The rising star ‘tele-pulmonary rehabilitation’ in pandemic times: the first application from Turkey

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To the Editor,

Pulmonary rehabilitation (PR) is an effective approach which results in improving symptoms, exercise capacity, decreasing hospital care services, reducing the cost of care, improving adherence to healthy-life behaviours in patients with chronic respiratory disorders (1). PR programs can be applied in different modalities due to the center/unit structure, patients’ characteristics. In early stages of pandemic times center-based, face-to-face programs were recommended to suspend and telehealth solutions were advised to provide care remotely (2,3). Telehealth is defined as delivery of health care services, where patients and providers are separated by distance through the use of information and communications technology (4). Several different applications of telehealth technology have been used to provide health services to people with chronic respiratory diseases; such applications include telemonitoring, teleconsultation, tele-education, and tele-PR. Tele-PR is defined as the delivery of PR content through various communication modalities (e.g. videoconferencing, telephone), which connects patients to healthcare professional. Telemonitoring may be used in conjunction with tele-PR (5). Tele-PR has been found as effective as conventional PR in terms of improvements in exercise capacity and respiratory symptoms and also, more efficient in program completion (6-8). Symptomatic patients after covid infection, patients with chronic lung disease who has increased need for PR due to pandemic period or patients with transfer problems...
can be candidate for tele-PR and tele-PR can also used as a PR maintenance program.

As a pandemic disease, COVID-19 infection has been expected to be a cause for critically ill with acute respiratory distress syndrome (ARDS) and need for management in intensive care units (ICUs) in the large numbers of patients (9). The current COVID-19 pandemia is expected to need of increased demand on health systems in the world due to the high levels of physical, cognitive and psychosocial impairments, because of high contagious nature of disease, number of moderate-severe patients and long COVID. Due to the need for holistic and multidisciplinary approach in management of COVID-19 infection, PR which meets individual needs are seemed to be an effective intervention in these patients. It can be foreseen that the PR units/centers would play an important role in the long-term treatment of patients who have need for PR due to deterioration in psychological, physical and functional conditions after hospitalization and tele-PR programs may be the most important and feasible model in the continuity of the treatment and the participation to life in these patients. Furthermore tele-PR programs have tremendous potential for addressing rural health disparities.

Since COVID-19 infection was announced as a pandemic disease, health service organizations have been structuring and discussing all over the world and in our country and tele-health services have been becoming widespread. We aimed to present our tele-pr model, which is the first application in our country, as an example. Our PR center has multidisciplinary staff consisting of chest physician, a chest physician as a medical director, three physiotherapists, a dietitian, psychologist, elderly care technician, and two nurses and about 220 new patients and 400 follow-up patients annually, which of a tertiary referral chest disease hospital in the capital city of Turkey. The hospital-based outpatient or inpatient, home-based supervised, remotely supervised (via telephone visiting) or unsupervised programs are conducted according to patients’ needs. After the first patient was diagnosed in Turkey on 11th of March, the approvals for tele-PR from hospital management and Ankara Provincial Health Directorate were obtained and technical issues were arranged for tele-PR. Our first tele-PR session was performed on 25th of March via Skype program. First of all, patients who could not continue their sessions due to the pandemi and who could not start their sessions after initial evaluations were included into the tele-PR program. Then, symptomatic COVID-19 patients who were treated at home or hospital were started to include into the program. The patients are referred from COVID-19 inpatient services when discharging of long-term hospitalizations and post-COVID outpatient clinics. Patients who have internet, tablet and computer at home and have approval for tele-PR are given an appointment time. Initial evaluation is performed in our center in patients with negative PCR test in the last 72 hours, 6-8 weeks after COVID-19 infection. After echocardiographic evaluation and cardiology approval, the patient is evaluated in details. Patients are questioned for complications of COVID-19 and computerized tomography and doppler ultrasound are performed if needed. Exercise capacity, peripheral and respiratory muscle strength, pulmonary functions, body composition, dyspnea sensation, quality of life, psychological status and fatigue score are assessed under personal protective equipment. Exercise capacity is evaluated using the Incremental Shuttle Walking Test (ISWT) and Endurance Shuttle Walking Test (ESWT). After 1-2 face to face sessions, patients are underwent tele-PR. Patients are told to obtain pulsoximeter, sphygmomanomer, elastic exercise bands, dumbells, treadmill/stationary bike and 10 m nasal cannula if they are under long-term oxygen treatment. After learning the length of the home corridor, individual home exercise program is structured. Our eight week duration synchronous videoconferencing tele-PR program consists of exercise training, nutritional, psychosocial support and education. Educational sessions addressing disease education, self-management, exercise training, breathing retraining, airway clearance techniques, energy conservation, medication advice, dietary advice, and psychosocial issues. The exercise training program consists of warm-up, stretching, cool-down and resistance training for the upper and lower extremities and endurance training. Patients can use water bottles, rice pockets instead of free-weights. Prescribed home corridor walk or training on treadmill/stationary bike is supervised and patients’ oxygen saturations, blood pressure, walk distance and pause times are recorded intermittently. After completing program, the same assessments are performed in the hospital. For patients who are not able to come to hospital, ISWT and ESWT are used via Skype. According to our still unpublished data, especially the improvements were seen in exercise capacity after tele-PR program.
In many countries, tele-health systems are included in reimbursement. There are also initiatives about this issue in our country. We think that our tele-PR model is a pioneer example for our country. Considering the facilities and structures, many PR units / centers should conduct tele-PR programs in order to reduce the disease burden and the economic burden in the long term.

REFERENCES


