Review Article

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A Review on Clinical Presentation and Treatment of Coronavirus (Covid 19)

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Abstract

In 2021, 2022, and 2023, the following medications are used to treat and manage coronavirus: chloroquine, hydroxychloroquine, favipiravir; Remdesivir, tocilizumab, and anakinra. Analysis of the clinical presentations concerning COVID-19 was done between 2021 and 2023. When compared to other clinical presentations, fever, cough, chest pain, and dyspnea are the most frequently occurring clinical manifestations. Chloroquine and hydroxychloroquine are the medications most frequently used in the treatment management of COVID-19 to prevent the coronavirus between 2021 and 2023. It is commonly repeated clinical manifestations (Fever, Cough, Chest pain, dyspnea) when compared to other clinical presentations. In the treatment management of COVID-19, the drugs are (chloroquine, and hydroxychloroquine) most commonly used to prevent coronavirus from 2021 to 2023.

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INTRODUCTION

Since it began in Wuhan, China, in December 2019, the unique Coronavirus respiratory illness 2019 (COVID-19) has not stopped spreading and captivating the world. The disease has surpassed all estimates with over 11.8 million positive cases in over 213 countries and regions and over 543,000 deaths. Research is still being conducted on the clinical, biochemical, and prospective risk factors of COVID-19. The disease is mostly characterized by respiratory symptoms, according to the results of several studies that have been conducted. Most morbidity and death are caused by the most prevalent conditions, which include fever, cough, and pneumonia [1]. On the other hand, extra-pulmonary symptoms like nausea, vomiting, anorexia, diarrhoea, and

abdominal discomfort are also becoming more and more acknowledged as significant symptoms. However, it has been demonstrated that several concomitant conditions, including diabetes, hypertension, cardiovascular disease, chronic obstructive pulmonary disease, and other illnesses, may increase the risk of COVID-19-related illness and death. It was quickly determined that the pathogen causing these unusual infections was a novel coronavirus from the Coronaries family, which was given the name SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) [2]. It was observed to have a high degree of homology with the SARS coronavirus (SARS-Cov), which caused the respiratory pandemic in 2002–2003. It was shown to have a significant degree of homology with the SARS coronavirus (SARS-CoV), which caused the respiratory pandemic in 2002–2003 [3].

Yet, research has demonstrated that several concomitant conditions, including diabetes, hypertension, cardiovascular disease, chronic obstructive pulmonary disease, and other illnesses, may exacerbate COVID-19 disease and increase the risk of death. The pathogen causing these unusual diseases was quickly identified as a novel member of the coronavirus family, which was given the name SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) [4]. It was found to be extremely similar to the SARS coronavirus, also known as SARS-COV, which caused the respiratory pandemic in 2002–2003. The respiratory pandemic that occurred in 2002–2003 was caused by the SARS coronavirus (SARS-CoV), to which it was found to be extremely similar. Nonetheless, research indicates that several concomitant conditions, including diabetes, hypertension, cardiovascular disease, chronic obstructive pulmonary disease, and other illnesses, may increase the risk of COVID-19-related illness and death. It was not long before the pathogen causing these unusual infections was identified as a novel member of the Coronaries family, which was dubbed the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). The respiratory pandemic that occurred in 2002–2003 was caused by the SARS coronavirus, sometimes known as SARS-Cove, to which it was found to be fairly similar [5].

The SARS coronavirus (SARS-CoV), which caused the respiratory epidemic in 2002–2003, was found to have significant homology with it. Conversely, research indicates that several concomitant conditions, including diabetes, hypertension, cardiovascular disease, chronic obstructive pulmonary disease, and other illnesses, may increase the risk of COVID-19-related illness and death [6]. The culprit that caused these unusual diseases was quickly identified as a unique member of the Coronaries family of coronaviruses, which was given the name SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2). It was found to be extremely similar to the SARS coronavirus, often known as SARS-COV, which caused the respiratory pandemic in 2002 and 2003. It was observed to have a significant degree of homology with the SARS coronavirus (SARS-CoV), which caused the respiratory epidemic in 2002–2003 [7].

Pathophysiology

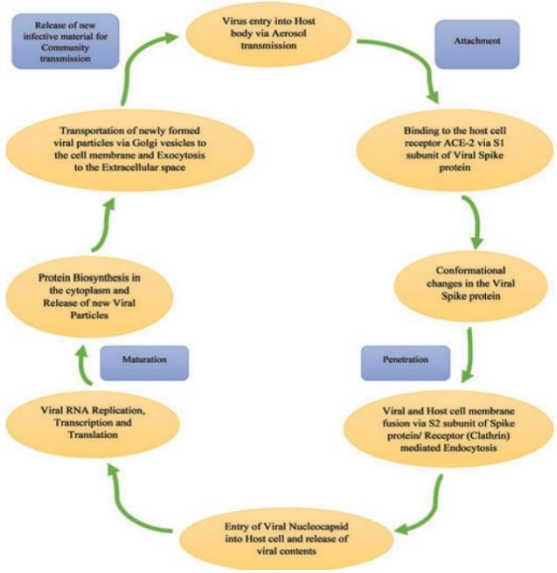

Figure 1: Pathophysiology

Nonetheless, research indicates that several concomitant conditions, including diabetes, hypertension, cardiovascular disease, chronic obstructive pulmonary disease, and other illnesses, may increase the risk of COVID-19-related illness and death. It was not long before the pathogen causing these unusual infections was identified as a novel member of the Coronaries family, which was dubbed the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) [8]. The respiratory pandemic that occurred in 2002–2003 was caused by the SARS

coronavirus, sometimes known as SARS-Cove, to which it was found to be fairly similar. The SARS coronavirus (SARS-CoV), which caused the respiratory epidemic in 2002–2003, was found to have significant homology with it. Conversely, research indicates that several concomitant conditions, including diabetes, hypertension, cardiovascular disease, chronic obstructive pulmonary disease, and other illnesses, may increase the risk of COVID-19-related illness and death [9] [Figure 1, Figure 2].

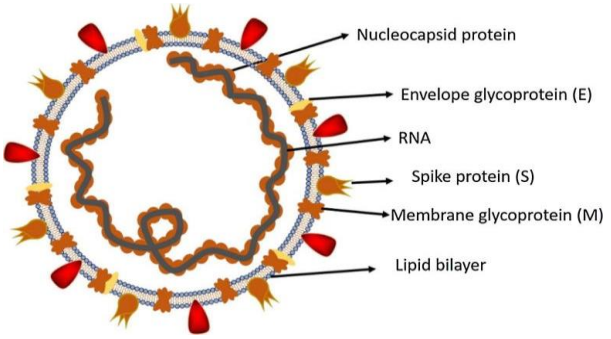

Figure 2: Structure of respiratory syndrome causing human coronavirus

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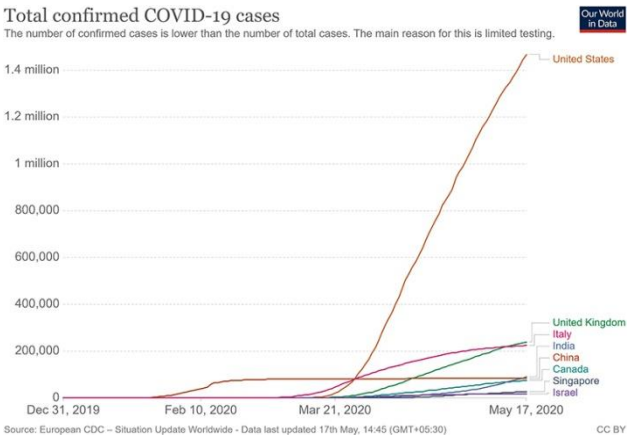

Figure 3: Graph showing total confirmed COVID-19 cases

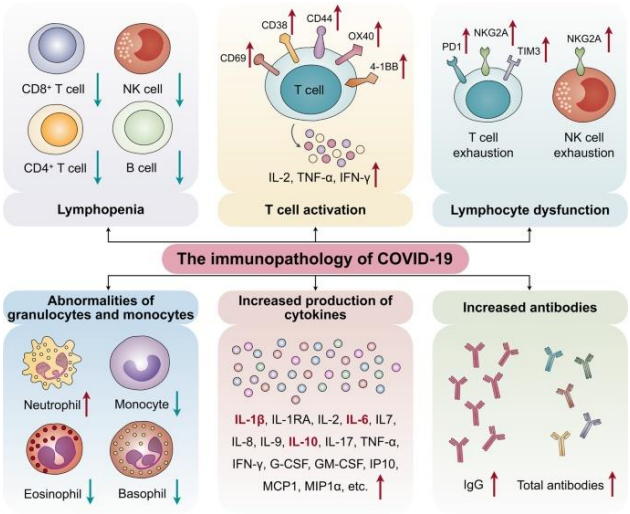

Figure 4: Immunopathology of covid-19

The zoonotic agent responsible for these two forms of coronavirus disease is a member of the coronaviridae family's genus β-coronavirus. Middle East respiratory syndrome (MERS) was first recorded in Saudi Arabia in 2011–2012. Since then, 2495 cases have been documented, of which 858 cases have been linked to deaths, translating to an estimated 34.4% death rate. Although there haven't been any new MERS-CoV patients documented since 2004, the SARS-CoV-2 pandemic struck unpredictably in 2020 [11].

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Coronaviruses are enclosed, single-stranded RNA viruses with a diameter of 80–120 nm. They are categorized into four groups: α, β, γ, and δ. Only six different coronavirus types could infect people before the discovery of COVID-19; COVID-19, a member of the β-coronavirus family, was the seventh [13]. Of these, two coronaviruses, MERS-CoV and SARS-CoV, are better than humans, while four coronaviruses, HCoV-OC43, HCoV-229E, HCoV-NL63, and HCoVHKU1, are less pathogenic and only cause minor respiratory infections. They spread two deadly illnesses. In

the meantime, COVID-19 and SARS-COV have very similar aetiology and homology [14].

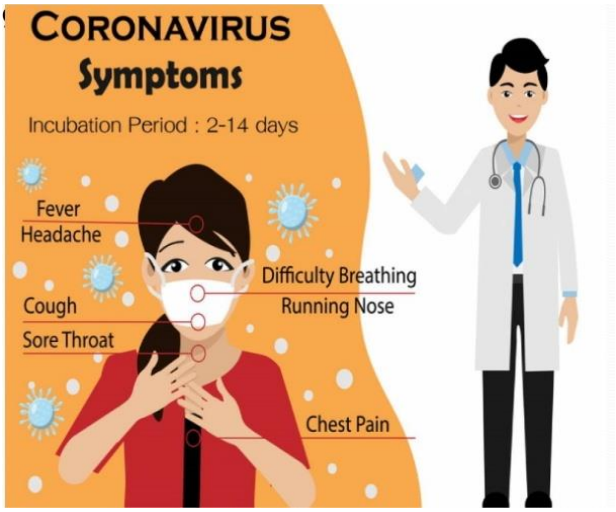

Figure 5: Symptoms of coronavirus

COVID-19 is more temperature resistant than SARS-CoV because it is adapted in bats, whose bodies have a greater temperature than humans. Alpha, beta, gamma, and delta are the four subtypes of coronaviruses that scientists use to categorize various species. Human coronavirus OC43 and beta-coV HKU1 are two examples of the seven coronaviruses that cause the common cold [15].

Origin and Transmission of Covid-19

Compared to SARS-CoV, COVID-19 is more resistant to temperature since it was adopted in bats, whose bodies often have a higher temperature. The four subtypes of coronaviruses—alpha, beta, gamma, and delta—are used by scientists to categorize various species. Human coronavirus OC43 and HKU1, which are part of the beta-coVs that cause colds, are the seven coronaviruses [16].

The human seafood market in Wuhan, South China, where raccoon dogs, bats, nibbles, palm civets, and other creatures are sold, is where the coronavirus first appeared. From there, it quickly spread to 109 nations. Though the primary reservoir for SARS-COV-2 appears to be bats, the zoonotic origins remain unconfirmed [17].

The spike glycoprotein, which varied SARS, was shown to be important in DNA recombination. Thus, cross-species transmission and fast infection may be caused by COV with the RBC of another Beta COV. Rather than being spread by the air, the virus that causes coronavirus illnesses 19 (COVID-19) is primarily spread through contact with respiratory droplets. Rather than being spread by the air, the virus that causes coronavirus in. esses 19 (COVID-19) is primarily spread through contact with respiratory droplets [18].

Epidemiology and Pathogenesis

The coronavirus's high genetic diversity and frequent recombination have led to an increase in interspecific transmission. The virus's natural host is the bat, with penguins and snakes serving as its intermediate hosts. The use of natural hosts and interfaces enabled the first transfer. Infectious virus transmission in society most often occurs through direct and respiratory contact drops.

It typically takes three days to incubate, and it takes an average of fourteen days from the time the first symptom appears until death. Additionally, there is little chance of the virus spreading through an infected person's faeces. Factors affecting sunlight reduction of the number of viruses include high temperatures, and low or high PH [19].

About 80% of patients have mild to moderate disease, with severe disease being more common in young children, elderly patients over 65, and patients with other comorbidities like hypertension, diabetes mellitus, coronary artery disease, and other chronic illnesses. Additionally, it has been discovered that COVID-19 affects men more severely than it does women, with a case fatality rate of 2.8% for men and 1.7% for women.

The respiratory system is the primary organ system impacted by the virus, although it can also directly or indirectly affect other organ systems through the host immune response. The virus enters cells primarily through the angiotensin-converting enzyme 2 (ACE2) receptor. The respiratory system's mucosal lining is rich in ACE2 [20] [Table 1 and Table 2].

Etiology

These coronaviruses cause self-limiting respiratory infections and the common cold in immune-competent individuals. They may affect the lower respiratory tracts of the elderly and those with weakened immune systems. MERS-

Table 1: Determination of Clinical Presentation on Corona Virus

S.No	Year	Author	Clinical Presentation of Corona Virus
1	2021	Rodrigo da Rosa Mesquita	Fever, Cough, Chest pain, dyspnea, myalgia, sputum, fatigue, headache, diarrhoea, sore throat.
2	2022	Mehrorang ghaedi	Fever, Cough, fatigue, diarrhoea.
3	2023	Lijiang MD ,MPH	Dyspnea, fever, cough, headache, fatigue, sputum.

Table 2: Determination of Treatment Management on Corona Virus

S.No	Year	Author	Treatment Management
1	2021	Maria Gavriatopoulou	chloroquine, hydroxychloroquine, favipiravir.
2	2022	Vivek P. Chavda	chloroquine , hydroxychloroquine
3	2023	Mohamed A. Baraka	Remdesivir, tocilizumab, anakinra,

COV, SARS-COV, and SARS-COV-2 are examples of other human coronaviruses that exhibit extra-pulmonary and pulmonary symptoms.

A beta-COV is the virus that caused the COVID-19 pandemic, SARS-COV-2. The new strain's genomic characterization research shows an 89% nucleotide match to the human SARS virus. As a result, SARS-COV-2 is the new strain's name based on these findings. Its entire genome is between 29,891 and 29,903 nucleotides long. The virus is heat- and UV-sensitive. SARS-COV-2 attaches itself to its target cell using the angiotensin-converting enzyme 2 (ACE2) [21].

Animal species contain a diverse range of coronaviruses, a large family of RNA viruses. They have been linked to illnesses in humans that affect the gastrointestinal, neurological, hepatic, and respiratory systems. Because envelope spike glycoproteins are present, they have a crown-like appearance when viewed under an electron microscope. The families Roniviridae, Arteriviridae, and Coronaviridae are comprised of the Coronaviridae. Alpha-COV can be categorized into four genera within the coronaviridae family. Additionally, there are five sub-lineages within beta-cov. Gene characterization has made it possible to determine that, while avian species are thought to be the genetic source of delta-COV and gamma-COV, bats and rodents are the source of genes for alpha- and beta-COV.

Fifteen to twenty per cent of acute respiratory infections are caused by coronaviruses. It has been estimated that 2% of the population is deemed healthy carriers of these viruses. Some common human coronaviruses include HCOV-OC43, HCOV-HKUI, HCOV-229E and HCOV-NL63 [22].

Precautions

To keep yourself from being affected by coronavirus, see to it that you

1. Wear your masks covering your nose and mouth every time you step out of your house
2. Wash your hands thoroughly
3. Sanitise yourself
4. Avoid eating or drinking anything cold
5. Eat nutritious food to build immunity
6. Maintain a physical distance when you are in contact with a group of people
7. Avoid all sorts of direct physical contact

Taking care of yourself means taking care of others too. If each one is conscious of the complications this disease can bring into their lives, it would be a lot easier to curb the spread of the virus. Be cautious. Create awareness. Stay safe [23].

Use of Antiviral Drugs Against SARS-COV-2

The two antiviral medications most frequently used in HIV/AIDS cases are lopinavir and ritonavir. Additional agents, including nucleoside analogues like Remdesivir, Favipiravir, Ribavirin, and Galidesivir, have been investigated for potential efficacy in impeding the synthesis of viral RNA. The WHO has included Lopinavir, Ritonavir, and Remdesivir in the Solidarity trial. Remdesivir is an adenosine nucleotide analogue that enters the viral RNA and prevents replication, leading to chain termination. Originally, this agent was created to treat the Ebola virus disease. SARS-CoV-2-infected rhesus macaques were used

in a study. In that study, the monkeys received treatment either after 12 hours of infection [24].

List of therapeutic drugs under study for COVID-19 as per clinical trials registered under clinical trials

Class of drugs: List of drugs antiviral Remdesivir, Oseltamivir, Favipiravir, and Lopinavir/ritonavir Antiprotozoal medications Nitazoxanide, Hydroxychloroquine, and Chloroquine Immunostimulants, immunoglobulin treatments, and vaccines BCG vaccination, isoprenaline/levamisole, and convalescent plasma Kinase inhibitors and biological agents Imatinib, Baricitinib, Ruxolitinib, Canakinumab, Siltuximab, Lenzilumab, Ravulizumab, Sarilumab, and Tocilizumab antimicrobial medications Clavulanate and Amoxicillin/Azithromycin medications for cardiovascular disease Aspirin, Nafamostat mesilate, Enoxaparin, Simvastatin, Losartan, Telmisartan, and Sildenafil citrate Additional representatives Colchicine Naproxen iSortretinoin Almitrine, Ivermectin, and Levamisole Anakinra Acrylamide Deferoxamine Tamoxifidine Non-pharmaceutical methods of treatment Nutrition, non-invasive oxygenation, intubation, and oxygenation at high pressure [25].

The Coronavirus (CoV) family of viruses is responsible for a wide range of illnesses, from the common cold to acute respiratory tract infection. The infection's severity may manifest as pneumonia, acute respiratory syndrome, or even death. This group of viruses was largely ignored until the SARS outbreak. However, since the SARS and MERS outbreaks, these viruses have been studied in greater depth, accelerating vaccine development.

Human-to-human contact is the primary means of 2019-nCoV transmission. Transfer from animals to humans has not yet been verified. Since not everyone who contracts the virus will experience symptoms, carriers who do not exhibit any symptoms run a significant risk of becoming super infectors of the illness. Many countries around the world have expressed concern about this, with the Indian government expressing worries about how to find and contain asymptomatic carriers, who may make up to 80% of the infected. A significant amount of data regarding asymptomatic people remains unexplored, as existing resources are focused on comprehending hospitalized individuals exhibiting symptoms.

The primary means of transmission between humans is through droplets, which are released when someone coughs, talks, or sneezes and are subsequently inhaled by a healthy person. Indirect transmission of viruses occurs when they land on surfaces touched by a healthy person, who may then touch their mouth, nose, or eyes, thus allowing the virus to enter their body. Another frequent problem with these illnesses is fumites.

Human-to-human transmission is primarily via droplets, which are produced during coughing, talking, or sneezing and inhaled by a healthy individual. They can also be transmitted to people indirectly when they land on surfaces that are touched by a healthy person, who may then touch their nose, mouth, or eyes, allowing the virus to enter the body. Fomites are another common problem in such diseases.

Socio-Economic Impact

China's economy suffered during the SARS pandemic, and analysts weren't sure if it would ever recover. But at that time, China's domestic and international circumstances were more favourable because of its reduced debt, which enabled it to recover more quickly. This is no longer the case. Experts from around the world are not optimistic about how this outbreak will turn out. Worldwide economic flow has broken down as a result of misinformation on social media, a lack of knowledge about the risks posed by the virus, and fear of COVID-19. One instance of this is Indonesia, where, during the period when the country was still free of COVID-19, a significant amount of fear was expressed in survey responses. Local business has been impacted by the lockdown and the cancellation of the lunar year celebration. There have been hundreds of flight cancellations, which has hurt tourism all over the world. Over 2.44 billion dollars are predicted to be lost as a result for Indonesia and Japan. There is a ban on workers working in factories, restrictions on all forms of transportation, and no production or movement of goods. There is little export of raw materials and completed goods from China [26].

According to US stock market data released by The Economist, US-based Chinese companies saw an average stock market decline of five points when compared to the S&P 500 index. Due to the outbreak, businesses like Starbucks were forced to take preventative measures and close over 4,000 locations. Because they depend on China for the supply of raw materials and active pharmaceutical ingredients, tech and pharmaceutical companies are more vulnerable. One drug that has seen a price increase in India of more than 40% is paracetamol. The Indian stock market has plummeted as a result of shares of these companies being sold off due to widespread market hysteria. Short-term traders will find themselves in hot water, but long-term investors won't be too touched. Politically speaking, though, this has strengthened support for world leaders in nations like Germany, the UK, and India, where people are happy with their government's policies and they are receiving high approval ratings. In contrast, the way the COVID-19 pandemic was handled has caused US President Donald Trump's ratings to decline. The worst and direct effects will be felt by China itself, as the impending trade war with the USA has hurt the Chinese and Asian markets. These minor effects might only be temporary. The Chinese economy and the dependent global markets will suffer more the longer the suspension of goods production lasts. If this illness is not controlled, lockdowns will become more frequent.

The COVID-19 immunopathology. The immune characteristics of COVID-19 include lymphopenia, lymphocyte activation and dysfunction, granulocyte and monocyte abnormalities, elevated cytokine production, and elevated antibody levels. One important characteristic of COVID-19 patients, particularly in severe cases, is lymphopenia. On CD4+ and CD8+ T cells from patients, CD69, CD38, and CD44 are highly expressed. Severe virus-specific T cells display a central memory phenotype with elevated levels of IFN-γ, TNF-α, and IL-2. However, killer cell lectin-like receptor subfamily C member 1 (NKG2A), T cell immunoglobulin domain and mucin domain-3 (TIM3), and programmed cell death protein-1 (PD1) all exhibit an exhaustion phenotype in lymphocytes. overregulation. Severe patients have significantly higher neutrophil counts along with lower eosinophil, basophil, and monocyte percentages [27].

Signs and Symptoms

1. Sore throat
2. Headache
3. Runny nose
4. Nausea
5. Vomiting
6. Diarrhoea
7. Cough and Tiredness

Methods

Eligibility Criteria

We included a review work that reported the clinical presentation and treatment of coronavirus are reviewed by review articles [28]. After collecting manifestations and treatment management of covid-19 data were collected from existing articles. These data were included as eligibility criteria for this review study.

Selection Process

According the review article first independently reviewed all review articles to get an idea about the clinical manifestation and treatment of the coronavirus.

After reviewing the articles included the manifestation of clinical and treatment information or data about COVID-19. Finally, the review article is prepared and sent to a guide to rectify the mistakes in my review article [29].

Data Analysis

The data collected from existing review articles are analyzed by using IBPPS statistic models. The data about the clinical presentation and treatment of coronavirus was analyzed by using tables. The data was selected as information from the existing articles. The data was shown as years of indication with the information about COVID-19 [30].

RESULTS AND DISCUSSION

According to this review article on clinical presentation and treatment management of COVID-19. the clinical presentation of COVID-19 the data were collected from review articles in 2021 (Fever, Cough, Chest pain, dyspnea, myalgia, sputum, fatigue, headache, diarrhoea, sore

throat.), 2022(Fever, Cough, fatigue, diarrhoea.), and 2023(fever, rash).

The drugs are used in the treatment management of coronavirus in 2021 (chloroquine, hydroxychloroquine, favipiravir.), 2022 (chloroquine, hydroxychloroquine), and 2023 (Remdesivir, tocilizumab, anakinra,).

CONCLUSION

The conclusion of this review article is about clinical presentation and treatment of the coronavirus. The clinical presentations were analysed about covid-19 from 2021 to 2023. It is commonly repeated clinical manifestations (Fever, Cough, Chest pain, dyspnea) when compared to other clinical presentations. In the treatment management of COVID-19, the drugs are (chloroquine, and hydroxychloroquine) most commonly used to prevent the coronavirus from 2021 to 2023.

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Conflict of Interest

The Author declares that there is no conflict of interest.

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