-income countries, and high investment in public health-care worldwide are steps that should be read and applied in the background of disease [77].

MANAGEMENT

Non-invasive ventilation (NIV) and high flow nasal cannula (HFNC) should be reserved for patients with mild ARDS adequate safety measures [35], use of protective equipment, and the use of rooms with negative stress due to stress aerosolization from these processes. Conservative or debilitating fluid strategy for early myocardial infarction involvement with troponin dosage once Concentration of beta-natriuretic peptide and echocardiography and early use of vasopressors and inotropes is recommended. A study of the previous SARS epidemic has had it has been shown that corticosteroids do not affect death yet potential injuries, including avascular necrosis, psychosis, diabetes, and delays in viral approval [36]. This time the normal use of Corticosteroids is not recommended. There are currently no proven therapies for COVID-19. There are ongoing trials on remdesivir, lopinavir-ritonavir, chloroquine, HCQ, intravenous immunoglobulin, convalescent plasma, tocilizumab, favipiravir, as well as traditional Chinese medicine [78, 79]. Nothing to peer, NIV, and HFNC should be reserved for patients with mild ARDS adequate safety measures [35], use of protective equipment, and the use of rooms with negative stress due to stress aerosolization from these processes. Conservative or debilitating fluid strategy for early myocardial infarction involvement with troponin dosage once concentration of beta-natriuretic peptide and echocardiography and early use of vasopressors and inotropes is recommended. A study of the previous SARS epidemic has had it has been shown that corticosteroids have no effect on death yet potential injuries, including avascular necrosis, psychosis, diabetes, and delays in viral approval [36]. This time the normal use of Corticosteroids is not recommended. There are currently no proven therapies for COVID-19. There are ongoing trials on remdesivir, lopinavir-ritonavir, chloroquine, HCQ, intravenous immunoglobulin, convalescent plasma, tocilizumab, favipiravir, as well as traditional Chinese medicine. Nothing to peer, published safety data is available from SARS-CoV-2 HCQ though still continues to be widely used [35]. Prone ventilation is recommended for patients with refractory hypoxemia due to ongoing COVID-19 pneumonia (i.e., ARDS). ECMO is an organization recommended for patients with refractory hypoxemia due to progressive COVID-19 pneumonia (i.e., ARDS), when inhaled fails [35]. Kai Duan *et al*. showed convalescent management plasma (CP) obtained from COVID-19 recovered patients with humoral infection had been established against the lead virus COVID-19 patients receiving serum stars-CoV-2RNNA negativity after CP transfusion, which is associated with increased oxygen uptake Statistics of saturation and lymphocyte, as well as improving liver function and c-reactive protein (CRP). Essential elements in convalescent control plasma covers a concern that should have a donor plasma with sufficient titer of neutralizing antibodies, should be given the appropriate duration of treatment and the risk of transfusion germs should be considered. Multiple trials of recovered patients who meet the above criteria can provide effective performance as a source of treatment for COVID-19 patients [37]. Adequate measures to prevent infection such as hand washing, proper PPE, social isolation, and negative use of segregation chambers and pressure are central to this epidemic and should remain in place. NAbs after infection with COVID-19, the duration of the disease for these patients were similar to other patients however it is unclear whether these patients are at high risk of retaliation or re-infection. Elderly patients were recognized as having high-value NAbs and have a strong innate immune response clinical response consistent with recovery and severity of disease requires further testing [32]. Published safety data are available from SARS-CoV-2 HCQ though continues to be widely used [35]. Prone Ventilation is recommended for patients with refractory hypoxemia due to ongoing COVID-19 pneumonia (i.e., ARDS). ECMO is an organization recommended for patients with refractory hypoxemia due to progressive COVID-19 pneumonia (i.e., ARDS), when inhaled fails [35]. 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CONCLUSIONS

Advanced technologies, such as transcriptomics, proteomics, single-cell RNA sequence, global profile of single patient samples, advanced

3D cell culture, and fast-moving genes, have been important tools in understanding and combating SARS diseases. CoV-2, unlike the SARS-CoV epidemic nearly 20 years ago. In addition, current animal models developed for SARS-CoV can be used to study SARS-CoV-2 and will assist in the detection of significant viral mutations and COVID-19-related mutations. We need to find out why SARS-CoV-2, unlike SARS-CoV, replicates so well in the upper respiratory tract, and what viral factors and authorities determine whether COVID-19 people have limited or severe infections. Finally, we need to place the first promising findings on SARS-CoV-2 in the coronavirus biological framework to develop effective COVID-19 therapies and vaccines.

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