ISSN: 2755-0192

Journal of Psychiatry Research Reviews & Reports

SCIENTIFIC Research and Community

Review Article

Open Access

Analysing Pulmonary Effects of the COVID-19 and Treatment Methods

Quratul Ain Shabir

Student, Bhai Gurdas College of Allied Sciences, Sangrur, India

ABSTRACT

The COVID-19 pandemic, caused by the novel coronavirus SARS-CoV-2, has had a profound impact on global health. Among its various manifestations, respiratory effects have emerged as a critical aspect of the disease. This paper provides an overview of the respiratory complications associated with COVID-19, including acute respiratory distress syndrome (ARDS), pneumonia, and long-term lung sequelae. We delve into the pathophysiology of these effects, exploring the immune responses, cytokine storms, and vascular complications that contribute to respiratory compromise. Furthermore, we discuss the diagnostic methods, treatment strategies, and potential long-term implications for individuals recovering from severe respiratory involvement. A comprehensive understanding of the respiratory effects of COVID-19 is crucial for informing clinical management, public health policies, and ongoing research efforts."

***Corresponding author**

Quratul Ain Shabir, Student, Bhai Gurdas College of Allied Sciences, Sangrur, India.

Received: October 07, 2023; **Accepted:** October 18, 2023; **Published:** October 20, 2023

Objectives

Main objectives are as follows

- **Early Detection and Diagnosis:** Ensuring timely testing and diagnosis of COVID-19 cases to identify respiratory difficulties early and administer accurate care.
- **Clinical Management:** Providing medical care and support for those with severe respiratory symptoms, including oxygen therapy, ventilation, medication and other necessary medical interventions.
- **Monitoring and Research:** Close and continuously monitoring the respiratory effects to understand its impact on lung physiology as well as anatomy and provide effective treatment strategies.
- **Public Awareness:** Educating the public about the respiratory symptoms of COVID-19, promoting healthy practices, and raising awareness about when to seek medical attention.
- **Vaccination Campaigns:** Promoting vaccination as a basic key tool to prevent further or severe respiratory complications and down the overall impact of COVID-19 on public health.

These are the objectives that may put impact on the society so that the further effects may be prevented.

Effect of COVID-19

COVID-19 can potentially pose greater risks at high altitudes due to the lower oxygen levels. As these risks already reduce oxygen saturation in the blood, and if combined with the respiratory effects of COVID-19, it could lead to more severe symptoms and complications. Individuals with COVID-19 may experience worsened shortness of breath and decreased oxygen saturation at high altitudes, potentially requiring closer medical monitoring. It's crucial to consider these factors when planning travel to high-altitude areas during the pandemic.

Analyzing the Impact of COVID-19 on Respiratory System

COVID-19 has a significant impact on the respiratory system. The virus primarily enters the body through the respiratory tract and targets cells in the lungs. It can cause inflammation of the airways, leading to symptoms such as cough, shortness of breath, and chest tightness. In severe cases, the virus can progress to pneumonia, where the air sacs in the lungs become filled with fluid, making it harder to breathe.

The immune response to the virus can result in excessive inflammation, known as a "cytokine storms", which can further damage the lung tissue. This can lead to Acute Respiratory Distress syndrome (ARDS), a severe condition where oxygen levels in the blood drop dangerously low, requiring mechanical ventilation.

Long-term effects of COVID-19 on the respiratory system are also being observed. Some individuals, known as "long haulers," experience persistent respiratory symptoms even after the acute phase of the illness has passed. This can include ongoing shortness of breath, fatigue, and chest discomfort.

Long Term Effects of COVID-19

The long-term effects of COVID-19, often referred to as "long COVID" or post-acute sequelae of SARS-CoV-2 infection (PASC), can vary widely and affect multiple body systems.

These effects may include

Respiratory Symptoms: Persistent shortness of breath, chest pain, and reduced lung physiology are often observed even after recovery from the acute phase.

Fatigue: Some individual's may experience prolonged fatigue and exhaustion that can impact daily life.

Cardiovascular Effects: Heart palpitations, chest discomfort,

and decreased exercise tolerance may experienced.
Muscle and Joint Pain: Mild muscle aches, joint pain, and inflammation have been seen and reported in many Covid cases.
Gastrointestinal Symptoms: Digestive problems like loss of appetite, nausea, diarrhea, and abdominal pain might seen.
Psychological Impact: Anxiety, depression, and other mental health difficulties can result from the stress of the illness and being quaranteen.
Blood Problems: COVID-19 may cause Anemia, in severe cases it may lead to Leukemia which is more complicated and can cause even death.
Multi-Organ Effects: Long COVID can affect multiple organs beyond the respiratory system, including the heart, kidneys, and brain. Covid is enough able to damage a healthy body.

Treatment Approaches to COVID-19
The treatment approach for COVID-19 can vary based on the severity of the illness,general health of patient and present condition of the patient.

Here are some key approaches discussed to decrease the dangerous effects

Mild Cases: For individuals with mild symptoms, rest, hydration, and some medications to relieve fever,muscle aches and discomfort may be sufficient.
Moderate to Severe Cases: Patients with more severe symptoms, such as dyspnea or low oxygen levels, may require hospitalization. Oxygen therapy, and supportive care are commonly used.
Critical Cases: In cases of severe respiratory distress, mechanical ventilation or extracorporeal membrane oxygenation (ECMO) might be necessary.
Vaccination: COVID-19 vaccines have been developed and authorized for emergency use to prevent infection and reduce further illness. Vaccination play a crucial role in managing and controlling the spread of the virus.

Additionally, preventive measures such as wearing masks, practicing good hand hygiene, and maintaining physical distance remain important to reduce the spread of the virus.

Pharmacological Approach
Pharmacological treatment for COVID-19 patients depends on the severity of the illnesses,age and condition of the patient.

Here are some key pharmacological approaches
- **AntiInflammatory Dexamethasone:** A corticosteroid that helps in reducing inflammation and can be beneficial in severe cases by preventing an excessive immune response.
- **Oxygen Therapy:** Provided to patients with low oxygen levels to improve breathing.
- **Mechanical ventilation:** Used in critical cases when oxygen levels are severely low.
- **Fluids and electrolytes:** Given to maintain hydration and balance.

- It's important to note that treatment protocols can vary based on guidelines issued by health organizations and ongoing research. The decision to use specific medications should be made by healthcare professionals considering the patient's individual condition, medical history, and any potential drug interactions.
- Vaccination is also a crucial preventive measure to reduce the severity of COVID-19 and its impact on individuals. It's recommended that patients follow the guidance of their healthcare providers for the most appropriate treatment plan.

Non-Pharmacological Approach
Non-pharmacological treatments for COVID-19 patients focus on managing symptoms, preventing the spread of the virus, and supporting overall well-being. Here are some key non-pharmacological approaches:

- **Isolation and Quarantine:** Infected individuals should isolate themselves to prevent spreading the virus to others. Quarantine may also be necessary for close contacts of confirmed cases.

- **Rest and Hydration:** Adequate rest and staying hydrated are important for recovery and supporting the immune system.

- **Respiratory Support**
  Breathing exercises: Deep breathing and coughing exercises can help maintain lung function.
  Nutrition: Eating a balanced diet rich in vitamins, minerals, and protein supports overall health and immune function.

- **Hygiene and Infection Control**
  Hand Hygiene: Regular handwashing with soap and water or using hand sanitizer helps prevent the spread of the virus.
  Respiratory Hygiene: Covering your mouth and nose with a tissue or by wearing surgical masks.
  Physical Distancing: Maintaining a safe distance from others, especially when symptomatic, reduces the risk of transmission.
  Environmental Cleaning: Regularly disinfecting surfaces and objects that are frequently touched helps reduce the risk of virus transmission.

- **Psychological Support:** The stress of dealing with COVID-19 can put impact on mental health. Staying connected with loved ones, and sharing your inner most word may reduce the stress.

References
1. Castagnoli R, Votto M, Licari A, Amelia Licari, Ilaria Brambilla, et al. (2020) Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection in children and adolescents: a systematic review. JAMA Pediatr 174: 882-889.
2. World Health Organization (2020) Mask use in the context of COVID-19: interim guidance.
3. Mukundraj B Patil, Vikas D Ragole (2021)COVID-19 Pandemic and INDIA. https://notionpress.com/read/covid-19-pandemic-and-india.
4. Nyberg T, Twohig KA, Harris RJ, Shaun R Seaman, Joe Flannagan, et al. (2021) Risk of hospital admission for patients with SARS-CoV-2 variant B.1.1.7: cohort analysis. BMJ 373: 1412.
5. Bager P, Wohlfahrt J, Fonager J, Morten Rasmussen, Mads Albertsen, et al. (2021) Risk of hospitalisation associated with infection with SARS-CoV-2 lineage B.1.1.7 in Denmark: an observational cohort study. Lancet Infect Dis. 21: 1507-1517.