SUPPORTING INFORMATION

Promotion of physical activity after hospitalization for COPD exacerbation: randomized control trial

Beatriz Valeiro, PT, MSc[1]; Esther Rodriguez, MD, PhD[1, 2]; Paula Pérez, PT[3]; Alba Gómez, MD, PhD[4]; Ana Isabel Mayer, PT, MSc [4]; Alejandro Pasarín, MD[5]; Jordi Ibañez, MD[6]; Jaume Ferrer, MD, PhD [1,2]; Maria Antonia Ramon, PT, PhD [1,2].

[1] Servicio de Neumología, Hospital Universitari Vall d'Hebron, Departamento de Medicina, Universidad Autónoma de Barcelona (UAB), Barcelona, Spain.

[2] CIBER Enfermedades Respiratorias (CIBERES), Madrid, Spain.

[3] Instituto de Investigación Vall d'Hebron (VHIR). Servicio de Neumología, Hospital Universitari Vall d'Hebron, Departamento de Medicina, Barcelona, Spain

[4] Servicio de Rehabilitación, Hospital Universitari Vall d'Hebron, Barcelona, Spain

[5] Servicio de Rehabilitación, Sant Rafael Hospital, Germanes Hospitalaries. Barcelona, Spain.

[6] Servicio de Medicina Interna, Sant Rafael Hospital, Germanes Hospitalaries. Barcelona, Spain.

Appendix S1: Early physical training during hospitalization

The inpatient physical exercise sessions were predefined and comparable in the two participating hospitals. Briefly, patients performed 30-minute Monday-to-Friday sessions of exercise training guided by a physical therapist and focused on the lower extremities (e.g., squats) and early ambulation.

Appendix S2: randomization process

A simple computerized randomization sequence was created using Stata 12.0 software (StataCorp, College station, TX, USA). The random allocation sequence remained concealed from the investigators enrolling patients into the study, which were not involved in assigning participants to interventions.

Appendix S3: motivational interview

We design a semi-structured motivational interview to guide the intervention and ensure reproducibility between patients. The aim was to involve patients in their treatment, guiding them to choose a more active way of life. During this interview, we discussed at least, but not only, the following point: former exercise habits, possible daily life opportunities to exercise and break sedentary behavior, social and family support, self-efficacy and motivation.

A respiratory physiotherapist -adequately trained in behavioral strategies- used the interview, together with the patient's responses to an ad-hoc barriers and facilitators questionnaire, to stablish an agreement about the most realistic and relevant PA goals for the patient (i.e., selection of activities based on the patient's preferences).

Appendix S4: physical activity instructions and progression in the IG

Alongside the pedometer, patients were given a monthly paper calendar. They were instructed on how to use the pedometer and to write down their daily steps on the calendar.

Based on the individual baseline accelerometer mean steps per day (ie. 5000), we set the monthly target at 20% increase (ie. 1000 more steps each month) and set into to equal weekly increments (ie. 250 more steps per week). We presented and discussed those goals with the patient and came to an

agreement. During the weekly calls, the physiotherapist reviewed the patients' weekly step goals and if they were fulfilled, new weekly objectives were set together with the patient. However, if the patient had not achieved their agreed target, barriers were discussed, and the same target was kept one more week. When exacerbations occurred after randomization, physical activity targets were adapted until patients recovered (ie. We instructed patients to maintain the maximum number of steps per day that their exacerbation symptoms would allow them).

Appendix S5: sample size power estimation

Sample size calculation using the program GRANMO 7.2[1] indicated that, accepting an α risk of 0.05 and a power of 80% in a two-sided test, 42 subjects were needed to detects as statistically significant a difference greater than or equal to 1400 steps/day[2,3], which is higher than the minimal clinically important difference reported in stable COPD patients[4]. The common standard deviation was assumed to be 2258 steps/day[5] and a correlation between baseline and final measurements as 0.75[6]. We initially anticipated a drop-out rate of 30-35%. Thus, a total of 66 patients were required to conduct the clinical trial. Study recruitment was impacted by the COVID-19 pandemic and had to be stopped earlier than expected. However, as our drop-out rate was lower than predicted, study power was not impacted.

References:

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6. Arbillaga-Etxarri A, Gimeno-Santos E, Barberan-Garcia A, et al. Long-term efficacy and effectiveness of a behavioural and community-based exercise intervention (Urban Training) to increase physical activity in patients with COPD: A randomised controlled trial. *Eur Respir J*. 2018;52(4).

Table S1. Study investigator blinding according to the CONSORT recommendations for non-pharmacological trials.

	Blinded to:			
	Hypothesis and objectives	Intervention details	Random assignment	Outcomes measures
Study participants	yes	yes*	no	yes
Participants' physicians	no	no	no	yes
Outcome examiners	no	no	yes	yes
Intervention manager	no	no	no	yes
Data analysis	no	no	no	no

*When presenting the study to the patients, they were told that some participants would get a personalized physical activity program and the rest just the standard physical activity recommendations, and that all will be followed up for ±12 weeks upon discharge. Patients were not aware of the full intervention details or the outcome measures (ie. researchers did not discuss with patients what the accelerometer device was precisely used for in order to not alter their behavior).