

Physiotherapy During the Covid-19 Pandemic

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Abstract

Coronavirus disease (COVID-19), the infection caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has generated a public health crisis all over the world. The sequelae of these pathologies cause need considerations and Physiotherapy treatments have shown to be effective. Although there is not a gold standard treatment, Physiotherapy should be included into the multidisciplinary medical team for the restoration of these patients.

Keywords: Physiotherapy; Coronavirus disease; Pulmonary

Short Communication

Over the last years the crisis of SARS (Severe Acute Respiratory Syndrome), H1N1, Influenza A and Middle Eastern Respiratory Syndrome (MERS) had shown the powerful damage that cross-species transmission events have led to novel human disease and its consequential global impact [1].

Coronavirus disease (COVID-19), the infection caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), is “The new” world and public health crisis [2-3]. The World Health Organization (WHO) elevated the status of the COVID-19 to a pandemic on March 11, 2020 [1]. The management and control of COVID-19 depends on countries’ health systems, it has been had a great impact on society, services and health professionals, including physiotherapists [2, 4]

The infection routes for SARS-CoV-2 are through respiratory droplets and by human-to-human contact [5]. A few days later (usually between 8 and 12 days), a mild febrile illness appears, with dry cough and moderate to severe respiratory distress. The severe ones could experiment hypoxemic respiratory failure [5-6]. This virus affects multiple body systems: cardiac, neurological, cognitive, and mental health [7]. The alveolar cells damage may result in respiratory problems, other systemic manifestations, and eventually death [6].

COVID-19 has several symptoms: fever, dry cough, myalgia, fatigue, pneumonia, complicated dyspnea, muscle weakness, and body function impairment. The clinical course of COVID-19 infection, rapidly develop respiratory alterations which could require intubation and mechanical ventilation. Aging, diabetes mellitus,

hypertension, cerebrovascular diseases, chronic respiratory diseases, cancer are comorbid diseases which increase death risk factors in these patients [1-8].

Most of infected people (80%) will experience mild to moderate symptoms requiring few interventions, but the WHO reports a 3,4% of a fatal rate; unfortunately people over 80 year increase the rate closer to 15% [1]. People older than 50 years and elderly in general seem to be the population most affected due to the potential comorbid diseases they could have. They experience the disease more severely and their mortality risk is higher [1, 8].

Once viral infection contracted, it can cause physical and psychological complications [6]. Survival is only the first step, but its sequelae can lead long term impairment and function limitation [1]. Physiotherapy services are necessary for hospitalized patients of COVID-19 as well as chronic patients [9]. Years ago others infections has reported long-term lung disability and psychological impairment even two years post discharge (influenza A); one-year post survival, individuals continued with elevated levels of stress, depression and anxiety, physical function limitation and weakness, which difficult occupational and social participation (Severe Acute Respiratory Syndrome (SARS) which is another contagion in the coronavirus family) [1, 8].

The sequelae and long term effects of infectious disease should be taken into account. Rehabilitation in general (physiotherapy, occupational therapy, speech-language pathology) after COVID-19 should try to recover respiratory and function [3]. Individualized assessment and progressive treatment for function, disability will

be prescribed to maximize the quality of life [3]. After 14 days of intubation, physiotherapy has demonstrated positive results in 10 days in an elderly woman [10]. Pulmonary rehabilitation (respiratory muscle training, cough exercise, diaphragmatic training, stretching exercise, and home exercise) is important to improve functional exercise capacity, aerobic capacity, anxiety reduction and depression symptoms [6]. Also, early mobilization and rehabilitation may help prevent or mitigate sequel related to bed rest, improving physical function [5, 10]. A literature search in PubMed was done in order to find the best treatment for this illness. We found 186 articles which exposed different treatments applied. After an abstract examination only physiotherapy treatments were taking into account.

While Health Services prevent patients from dying, early physiotherapy management of COVID-19 patients in Intensive Care Unit (ICU) and post-discharge should be considered). In the ICU, COVID-19 patients are immobilized due to mechanical ventilation or intubation. Immobilization causes weakness, neuromuscular disorders and functional limitations like muscle atrophy and paresis between others. Passive-active mobilization with specific muscle training is required for COVID-19 patients, not only respiratory training [8].

Physiotherapy for COVID-19 patients has been highlighted by international guidelines [11]. Physiotherapists are key health-care team members in the management of conditions associated with cardiorespiratory and musculoskeletal disorders, long-term hospital admission and critical care management [2]. An early mobilization in hospitalized patients could be essential to avoid the functional deterioration this patients have [12-13]. Showed this evidence with a case; they conclude that these patients will require respiratory physiotherapy and mobilization in the acute phase to restore pulmonary and physical function [14].

The most applied treatment is respiratory physiotherapy techniques [15-17]. Advised quick respiratory physiotherapy since the acute stage [16]. Pulmonary rehabilitation accelerates the recovery and social integration increasing mobility, autonomy and quality of life [17]. Authors recommended adapting the exercise taking into account the stage of the disease, age, sex, lifestyle, hobbies, occupation and patient's condition [15-19]. They stated that this method reduces the mortality rate of patients, hospital admission time and medical expenses, save medical resources, reduce personal and national economic losses, and the probability of adverse social stability events (collapses) [15].

Electrotherapy treatments or electrical muscle stimulation with belts has been investigated [20]. They have published 2 letters respectively [21]. They recognized that although this method needs more investigation, it could improve oxygenation and ventilation in Covid patients [22]. In this line, proposed whole body vibration exercise in order to minimize the sequel that inactivity generates, reducing ICU time. Reviews about exercise safety and effect have been published. Both manuscripts agree about positive and beneficial effects: rehabilitation exercises improved respiratory system,

cardiorespiratory endurance and immune system avoiding infections [23-24]. Massage techniques improves quality of life in patients recovering, however, these results needs more investigation [25].

Qigong seems to be beneficial for elderly COVID patients due to its regulation of breath rhythm, body movement, posture and movement. This modality had good results in stress reduction, improvement in the strength of respiratory muscles, emotion regulation, inflammation reduction and immune function improvement [26,27]. Other authors have also thought that meditation and yoga could be a potential adjunctive treatment for COVID patients and Tai chi had positive evidence in COVID recovery period [28, 29].

Several publications have reported recommendations which can serve as clinical practice guidelines for physiotherapists. Infection should be avoided during physiotherapy treatments. Hand washing, mask use, material disinfection and glove use are some measures adopted by physical therapists. Others have implemented "Tele-Physiotherapy" in order to continue monitoring their patients at a distance: written treatment prescription, making explanatory videos and synchronous video conference treatment [9]. Telehealth, defined as the "delivery of healthcare at a distance using information and communication technology" has been use during this time. This use is very controversial, some authors argued physiotherapy, focus on hands-on assessment and interventions, is not appropriate via Telehealth; however, contemporary physiotherapists support the role in education, reassurance and screening for these patients [30]. It could be a solution combined with technology advances, but trained physiotherapist should be decided when Tele-physiotherapy could be used [30-31]. We have also found a guide for "digital practice" with recommendations and the limitations of this variety have [32]. In general authors emphasized the importance of rehabilitation treatment in pandemics [33-34]. Finally, exposed the different rehabilitation stages and the need of rehabilitation programs into COVID treatment [35].

Conclusion

As a conclusion there is not a gold standard treatment for COVID-19, it is a new pandemic which needs investigation. However there is a lot of treatment for its sequel. Physiotherapy treatment should be included into the multidisciplinary medical team for the restoration of these patients.

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