

Recommendations on exercise training during the COVID-19 pandemic

Introduction

Secondary prevention after an acute cardiac event through cardiac rehabilitation is confirmed as the most appropriate method to ensure favourable outcomes such as reduction of mortality, morbidity and disability and to increase the quality of life. Recent guidelines drawn up by EAPC give great space to exercise, particularly for implementation of the exercise programme, advances in different training modalities were added and new challenging populations were considered [1]. In this line, the Covid-19 pandemic has generated a new population of patients, new methods of approach and has also redesigned the physical spaces that can be used for greater safety. Covid-19 is an infectious disease characterized by a rapid human-to-human transmission capacity and has opened up new scenarios, particularly for environments such as hospitals and gyms where human contact is often the norm. We propose that CRP gyms should be modified in “Covid-19 version”, seeking a balance between minimal care and enhanced health security [2,3].

We suggest to significantly reducing the number of patients accessing the gym by creating dedicated paths and a social distance of three meters with a maximum of two simultaneous accesses. During the supervised exercise training, all patients and physiotherapists stay with surgical mask, and all materials are disinfected before and after each activity, avoiding sputum-inducing exercises. The gym and exercise training in the majority of patients moved to the hospital room (exercise bikes, pedal exerciser, etc.), supported by video footage transmitted via USB stick and TV supplied in each room. Patient education was a fundamental process, they were instructed on how to protect themselves from contact with the virus

(hand washing, masks, gloves, constant sanitization) and information was also provided in illustrative format.

In addition, acute post-episode Covid-19 patients are admitted with two negative tests, without specific symptoms, with cardio-respiratory disease. Several studies have shown that asthenia and generalized weakness are some of the symptoms most reported by these patients, in addition to loss of muscle mass, which are preconditions for targeted physical reconditioning. During the evaluation phase and always before performing a reconditioning program, the acquisition of vital parameters (blood pressure, peripheral oxygen saturation, heart rate, respiratory rate, telemetric monitoring) has an essential rule.

Evaluation phase

- Oxygen saturation monitoring during walking and where indicated telemetric monitoring.
- Evaluation of daily life activities (Barthel Index).
- Evaluation of functional fragility degree of using Short Physical Performance Battery (SPPB).
- If SPPB=0 strength assessment by MRC Scale for Muscle Examination.
- Functional capability Assessment by 6-minute walking test according to guidelines, with the addition of ΔSpO_2 beginning to end and recovery HR 1 minute after the end of the test.
- Evaluation of resting and exertion-induced dyspnoea by modified Borg Scale for dyspnoea evaluation. Quality of Life Assessment (Euroqol VAS 0-100).

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Treatment phase

There are no known rehabilitation programmes to date to counteract the effects of the virus on the systems involved and on functional recovery. The intensity and modalities of the reconditioning training should be individualized according to the stratification of the degree of functional frailty by administering the SPPB scale¹, classifying 4 different degrees of functional frailty (Table 1).

Table 1: Our proposal for classification of functional frailty through SPPB assessment.

SPPB score	SPPB Classification	Functional fragility
0-3	Severe Limitations	Very severely frail
4-6	Moderate Limitations	Severely frail
7-9	Mild Limitations	Moderate frail
10-12	Minimal Limitations	No frail

*Classification from CuralnikJM, et al [2].

For the progression of the individualized physical training program it would seem logical to stick to the guidelines of the major scientific societies in the cardio-respiratory field. Our proposed to physiotherapy program for these patients is described in Table 2.

Table 2: Physiotherapy program.

Physiotherapy program	Very SF	Sev Frail	Mod Frail	No Frail
Change of posture/therapeutic posture	X			
Passive mobilization end active assisted	X			
Active mobilization	X	X		

Neuromuscular electrostimulation	X			
Standing station recovery	X	X		
Supervised walking		X		
Walk test training			X	
Effort reconditioning (pedal exerciser)		X	X	
Aerobic training (cyclette, treadmill)			X	X
Muscle strengthening (pesi, elastici)			X	X
Balance exercises	X	X	X	X
Training on stairs				X
Educational	X	X	X	X

With the recommendation to modulate it according to needs, symptoms and possible changes in health status. To date, we have enrolled 27 patients to follow up and the preliminary data from the study are encouraging us to continue this experience.

References

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