Brazilian Journal of Physical Therapy 2020;24(6):463–464

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Associação Brasileira de Pesquisa e Pós-Graduação em Fisioterapia

Brazilian Journal of Physical Therapy

https://www.journals.elsevier.com/brazilian-journal-of-physical-therapy

EDITORIAL

Recovery after COVID-19: The potential role of pulmonary rehabilitation

According to the World Health Organization (WHO), in December 2019, a series of pneumonia cases of unknown cause emerged in Wuhan, Hubei, China. The cases were later identified to be a novel coronavirus, which was initially named 2019 novel coronavirus (2019-nCoV) and, later on, named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).[1] The disease caused by the viral infection has been named coronavirus disease (COVID-19).[2] On 11 March 2020, the WHO declared the COVID-19 outbreak a pandemic. So far (May 28, 2020) the virus has reached over 200 countries, resulting in nearly 5.5 million confirmed cases and more than 300 000 deaths.[3] It is predicted that the disease will reach over 2.4 billion people, with 10.4 million deaths and approximately 2.3 billion recoveries worldwide.[4]

People infected with SARS-CoV-2 present with respiratory tract infection and influenza-like symptoms such as fever, cough, fatigue, sputum production, dyspnoea, sore throat, and headache.[5,6] The virus can cause a spectrum of disease from mild upper respiratory symptoms to severe life-threatening pneumonia. The WHO estimates that 80% of cases are asymptomatic or mild and 20% of cases are severe (with 5% considered critical [i.e. requiring ventilation and life support]).[1]

Although it is too early to establish the long-term effects of the infection, medium- to long-term damage is expected. Data from studies that investigated the impact of severe acute respiratory syndrome (SARS) on pulmonary function and exercise capacity demonstrated impairment in lung function in up to 23% of patients at 1-year follow up as well as a reduction in exercise capacity when compared to predicted values in a normal population.[7,8] Given the intensive medical management for people with severe/critical COVID-19, which can include prolonged mechanical ventilation, sedation, and use of neuromuscular blocking agents, this specific population may be at high risk of developing intensive care unit acquired weakness: a disease that has long-term effects on symptoms and physical function.[9] It is therefore essential to provide people with severe/critical COVID-19, following hospital discharge, with follow-up assessments focused on symptoms as well as physical and psychological function, and refer those with important symptoms and/or impairments in physical/psychological function to rehabilitation programs.

Physical therapists are one of the health professionals considered extremely important on the management of people with COVID-19.[10] In fact, a group of international experts in cardiorespiratory physical therapy developed a document with clinical recommendations for physical therapy management of COVID-19 in the hospital setting.[11] There is also a Task Force being prepared that will describe potential rehabilitation interventions in survivors of COVID-19.[12]

The benefits of pulmonary rehabilitation are well known and the existing programs could be used as one of the rehabilitation referral pathways for COVID-19 survivors who present with symptoms and/or impairments in physical function. The main component of pulmonary rehabilitation programs is exercise training, which includes aerobic and/or resistance training,[13] and these exercises have been demonstrated to decrease the negative effects prolonged sedentary behaviour and inactivity during a hospitalisation period have on physical function.[14–16] Pulmonary rehabilitation has also been shown to increase exercise capacity, muscle strength, and health-related quality of life in several populations with respiratory conditions.[16–18]

The impact that COVID-19 has had on healthcare systems worldwide is unprecedented and, accordingly, most of the healthcare resources allocated to COVID-19 treatment to date have focused on supporting the acute care setting. Policy-makers, health care professionals, and providers need to now start mobilising their resources towards building and/or expanding rehabilitation services, including pulmonary rehabilitation, to provide the best care for survivors of COVID-19, so that these people can return to their ''normal'' life, work and routine, including daily and leisure activities.

https://doi.org/10.1016/j.bjpt.2020.07.002

Conflicts of interest

The authors declare no conflicts of interest.

References

1. World Health Organization (WHO). Available from: https://www.who.int/csr/don/12-january-2020-novel-coronavirus-china/en/. Accessed on 31 March, 2020. 2020.
2. Naming the coronavirus disease (COVID-19) and the virus that causes it. World Health Organization (WHO); 2020. Available from: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it. [Accessed 13 April 2020].
3. *Coronavirus disease (COVID-19) outbreak situation*. World Health Organization (WHO); 2020. Available from: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports. [Accessed 28 May 2020].
4. Patrick GT, Walker CW, Oliver W, et al, Available from: https://www.cos.ufrj.br/arquivos/COVID19/Imperial-College-COVID19-Global-Impact-26-03-2020.pdf, 2020.
5. Guan W, Ni Z, Hu Y, et al. Clinical characteristics of coronavirus disease 2019 in China. *N Engl J Med*. 2020;382:1708–1720.
6. Guo Y, Cao Q, Hong Z, et al. The origin, transmission and clinical therapies on coronavirus disease 2019 (COVID-19) outbreak — an update on the status. *Mil Med Res*. 2020;7:11.
7. Hui DS, Wong KT, Tam LS, et al. The 1-year impact of severe acute respiratory syndrome on pulmonary function, exercise capacity, and quality of life in a cohort of survivors. *Chest*. 2005;128(4):2247–2261.
8. Hui DS, Joynt GM, Wong KT, et al. Impact of severe acute respiratory syndrome (SARS) on pulmonary function, functional capacity and quality of life in a cohort of survivors. *Thorax*. 2005;60(5):401–409.
9. Kress JP, Hall JB. ICU-acquired weakness and recovery from critical illness. *N Engl J Med*. 2014;370:1626–1635.
10. Pinto TF, Carvalho CRF. SARS CoV-2 (COVID-19): lessons to be learned by Brazilian Physical Therapists. *Braz J Phys Ther*. 2020;24(3):185–186.
11. Thomas P, Baldwin C, Bisset B, et al. Physiotherapy management for COVID-19 in the acute hospital setting: clinical practice recommendations. *J Physiother*. 2020;66(2):73–82.
12. *Report of an ad-hoc international task force on early and short-term rehabilitative interventions in COVID-19 survivors*. American Thorax Society (ATS); 2020. Available from: https://www.thoracic.org/members/assemblies/assemblies/pr/journal-club/report-of-an-ad-hoc-international-task-force-to-develop-an-expert-based-opinion.php. [Accessed 21 April 2020].
13. Spruit MA, Pitta F, Garvey C, et al. Differences in content and organisational aspects of pulmonary rehabilitation programmes. *Eur Respir J*. 2014;43:1326–1337.
14. Seymour JM, Moore L, Jolley CJ, et al. Outpatient pulmonary rehabilitation following acute exacerbations of COPD. *Thorax*. 2010;65:423–428.
15. Ko FWS, Dai DLK, Ngai J, et al. Effect of early pulmonary rehabilitation on health care utilization and health status in patients hospitalized with acute exacerbations of COPD. *Respirology*. 2011;16:617–624.
16. Alison JA, McKeough ZJ, Johnston K, et al. Australian and New Zealand pulmonary rehabilitation guidelines. *Respirology*. 2017;22:800–819.
17. Garvey C, Bayles MP, Hamm LF. Pulmonary rehabilitation exercise prescription in chronic obstructive pulmonary disease: Review of selected guidelines: an official statement from the american association of cardiovascular and pulmonary rehabilitation. *J Cardiopulm Rehabil Prev*. 2016;36:75–83.
18. Spruit MA, Singh SJ, Garvey C, et al. An official American Thoracic Society/European Respiratory Society statement: key concepts and advances in pulmonary rehabilitation. *Am J Respir Crit Care Med*. 2013;188:13–64.

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2 June 2020