Impact of COVID-19 on Medical Rehabilitation Services, Education and Research in Thailand

Kamontip Harnphadungkit,[1] Witsanu Kumthornthip,[1] Piyanuch Samerwong[2] and Bootsakorn Loharjun[3]

[1]Department of Rehabilitation Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok; [2]Rehabilitation Department, Chonburi Hospital, Chonburi; [3]Sirindhorn National Medical Rehabilitation Institute, Nonthaburi, Thailand

Introduction

Emerging infectious diseases, like the coronavirus-19 (SAR-CoV-2; COVID-19) virus which is currently a worldwide pandemic, can have several negative impacts around the globe. In early March 2022, globally there were over four hundred million confirmed cases of COVID-19, including about six million deaths.[1] In Thailand, there have been 2,958,162 confirmed cases of COVID-19 with 23,070 deaths,[1] and the number of daily new cases has continued to rise during January-February 2022.[1] Several healthcare strategies, both prevention and treatment, have been implemented in Thailand to control this disease. "DMHTT" (distancing, mask, hand hygiene, temperature testing) has been implemented for prevention while the "Thai chana" mobile application is for tracing persons at risk of contracting the disease. The word "chana" in Thai means "to win, to conquer" giving the expression of positive meaning that all Thais will ultimately overcome this adversity. Another important national strategy has been developing immunity via vaccination. In Thailand, COVID-19 vaccination was first implemented in late 2020. Available vaccines were first offered to health care personnel, patients with underlying diseases (especially respiratory and cardiovascular diseases), people aged over 60 and frontline immigration officers and essential workers. By February 2022, more than one hundred and twenty million vaccine doses had been administered in Thailand.[1] Guidelines for COVID-19 treatment has been developed and is updated periodically by the Ministry of Public Health (MOPH).[2,3] The latest guideline, dated Nov 2, 2021, suggested about administration of Kariyat which is known in Thai as Far Ta Lai Jone (Andrographis paniculata), a medicinal plant, for the treatment of flu-like symptoms, fever, cough, sore throat, fatigue and muscle pain due to viral infection. The recommended dose for adults is 180 mg/day of andrographolide.[3]

COVID-19 not only causes acute illness but also has long-term consequences. According to the World Health Organization, rehabilitation is an essential part of the health care system which should be integrated into all levels of health system including primary, secondary and tertiary.[4] Since the first case of COVID-19 was detected in Thailand, the roles of physiatrists (rehabilitation physicians) in providing medical rehabilitation services to restore function as well as in providing education and conducting research have been impacted and changed.

Medical rehabilitation services

Early in the COVID-19 pandemic, Thai physiatrists, just as other general practitioners and specialists, were recruited to take part in providing COVID-related medical services and patient care, e.g., screening for the disease and identifying active cases in the community as well as in acute respiratory infection clinics and serving as attending physicians in COVID-19 wards. Some physiatrists voluntarily looked after patients at home and to help with community isolation programs, while some became physicians-in-charge at COVID-19 vaccination service centers.

Rehabilitation services, both at hospitals as well as at the community level, have been affected by both the disease itself and by government policies of lockdown, curfew and travel restrictions. On the 1st of June 2021, the Sirindhorn National Medical Rehabilitation Institute (SNMRI) set up a field hospital for persons with disabilities (PWDs), named the Sirindhorn Science Home Field Hospital, with the cooperation of the Department of Empowerment of Persons with Disabilities and the National Science and Technology Development Agency (NSTDA).[5] This field hospital was established to assist independent asymptomatic and mildly symptomatic COVID-19 PWDs including the physically challenged, the blind and the deaf. Mobile prosthesis services, which normally provide services at least once a year, were temporarily suspended in 2020 to avoid contracting an infection and to prevent disease transmission. The recommended guideline of

Correspondence to: Kamontip Harnphadungkit, MD, FRCPhysiatrT; Department of Rehabilitation Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok 10700, Thailand; E-mail:kamontip.har@mahidol.ac.th; kamontip.har@gmail.com

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management and immunization program are applied for the PWDs as well.[6]

Rehabilitation programs provided at hospitals or in community had to be changed or adjusted depending on the factors and conditions confronting the healthcare system, e.g., COVID-19 prevalence and virulence, available medical resources including personal protective equipment (PPE), and the state of vaccination of health personnel and the general Thai population. Inpatient rehabilitation services, special rehabilitation investigations and some close contact therapies/ treatments were temporarily discontinued. Manuals for hospital risk management during a pandemic of an emerging infectious disease[7] were developed. Recommendations for provision of medical rehabilitation services during the COVID-19 outbreak were published by a team of physiatrists[8] to ensure proper rehabilitation services and to protect the rehabilitation health personnel from contracting COVID-19 by effective use of PPE. The recommendations included that all rehabilitation programs should be provided in compliance with universal precautions and social distancing policies and that swallowing evaluation as well as swallowing training, speech training and electrodiagnosis should be postponed unless the patient had an exceptional indication and should depend on the judgement of the attending physiatrists and rehabilitation teams.[8,9] At present, testing for COVID-19 by real time polymerase chain reaction (RT-PCR) or using an antigen test kit (ATK) is performed prior to beginning close contact investigations and treatment as mentioned above, including screening before rehabilitation ward admission.

Telemedicine, telerehabilitation and postal medicine delivery are also emphasized.[9] Telerehabilitation services are ignited to replace or to be used concomitant with the usual practices, e.g., patient education, follow-up and monitoring, individual and group exercise, home programs, home visits, speech therapy, and psychological support via phone, video calls and clips, and infographics via various media platforms. Such programs and activities are applied in the case of various medical conditions such as pain, dysphagia, pulmonary and neurological disorders as well as for pediatric patients. The QR codes for COVID-19 and non-COVID-19 patients shown in Figure 1 were produced by rehabilitation departments in Thailand.[10-14] These telerehabilitation services are useful and are compatible with policies such as social distancing and travel restriction.

In the acute phase of COVID-19, patient rehabilitation is mainly performed by distance instruction via brochures and social media, e.g., demonstration video clips. Asymptomatic patients and those with mild symptoms are suggested to receive video clips as part of the patient education service. Breathing exercises are emphasized and monitored by video calls. In patients with severe acute respiratory distress syndrome (ARDS), prone positioning is advised to facilitate re-expansion of a collapsed lung parenchyma, to lessen ventilation-perfusion mismatch, to improve gas exchange and oxygenation and thus to decrease mortality.[8] Experience has taught that some COVID-19 patients hospitalized in the intensive care unit (ICU) may develop post-intensive care syndrome (PICS), and at least a third of moderate to severe COVID-19 survivors suffer from neurological sequelae.[15] In the post COVID-19 phase, some may have post-COVID-19 syndrome or "long COVID", with symptoms including fatigability, shortness of breath, difficulty breathing, and poor endurance.[16] These individuals need rehabilitation programs, including pulmonary rehabilitation, graded reconditioning exercise programs and neurological rehabilitation. Presently, some of the media addressing long COVID-19 rehabilitation are available for Thais in the Thai language (Figure 2).[17,18]

Exercise and physical activity are important tools for rehabilitation. Exercises prescribed for infected patients vary depending on clinical findings. Asymptomatic patients and patients with mild symptoms and without major risk factors can perform light to moderate intensity aerobic and strengthening exercises.[8] A simple sit-to-stand test is recommended for screening for exercise-induced desaturation in COVID-19

Figure 1. QR codes of rehabilitation programs available for COVID and non-COVID patients. A: muscle stretching, B: swallowing training, C: pediatric chest physiotherapy, D: COVID-19 rehabilitation 1 and E: COVID-19 rehabilitation[2]

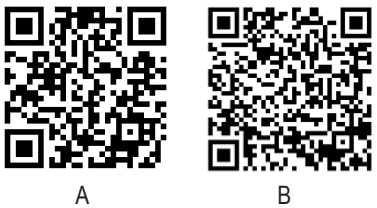

Figure 2. Long COVID. A: media for rehabilitation and B: guidelines for post COVID-19 syndrome

patients who do not have resting hypoxemia. Positive deoxygenation or 3% or more decrease of oxygen saturation (SpO_2) suggests that a patient may develop COVID-19 pneumonia and should be transferred from home or from a community isolation facility, a hospitel (a hostel serving as a hospital) to a hospital for increased safety.[19-21] During recovery from a COVID-19 infection, it is recommended that the individual gradually begin exercising, starting with light intensity aerobic exercise first, then gradually increasing the intensity. Non-infected persons should stay active with aerobic activity such as brisk walking and dancing or with outdoor activities such as walking, bicycling and gardening. Exercise at moderate intensity for 150 minutes per week is recommended. Physical distancing, at least 2 meters from others, is suggested. Individuals at high risk for SARS-CoV-2 exposure should refrain from exhaustive exercise and overtraining.[22]

Rehabilitation medicine education

The Rehabilitation Medicine Residency Training Program has been disturbed by the COVID-19 pandemic. Teaching and learning activities have had to be changed under the prevention scheme for infection control. Certain academic activities and events have been either cancelled or postponed. Nevertheless, during the crisis there has been great opportunity for online versions of those activities, e.g., classroom sessions, academic meetings and scientific conferences. However, hands-on and skill training has been negatively impacted due to a reduction in the number of patients available. Resource material has been reduced by travel restrictions and limitations on the number of inpatient beds for non-COVID-19 patients. This situation has unquestionably decreased the training capacity of medical academic institutes. Elective activities and rotations to other training institutes have been affected from time to time during the country lock down periods following a very high daily infection rate. The Medical Council, the University Hospital Network, MOPH, the Royal College of Physicians of Thailand and the Infection Disease Association of Thailand have established guidelines on safe conditions (environment, vaccination and active surveillance). All training institutes have to follow those guidelines to help ensure the safety of the residents in training.[23] In addition to changes in the learning experience, the Royal College of Physiatrists of Thailand conducted an online oral examination, in-house examination instead of an examination at a central examination facility and has placed emphasis on workplace-based assessment (WPBA) instead of the usual face-to-face exit examinations. The WPBA of the Rehabilitation Medicine Residency Training Curriculum established before the pandemic was revised in 2021 to ensure the appropriateness and completeness of evaluations during training.[24] Advantages of the online oral examination and the evaluation based on WPBA include time saving, cost saving, no travel expense, and minimized risk of both examinees and examiners contracting disease. Disadvantages of the online examination include dependence on the quality of the internet signal and system and limited opportunity to observe the body language and manner of the examinees.

Research in rehabilitation medicine

Research projects conducted by physiatrists and in-training residents have been similarly interrupted during the COVID-19 pandemic due to difficulty in recruiting subjects, more patients lost to follow-up, protocol deviations and drop outs. Methodology modifications and amendments to protocol, e.g., changing from an onsite follow-up to a phone or VDO call, were instituted to allow research work to continue to completion. New research projects conducted by residents in training during this pandemic period are mostly questionnaire-based and/or based on retrospection. However, there is opportunity for case reports,[25] telerehabilitation, and COVID-19-related research.

Conclusions

The COVID-19 pandemic has impacted on rehabilitation services, residency training programs and research. The Royal College of Physiatrists of Thailand, the Sirindhorn National Medical Rehabilitation Institute, and the Rehabilitation Medicine training institutes and their members have had to change their roles and adjust their services, training programs, and research projects so that service recipients, including rehabilitation patients and in-training residents, could receive optimal rehabilitation and educational services. Telerehabilitation and online teaching have partly replaced the traditional face-to-face services and learning experience. Moreover, the DMHTT strategy, the use of PPE, COVID-19 screening policies, and national vaccination policies have been essential means in helping ensure workplace safety and disease prevention. Online learning and evaluation, as well as workplace-based assessment, has been implemented to overcome the interruption of training programs. Research in rehabilitation has also been similarly affected by the pandemic. However, the pandemic situation does allow opportunity for case reports as well as for research on telerehabilitation and for COVID-19 related research.

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