

Role of Cardiopulmonary Physiotherapy in COVID-19 Disease

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Abstract: *A child's attainment of milestones at right age is of utmost concerning thing to the parents. It is their duty to closely look after the child and have a note on their day to day activities as they grow. Several reversible defects with regards to the milestones can be corrected if found earlier and treated by the respective professionals. In this article, we brief parental concerns regarding the milestone development in the child and the methodologies that will help them attain a healthy lifestyle and for a better learning experience with sharper brain. Making them compete in all the walks of life must go hand in hand with a quality lifestyle.*

Keywords: *Oxygen supply, Acute Respiratory Distress, Bronchial Hygiene, Respiration, Breathing Exercises*

INTRODUCTION

Cardiopulmonary Physiotherapist plays an important role in treating various Acute and Chronic Cardio respiratory ailments in Acute Hospital as well as Clinical settings. Cardio respiratory/Cardiopulmonary

Physiotherapists are an integral part of the Healthcare System then it comes to Global Pandemic times like the one faced all over the world, the COVID-19. It has been concluded that SARS-Cov-2 primarily affects the respiratory system.

From the studies it is concluded that in COVID-19 patients who are in a high grade contagious state, they commonly present with complications like very severe pneumonia, Multi Organ Failure, Cardiac failure, Acute Respiratory Distress Syndrome, full blown Sepsis. Such complications are seen more frequently in older age groups who are mostly falling in the ages of more than 70 years. They are also found to suffer from other co-morbidities like the diseases affecting the cardiovascular system, respiratory system, and also people with Diabetes and Immuno compromised state are more frequently affected (as quoted by World Health Organization/WHO) 1,2,3.

COVID – 19 PANDEMIC

COVID-19 illness symptomatology includes simple flu like illness which includes the symptoms pertaining to the respiratory tract with the common ones being cough, fever, fatigue, breathlessness and sputum production (less common).

The COVID-19 disease manifestations may vary from asymptomatic illness, mild respiratory tract infective symptoms to severe pneumonia leading to respiratory shut down or even death. As per the current report of World Health Organization, 80% COVID-19 affected patients are estimated to be mild and asymptomatic cases whereas 15% are recorded to be severe cases requiring O₂ supply and 5%

been recorded to be those who are in need of ventilatory support.

Being a recent and an evolving pandemic, we don't have enough evidences on the exact line of medical treatment and also the vaccinations are under trial for now, so from the data and available references produced till date by the World Health Organization and Research Authorities of the various countries who are already badly hit with this pandemic, it is seen that depending on the severity of the cases and the underlying co- morbidities, Cardiopulmonary Physiotherapy can be used for COVID-19 suspected or confirmed cases.

According to the World Health Organization, any acutely confirmed cases that are unwell or COVID-19 suspects or confirmed patients need not be routinely referred to the department of Physiotherapy. The benefits arising from the physiotherapist's intervention in the acute clinical setting is limited and the physiotherapy resources are being beneficial in facilitating their treatment outcomes and at the time of discharge.

Physiotherapists play limited role in the immediate rehabilitation of the corona virus affected individuals who have not recovered completely to the point where their normal functional baseline has returned.

So from database that are available till now for this newly hit Pandemic COVID- 19/Corona virus Disease, which has led to social distancing and lockdown in most of the Nations Globally, mild symptoms where no significant respiratory compromise is observed like for example -fever, cough without expectoration, chest X-ray with almost normal findings, pneumonia requiring low-level oxygen and presenting the features of non-productive cough, Physiotherapy interventions are not required.

Any intervention that can lead to the increased risk or work of breathing should be avoided in Acute cases of confirmed COVID- 19 patients. In the cases of Acute Respiratory Distress, most of the physiotherapy interventions are contraindicated as it can further compromise the increased work of breathing⁷.

GENERAL MANAGEMENT OF COVID PATIENTS

Summarizing the general management will include:

1. Positioning

Positioning or Postural drainage positions are advisable in cases of secretions, to assist the clearance of airways or to promote ventilation.

(Prone positioning: As per the reports from The International Centers till date, who are coming in contact with quite a huge number of patients who are critically ill with the Acute Respiratory Distress Syndrome presentation in COVID-19 patients, prone ventilation is likened to have beneficial effects in case of those managed in the ventilator settings. Prone ventilation is recommended to be performed for 12- 16 hours for a day in severe ARDS occurring in these COVID-19 patients.

2. Bronchial hygiene

Bronchial hygiene which includes techniques to keep the airways clear by maneuvers like Chest Vibrations or Shaking, along with postural drainage, to assist drainage of secretions (very limited data is found in support of percussion which should be probably avoided unless we get enough evidence about the disease, due to the mutating nature of virus), Forced Expiratory Techniques like Huffing and Coughing, Active Cycle of Breathing or Autogenic Drainage, as per the status, underlying co- morbidities and requirement of the patient.^{10,11}

3. Respiration

Respiratory facilitation techniques like Neurophysiological facilitation of Respiration, to stimulate respiration and improve the ventilation.

4. Breathing Exercises

Breathing exercises to improve lung volumes, depending upon the underlying respiratory comorbidities, which may include Inspiratory or Expiratory exercises for e.g. Diaphragmatic breathing, Thoracic expansion exercises, Pursed lip breathing, Breath stacking exercises etc.

(Active Cycle of Breathing as well as techniques like Breath stacking exercise, which helps in lung volume recruitment, combined with positioning can be helpful in weaning stages when the patient is co- operative and involved in the treatment)

All of the above inter mentions, except for positioning, should not be used in Acute cases of Respiratory distress as it can lead to an increased work of breathing.

So the above mentioned treatment techniques can be performed depending on the need, stage, underlying comorbidities of the cases and where they are appropriate and safe to perform, abiding by the protective guidelines of the health authorities and maintaining the highest level of Infection Prevention Control.^{12,13}

INVOLVEMENT OF PHYSIOTHERAPIST'S FOR COVID – 19 PATIENTS

It is a recommendation from the World Health Organization that it is better to limit the Health care workers that come in contact with the confirmed or suspected COVID-19 cases and it also recommends to limit the number of people attending for care and support of the patient must also be kept as minimum as possible.

So a Physiotherapist will have to be calculative and judgmental about how and where to provide the treatment by considering and practicing the strict Infection prevention and control guidelines and with proper Personal Protective Equipments (PPE) to reduce the risk of transmission.¹³

When not working in Acute Hospital Settings,

THIS IS THE NEED OF THE HOUR WHICH IS EXPECTED FROM ALL THE PHYSIOTHERAPISTS

Primarily,

- Physiotherapists, especially Cardio respiratory Physiotherapists, may find themselves in a position of contributing in reducing the workload in emergency departments as well as diverting the staff to contribute in the care and the management of hospitalized COVID- 19 cases.

- Educate and spread the awareness about the condition and the symptoms by spreading all that is valid by WHO or local/ National Health authorities.

- Practice, Promote and Teach Infection Control.

- Promote the Importance and techniques of Breathing Exercises in healthy and most importantly elderly individuals, to keep their lungs healthy and to improve their aerobic capacity as well. A healthy, expanded lung keeps the entire body well oxygenated which in turn removes toxins from the body and improves our immunity and this is what we need to educate people for, at this hour.

- Give Home Exercise Programs, including breathing and chest expansion exercises, to the people in lockdown or in isolation - Now here it is very important to understand first

what kind of breathing exercises are needed for a particular patient. As we all know, that breathing exercises differ according to a person's co-morbidities. So diagnose, differentiate and design your treatment protocol as per the need of the patient. Start consulting online for such patients.

- Dealing with Quarantine or Isolation can lead to multiple other health issues so educate and counsel your patients about how to deal with it physically and mentally.

- Tele Rehabilitation is something that needs to be strongly promoted and recommended at this situation so that we don't deprive our patients from any necessary Physiotherapy consultation.

CONCLUSION

Concluding this, I would like to mention that as and how we see the cases of this new pandemic, we will get a better idea of the sequelae and in the near future, with more

evidence based researches and studies, we can definitely come up with something more precise, in terms of Physiotherapy treatment protocol, and work accordingly as we have been doing for H IN I and other infectious diseases in the past as a Cardio pulmonary Physiotherapist.

Chest Physiotherapists have always worked atriskandat the front line with other medical professionals in treating multiple ailments including highly infectious diseases, so even now, when and where needed, we will deliver our best to the society.

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