

## **Promoting functional capacity in decompensated heart failure inpatients - ERIC-HF protocol, the pilot study**

### **Authors:**

BM Delgado<sup>1</sup>, I Lopes<sup>1</sup>, C Rebelo<sup>2</sup>, C Almeida<sup>3</sup>, B Gomes<sup>4</sup>, A Novo<sup>5</sup>, <sup>1</sup>Hospital Center of Porto - Porto - Portugal, <sup>2</sup>Hospital Infante D. Pedro - Aveiro - Portugal, <sup>3</sup>Hospital Center of Setubal, Cardiology - Setubal - Portugal, <sup>4</sup>University of Porto - Porto - Portugal, <sup>5</sup>Escola Superior de Saude do IPB - Bragança - Portugal,

### **Topic(s):**

Rehabilitation: Exercise Programmes

### **Citation:**

#### **Introduction:**

Decompensated Heart Failure (HF) patients are often characterized by functional dyspnea, fatigue, edema, functional dependence and impairment of performance in activities of daily living (ADL).

Aerobic exercise training (AET) is a well establish cardiac rehabilitation intervention which leads to improvement of symptoms, promotes the functional capacity of the patients and even an increase of exercise tolerance. Although the benefits, exercise is not yet validated for inpatients during the phase of stabilization.

#### **Purpose:**

To evaluate the feasibility and safety of an AET program for patients admitted due to decompensated HF: ERIC-HF (Early Rehabilitation in Cardiology – Heart Failure) program

#### **Methods:**

Patients are randomized in training group (TG) or control group (CG). Data include cardiovascular history, HF history and two functional tools: London Chest of Daily Living Activities (LCADL) and Barthel Index (BI). TG patients performed the ERIC-HF program twice a day for 5 days per week. ERIC-HF program is a supervised AET program, with increasing levels of intensity, divided into 5 stages (respiratory training, cycloergometer training, gait training and climbing stairs, for progressive duration periods). Vital signs were evaluated before and immediately after the exercise, as well as the Borg Modified Perceived Exertion. CG patients performed physical activity in accordance with the guidelines available for inpatients, always supervised too. A six-minute walking test (6MWT) was performed as soon as patients are able to do it. At discharge, all patients perform another 6MWT, as so as evaluation of LCADL and BI.

#### **Results:**

114 patients were randomized (64 in TG and 50 in CG) with an average of age of 72 ( $\pm 9$ ) years old, 70 are male, 82% are in NYHA class III. At admission, both groups have the same level of functional dependence according to LCADL and Barthel scores. TG patients performed a global amount of 932 sessions of exercise, with an average of 17 sessions each, for 15 ( $\pm 9$ ) days of hospitalization. There is a difference of 83 meters between the two 6MWT performed by TG patients, which demonstrates clinical significance. At discharge, TG patients presented lower LCADL score (12 vs 16,  $p=0,006$ ), higher BI score (98 vs 92,  $p=0,038$ ) and a 64 meters difference on the 6MWT ( $p=0,032$ ) which represents a better functional capacity. There were absence of adverse events like falls, precordial pain, malignant arrhythmias and worsening of clinical state

#### **Conclusions:**

ERIC-HF program demonstrated, in this sample of patients, to be safe and to promote functional capacity. We can also infer that probably AET is safe and viable, for this kind of patients, related to the absence of adverse events. No other study of our knowledge has demonstrated this findings.

