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## Safety measures to be adopted by clinical physiotherapists in Covid-19 era

**Kaushik Guha and Dr. Subhrojyoti Bhowmick**

### Abstract

COVID-19 is an infectious disease caused by new virus known as Coronavirus. 2019 Novel corona viruses (nCoV) mostly spread from bats to human, which is known as *spillover*.

In the past corona viruses caused diseases like SARS (Severe Acute Respiratory Syndrome) in China in 2003 & MERS (Middle East Respiratory Syndrome) in Saudi Arabia in 2012. Corona viruses can cause both respiratory & G.I symptoms. Respiratory symptoms can be mild like common cold & pneumonia. It can be severe like SARS & MERS. The symptoms are fever, dry cough, tiredness, diarrhoea, shortness of breath (S.O.B), in more severe cases pneumonia, kidney failure & death. The diagnosis of this disease can be done by performing PCR (Polymerase Chain Reaction) which identifies the virus based on its genetic fingerprint. There is no vaccine or specific medication available currently, except supportive care. The spread of this virus can be prevented by following standard hygiene protocols which includes maintaining minimum distance of one meter/two meters according to CDC from the patients, using face masks & P.P.E, washing hands repeatedly with soap water/ABHR, covering mouth with tissues, flexed elbow, handkerchiefs to prevent droplet infections, avoiding those are not well & animals as well.

Patient care has always been specific to the individual, with the physical therapist assessing a person's needs related to their goals. Thus, physical therapists have a responsibility to review CDC guidance, to understand who is at highest risk and how to best reduce exposure, and to use their professional judgment in the best interests of their patients and clients and their local communities — including rescheduling non-urgent care if that is the best approach, or making other adjustments when the risk of exposure to COVID-19 outweighs the benefits of immediate treatment.

**Keywords:** Covid-19, safety measures for Physiotherapists

### 1. Introduction

COVID-19 is an infectious disease caused by new virus known as Coronavirus. 2019 Novel corona viruses (nCoV) mostly spread from bats to human, which is known as *spillover*.

In December, 2019 there were few pneumonia cases found in Wuhan, China. Researches show these were caused by virus now known as 2019 Novel Corona virus, which is unknown previously. These viruses are large group of R.N.A viruses with genetic materials wrapped within an envelope with protein spikes. These spikes look like crowns, hence the name Corona (crown). The envelope includes three different proteins: Membrane (M), Envelope (E) and Spike (S) proteins. M protein binds nucleocapsids and is involved in viral assembly and budding; E protein contributes to viral morphogenesis and release as well as to pathogenesis. S protein forms homotrimeric spikes that recognize the cellular receptor, thus allowing viral entry into target cells (Chen, Liu and Guo 2020) <sup>[1]</sup>.

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PCR (Polymerase Chain Reaction) which identifies the virus based on its genetic fingerprint. There is no vaccine or specific medication available currently, except supportive care.

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### **Role of Clinical Physiotherapists in patients with COVID-19**

Clinical physiotherapists work mainly on the respiratory system known as chest physiotherapy. They have to,

- Maintain bronchial hygiene.
- Maintain proper air entry into lungs.
- Reduction of work of breathing.
- Increase proper functioning of respiratory system.
- Reduce breathlessness.
- Support weaning from mechanical ventilation and set up non-invasive mechanical ventilation.
- Improve knowledge and understanding.
- Reduce (thoracic) pain [3].
- Prevention of development of pressure sores, D.V.T, which can develop in patients with multiple illness & long term bed bound patients.

Chest physical therapy is not a new concept; indeed over a century ago deep breathing exercises were promoted in order to 'strengthen the chest, lungs and stomach' and positioning and exercise were proposed as beneficial therapies for the perception of dyspnoea [4].

### **3. Safety Measures**

Patient care has always been specific to the individual, with the physical therapist assessing a person's needs related to their goals. Thus, physical therapists have a responsibility to review CDC guidance, to understand who is at highest risk and how to best reduce exposure, and to use their professional judgment in the best interests of their patients and clients and their local communities — including rescheduling non-urgent care if that is the best approach, or making other adjustments when the risk of exposure to COVID-19 outweighs the benefits of immediate treatment [5]. There are mainly two duties of physiotherapists in this case,

- A. Get educated & spread awareness to patients.
- B. Prevent spread/transmission of the infection.

#### **A. Get educated & spread awareness to patients:**

- Physiotherapist must educate him/herself by following updated information from electronic media, newspapers, important websites of important organizations like W.H.O, scientific journals /papers etc.
- Share educational messages with other healthcare providers, patients & patient's family members.
- Review and provide up to date information on notice board, website & to the admission counter/reception of clinic/hospital.

- Signage, about hand & respiratory hygiene, basic protective measures, should be displayed prominently at the first point of contact to the service such as reception areas, waiting rooms. Signage should also prompt visitors, staff, volunteers and patients to self-identify if they are at risk of having COVID-19 [6].

Physiotherapist must spread awareness to the patient & caregivers too. Physiotherapist should also make sure the patient must get the followings,

- Customized fitness regime for patients- Each patient must be provided customized fitness protocol to stay fit during the illness period, it will not only boost the immune system but mental health too for fighting against the virus.
- Proper sleep- The patients should get proper sound sleep for at least eight hours, which will keep him healthy. Activities like yoga, exercises spot-jogging, stretching on daily basis will help him/her to get sleep.
- Balanced diet- A nutritionist must prepare customized diet chart depending on health status of the patient, which will keep immunity of the patient at the optimum level necessary for early recovery.

Physiotherapist must also ask the patients & family members to avoid unnecessary contact with animals & cook animal products properly before consumption.

### **B. Prevent spread/transmission of the infection**

Patient safety has been defined as "the reduction and mitigation of unsafe acts within the health-care systems, as well as through the use of best practices shown to lead to optimal patient outcomes" [7]. The physiotherapists must follow preventive measures to protect not only the affected patient, but the physiotherapist him/herself, the other patients admitted with other complications, the staffs of the clinic / hospital also.

#### **A. Protection**

- Details of travel history & social contacts should be asked & noted from the patients with symptoms in the admission/reception.
- Patients with symptoms should be asked to follow the medical guideline & may need quarantine.
- Maintain social distancing of about 1 meter/2 meter according to CDC from the persons who are not well.
- Use P.P.E (Personal Protection Equipment) & face mask while treating patient [8].
- Practice hand hygiene with ABHR if hands are not visibly dirty or with soap water if hands are dirty.
- Use tissue/handkerchief while sneezing/coughing.
- Gloves can be used during treating patients.
- Limit physical examination of the patient.
- Note down detail history & ask open ended questions.
- If the physiotherapist feels uneasiness/fever, cough, should immediately seek medical check-up.

#### **B. Hygiene**

- Provide proper instructions about basic methods of hand hygiene in the clinical setups.
- Ensure there are multiple signages in the reception, entrance & treatment area about the disease & safety measures.

- Regular cleaning of clinic or hospital area with disinfectant should be done.
- Hands should be covered with gloves during examination & treatment.
- Equipments which are used for treatment purpose should be properly cleaned with disinfectants.
- Avoid contact with any type of body fluid of the patient.
- Patients with COVID-19 need to be isolated from other patients.
- The room of the patient should have two entry & exit. The doors should be always closed to spread infection.



### C. Assignment of the staffs

- The team members of physiotherapy should be assigned duty on rotation/interval basis. This will lessen the burden of work load.
- It is always better not to assign the high risk category members for treatment of patients with COVID-19. They are,
  - Pregnant female member.
  - Diabetic.
  - History of chronic respiratory disease like asthma.
  - History of heart disease.
  - Over 60 years of age.
  - Immunosuppressed.
  - History of any other diseases.

### D. Providing education & treatment planning) by tele-conferencing

- The patients, who are staying in remote areas or discharged from the medical setup, can be provided education or home care using tele-conferencing or video-conferencing. It will not only help in follow-up, it will also maintain regular contact with the physiotherapists & other members of the medical team. The care givers of the patients must take part in the process, so that they can also boost/ encourage the patient to continue/maintain/update the process of treatment.

### E. Home care

Persons with disability, older age group, suffering from mild symptoms of COVID-19, can also be treated from home. W.H.O has recommended home cares for such patients [9]. There are some factors to be considered for providing treatment at home. Those are as follows,

- The education of the patient & family members should be considered.
- They must follow basic safety measures like hand & respiratory hygiene.
- The movement of the patient should be restricted to some areas of the house only.
- Neighbours, relatives, friends of the patient should not be allowed to meet the patient.
- Principles of quarantine should be strictly followed.
- Communication between the therapist & family members should be given utmost importance.
- Patient's utensils, cloths should be cleaned with soap on regular basis.
- The room of the patient should be well ventilated & should be cleaned with disinfectants.
- Family members & healthcare members should maintain at least 1-2 meter distance with the patient.
- P.P.E, surgical masks, gloves should be used for handling the patient.
- Any exposure with body fluids of the patient should be avoided.

### F. Specific points to be followed for infection prevention & control

1. Physiotherapists must follow 5 moments of hand hygiene recommended by WHO,
2. Before entering patient's room.
3. Before touching a patient.
4. After performing postural drainage/ suctioning of secretion from lungs.
5. After leaving patient's room.
6. After removal of PPE/hand gloves.

Hands can be cleaned with ABHR/ soap water for forty to sixty seconds. Soap water should be used, if hands are soiled followed by ABHR & only ABHR can be used if hands are cleaned, but not dirty [10].

In out-door facility, the distance between each patient should be at least 1 meter. Both therapist & patient should wear protective face mask. The patients & family members should be made to follow hand hygiene before entering the department. The equipments (if used) should be cleaned with alcohol/soap water. The bed sheets, towels, pillow covers should be changed after every use. Tissue papers used to wipe extra us /electrode gel from patient's body should be properly disposed.

In case of treatment of indoor patients, face masks are sufficient if instruments are used. In case postural drainage, hand gloves are used along with masks preferably N-95 (hands should be cleaned using ABHR before wearing mask). PPE/ face shield, mask, gloves, gown are needed if there is chance of spraying of sputum, droplets of patients on the therapist. Suction catheters, tissues, cotton etc should be properly disposed following use. Respiratory & hand hygiene should be maintained by the therapist during treatment.

**Rules to wear PPE**

1. Gown.
2. Mask.
3. Eye wear/protective goggles.
4. Gloves.

**Rules for removal of PPE**

1. Gloves.
2. Gown.
3. Mask.
4. Goggles.

Hand hygiene is recommended before removal of mask & goggle.

**4. Conclusion**

Managing a patient with COVID-19, is a team work. The physiotherapist must treat such patient consulting with other members of rehabilitation team, while keeping the basic safety protocols in mind. Any negligence can lead to life of others staff members or members of entire community at risk. Even can lead to community spread which may affect the entire nation & later other nations. So “BE SAFE & KEEP SAFE”.

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