



Review article

Significance of Precautionary Measures, Rehabilitative Care and Physiotherapy Approach during Pandemic of COVID-19

Ashish W. Bele*, Tejasvini Fating, Nivedita Singh, Mohd. Irshad Qureshi, Pratik Phansopkar, Rakesh Krishna Kovala

Ravi Nair Physiotherapy College, Datta Meghe Institute of Medical Sciences, Wardha, Maharashtra, India.

ABSTRACT

An outbreak of the Novel Corona Virus disease in 2019 is a health disaster for the world. COVID-19 is an acute respiratory disease associated with coronavirus, SARS-CoV-2 named coronavirus disease 19 (COVID-19), coronavirus is interspecies, and can also be transmitted from human to human that has triggered a global pandemic over the past 3 months. At present, there is no specific treatment exclusively available to treat COVID-19 patients. This condition is managed by symptomatic treatment for symptoms like cough, cold, fever, and other respiratory-related ailments although over a period of time since this pandemic is started patients are showing varied symptoms that are not respiratory in nature including headache, loss of taste and smell sensation, body aches and fatigue. Prominent symptoms are managed by best supportive care while secondary symptoms are treated by medicines. As no specific treatment is available at present as said prevention is better than cure must followed. A good immunity can protect us, so prevention and rehabilitation is an essential way to cope up with the dangerous situation of COVID -19 diseases.

Keywords: COVID-19, Pandemic, Prevention, Rehabilitation, Physiotherapy.

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Correspondence: Ashish Bele * ✉ bele.ashish321@gmail.com

Associate Professor, Department of Community Health Physiotherapy, Ravi Nair Physiotherapy College, Datta Meghe Institute of Medical Sciences, Wardha, Maharashtra, India.

INTRODUCTION

COVID 19 disease is a pandemic infectious disease caused by a newly discovered coronavirus. Coronavirus come from the family of viruses that range from the Middle East respiratory syndromes (MERS) to severe acute respiratory syndromes (SARS) [1]. The group of Coronaviruses was first discovered in the 1930s which was first seen in the domesticated chickens which were caused by the infectious bronchitis virus (IBV). In 1940 two more types of animal Coronaviruses were found that is mouse hepatitis virus (MHV) and transmissible gastroenteritis virus (TGEV) were isolated [2].

Human coronavirus was discovered in 1960, the earliest one was studied from human patients with the common cold which were later named human coronavirus 229E and human Coronavirus OC43. Since other coronaviruses have been identified including SARS-COV in 2003, HCOVNL 63 in 2004, HKU 1 in 2005, MERS-CO in 2012 and SARS-COV 2 in 2019. Most of these have involved serious respiratory tract infection [3]. Health ministry has confirmed globally there are 1803477 Coronavirus cases, in which 12, 80,294 are currently actively infected patients and 4, 12,356 get recovered and a total 1,

10,827 was death. As per the world, health guidelines report on 12 April 2020 [4].

Transmission of COVID-19 disease

Coronavirus is interspecies, and can also be transmitted from human to human. The novel coronavirus is spread through the infected droplets via sneezing, coughing, or speaking. It can spread 1-3 meters of distance and can deposit on the surfaces. According to the various surfaces, its live durability depends such as the virus live longest on plastic and steel, poorly on copper surfaces. People can also be infected by touching a contaminated surface or any other way by which viruses may enter through the eye, mouth, or nose into the body and the coronavirus can contact the internal cells which may harm the human body [5]. This virus damages the human body when it goes inside the cell and hijacks it. It mostly affects the respiratory tract and gastrointestinal tract. Because of the unique structure of the virus, it can get easily attached to the protease of the host cell cleaves and activates the receptor attached spike protein. Depending on the host cell protease available cleavage and activation it allows the virus to

enter the host cell by direct fusion or enter via endocytosis. After entry into the host cell, the virus particle is uncoated and its genome enters into the host cell cytoplasm and replicates the RNA by directly mediating the synthesis of negative-sense genomic RNA from the positive sense genomic RNA. After these, affected cells get replicated and form new replicated copies of itself. Which disturbs the original function of that host cell. The immune cells including mast cells act as a defence mechanism against microorganism and cause a primary attack on foreign bodies it causes the release of an inflammatory chemical compound like histamine and protease and causes inflammation which may lead to respiratory tract infections like pneumonia, severe bronchitis, which may cause dysfunction of internal organs and it may lead to death [6].

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Diagnosis for COVID- 19

COVID -19 is classified as an airborne high consequence of infection disease (HCID) in the UK. So assessments should be carefully done for including the patients in primary care. During an initial assessment, precaution must be taken to minimize transmission of the coronavirus, avoid direct physical contact, including physical examination and exposure to respiratory secretion. If possible initial consultation should be through the telephone or if it is not possible history should be taken under the precautionary measures [9].

Patients who satisfy epidemiological and clinical criteria as specified by WHO health guidelines are classified as possible cases of COVID- 19. If the patient meets the case definition, clinicians should consult the latest guidance from their public health authorities. And further molecular and serology tests must be carried out to confirm the disease.

Specific clinical management

At present there are no recommended vaccines or drugs exclusively available for COVID 19, however, hydrochloroquine is proving to be beneficial in relieving symptoms and is used globally [10]. Primary symptoms are managed by symptomatic treatment while patients that are severely affected may require ventilator support.

Precautions

Early studies and recent shreds of evidence on potential coronavirus suggest that there is no specific and reliable medication available for the treatment of coronavirus and no possible cure is present. So as said prevention is better than cure and probably only way available to prevent the spread of the infection and a good way is to start early precautionary measures and protect yourself and others around you. So, some precautions that must be followed are

Frequently wash your hands or rub your hands regularly for 20 sec, with alcohol-based sanitizers, soap, and water and avoid touching to the eyes, nose, and mouth. It will help to restrict the entry of microorganisms inside the body .Cover your nose and mouth with disposable tissue or mask, strictly when you are going to crowded places. Avoid close contact with the people who are sick, or have any type of infectious disease, or who had recently travelled from other countries or any reported infected areas, because the infection can be spread and may spread to others. The outside scenario is dangerous so is a good way to prevent infection is to stay home and self-isolate from others in the household if you feel unwell. Children and geriatric people need more supervision because they are more prone to infection. And must be isolated if sick and prompt measures must be taken. Eating healthy food is another way to improve immunity and prevent infection. Foods rich in Vitamin 'C' must be consumed, well-cooked food destroys most of the micro-organisms, avoid outside food, purchasing food materials from hygienic places is very important, and taking care of cleanliness during cooking is another practice that must be followed regularly.

If you are sick and having any symptoms of COVID-19, have any history of traveling or contact with the suspected people or any infected area, then you must first self-quarantine and immediately consult the medical professional working in the field concerned with COVID-19. Maintaining social distance is an effective and easiest measure to prevent infection. Individuals who have low immunity and co-morbid conditions like high blood pressure, asthma, diabetes, cancer, and any health-related issue are more prone to get infected and therefore must avoid going out and take all precautionary measures with utmost priority.

Rehabilitation

Here rehabilitation is mentioned for physical fitness and practice to cope up with this diseased period. There are certain studies which indicate that individual having strong immunity and who are

physically fit can easily recover from COVID-19. Or they may not even require hospitalization can be managed at home in isolation with appropriate medical care. He report shows there are 4, 12,358 population got recovered with the help of proper medical care and their immunity. Hence, some rehabilitative measures which can be considered as precautionary measures to reduce the chances of harm from COVID-19 are mentioned here.

It includes maintaining Respiratory tract hygiene by doing regular active breathing exercises, it can help to clear the airway and improve the working capacity of lungs. Active cycle of breathing exercises, active cycle of breathing techniques consist of diaphragmatic breathing, forceful expiratory breathing pattern, which helps to maintain the hygiene of the respiratory tract as well as strengthen the respiratory muscles and improve utilization capacity of lungs. It helps the bronchioles to get open as much as possible and provides effective oxygen uptake.

In case a patient who was infected and requires a ventilator support chest physiotherapy is one of the most beneficial treatments that could be given. Proper positioning techniques give good airway clearance during the inflammatory phase and help remove secretions from lungs with the use of manual techniques like vibrations; percussion followed by suctioning this will help in reducing infection and maintain the respiratory function. Thus the patient can be weaned off the ventilator early and any permanent damage to the lungs can be avoided and reduced hospital stays. Any physical workout with cardio-respiratory fitness exercises can help the person to maintain their internal health, mostly in asthmatic, blood pressure, and diabetic patients who are more prone to disease, so it helps to fight against coronavirus respiratory infection.

Old age people who had low immunity, they can do some regular exercises and cardio-respiratory fitness training to improve their functional capacity and guarding them against any infection. Even if a person with good functional capacity and cardiorespiratory fitness gets infected and require breathing support from the mechanical ventilator or from outside devices to survive in this condition during critical care. Recovery of this patient will be faster and can be weaned off early when compared to the patient with low functional capacity. So the fitness level of the patient will help him or her recovers fast.

After recovering from COVID-19 disease there is a need to achieve normal body function to start daily activities in normal life. Hence, the patient requires physical rehabilitation to achieve better results. Beside acute respiratory care, long term physiotherapy treatment after the patients is recovered will prove beneficial as this will help in improving the overall health and functional capacity of the patient which was reduced due to hospitalization and will also boost immunity.

DISCUSSION

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a new coronavirus that emerged in 2019 and causes coronavirus disease 2019 (COVID-19).

Peter Thomas et al. included in their study about the present situation related to COVID-19 e current mortality rate is 3 to 5%, with new reports of up to 9%, which is in contrast to influenza at around 0.1%.² The rates of admission to an intensive care unit (ICU) are approximately 5%. Around 42% of patients admitted to the hospital will require oxygen therapy. Based on emerging data, people with the highest risk of developing severe COVID-19 disease requiring hospitalization and/or support from ICU. People with severe COVID-19 infection have rehabilitation needs in different stages of the disease and physiotherapists are critical to the rehabilitation of these patients while also continuing to provide rehabilitation for non-COVID-19 patients. Devid K et al. Mentioned that many patients suffering from the symptoms of this illness will also be at risk of long-term damage and disability. The severity of this condition and illness is still uncertain, although it is apparent from early studies that across all stages of the disorder these people would require therapy-acute, post-acute, and long-term. Rehabilitation is described as a series of therapies intended to minimize impairment and improve coping in the relationship with their community in persons with health conditions ^[6] ^[4].

For physiotherapists, there are very acute service changes that may include seeing patients in the general wards who are medically more unwell than usual because they were discharged early from the intensive care unit to free up beds. The connection between critical care and wards is a direct task for physiotherapists, whilst still, physical activity helps to get a cure from the infections. It has also an impact on cardio-respiratory and physical fitness, which helps for a better life.

CONCLUSION

From this study, it is concluded that COVID-19 is the severe infectious disease that harms the human respiratory system and physical health. And there is no specific vaccination or medication to cure it. But with the best precautionary measures and rehabilitative measures people can protect themselves from getting infected and if it happens we good functional capacity and fitness one can recover fast without any permanent damage to the body.

Source of finding

Nil.

Conflict of interest

No conflict of interest.

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