Nutritional Intervention in Malnourished Patients With Chronic Heart Failure (PACMAN-HF)

ID: 3/2018

Date: 15/08/2022

Study Protocol and Statistical Analysis Plan

MATERIAL AND METHODS, INCLUDING PHASES OF DEVELOPMENT AND ESTIMATED TIME OF DURATION:

This is an intervention study, developed in a single center, randomized 1:1, controlled and blinded for the analysis of outcome variables.

The center where it will be carried out is the San Pedro de Alcántara University Hospital in Cáceres.

The patient recruitment period was estimated to be 24 months with a follow-up period of 12 months (Maximum duration time 36 m).

Objetives:

Primary objective:

To evaluate the impact of a educational and nutritional intervention in cardiovascular mortality or admissions for HF.

Other objectives include:

*To know the prevalence of malnutrition in patients with stable chronic HF.

*To evaluate the effect on nutrition, quality of life and functional capacity of a nutritional intervention in patients with stable chronic HF.

Inclusion criteria:

*Patients older than 18 years with confirmed diagnosis of HF according to current criteria established by clinical practice guidelines and presenting left ventricular dysfunction documented by echocardiography (LVEF less than 40 %).

*Patients with clinical stability in the last 6 months defined as no admissions or decompensations in the last 6 months.

*Patients with malnutrition or at risk of malnutrition according to criteria established by the Mini Nutritional Assessment score (see attached).

*Patients who agree to participate in the study by signing the written informed consent after receiving verbal and written information about the study.

Exclusion criteria:

*Dementia or severe cognitive impairment.

*Dialysis.

*Already receiving nutritional supplements.

*Known concomitant oncologic process or other concomitant disease with life expectancy of less than 1 year.

*Pregnant women.

*Participation in another clinical trial concurrently.

Method:

-For the evaluation of the effect of a nutritional intervention on the primary objective (cardiovascular mortality or admission for HF) and on the secondary objectives (effect on nutrition, quality of life and functional capacity) of a nutritional intervention in patients with stable chronic HFEDI. a 1:1 randomized intervention study will be performed, in which 2 groups were randomly differentiated:

*Intervention arm: which received an educational intervention with/without nutritional supplements depending on the degree of malnutrition.

*Control arm: which received the usual practice.

-For the evaluation of the secondary objective prevalence of malnutrition in patients with stable chronic ICFED a cross-sectional observational study will be carried out in which the nutritional status of the patients will be evaluated by means of the MNA.

*The assessment of functional capacity will be carried out by means of the 6-minute test.

*Quality of life will be assessed using the Spanish version of the Kansas City Cardiomyopathy Questionnaire (KCCQ).

Nutritional status will be established according to the MNA score, which includes 18 items divided into 4 groups: anthropometry, general condition, dietary aspects and subjective assessment. The nutritional status is classified into 3 groups according to the score obtained: well nourished (equal to or higher than 24 points), at risk of malnutrition (17-23.5 points) and malnourished (less than 17 points):

*Weight, height,BMI.

*Abdominal, hip, calf and arm circumference.

*Tricipial fold.

*Albumin, prealbumin, transferrin, total cholesterol, HDL, LDL, ESR and lymphocytes.

The nutritional intervention to be carried out consists of several parts:

*An educational intervention to patients and/or family members in which 4 main aspects are addressed: dietary factors involved in the etiology of HF, role of sodium retention,importance of micronutrients in cardiac function, the usefulness of dietary modifications to prevent weight loss.

*Elaboration of an individualized diet taking into account energy intake recommendations and nutritional goals and adjusting to the patient's comorbidities (DM, renal I.renal).

The patient receives a personalized diet following the standards recommended for the general population in terms of energy intake and macronutrient and micronutrient requirements (nutritional objectives) with the modifications deemed appropriate for the patient's comorbidity, especially with regard to diabetes mellitus and renal insufficiency.

*Nutritional supplements: Only in patients with severe malnutrition, after evaluation by endocrinology, in which the physician considers that the previous intervention does not achieve the nutritional objectives.

Sample size:

We estimate a sample size of 206 patients for each group (intervention and control). Based on the scarce literature on the prognosis of a nutritional intervention in malnourished patients. Taking as reference the study Bonilla Palomares JL, et al. : Influence of malnutrition on long-term mortality in outpatients with chronic heart failure (Nutr Hospi 2017;34 (6):1382-9) in which it was observed, in a population similar to ours a 70% mortality in patients with stable and malnourished HF, estimating an expected reduction of the primary objective of 20% in the intervention group , assuming losses of 10%, alpha error of 0.05, beta: 0.20.

Taking into account that the estimated prevalence of malnutrition in these patients is 10-15%, we consider that this is too large a sample size and we have too few resources (personnel, time, a single recruiting center...) to be able to develop it with so many patients. Therefore, given the scarce data in the literature and the previously mentioned considerations, our objective is to propose it as a pilot study with an inclusion period of 2 years and follow-up of events of 1 year and, depending on the results obtained, to evaluate the suitability of developing a multicenter study with a larger number of patients.

Chronology of the study:

Month 0	Month 1	Month 3	Month 6	Month 9	Month 12
Inclusion	Clinical Rev.	Clinical Rev.	Contact	Clinical Rev.	Clinical Rev.
Analytical	Analytical	Analytical	Telephone	Analytical	Analytical
Anthropom	I.Nutrition*	Anthropometry		I.nutrition	
Test 6 min		Test 6 min			Test 6 min
C. Quality of Life		Quality of Life			Quality of Life
I.nutritional*		I.nutritional*			I.nutritional*

*The nutritional intervention will only be performed in the intervention arm.

Patient data protection is guaranteed and all data obtained are stored for collection and subsequent analysis on the principal investigator's personal computer, protected by a security password to which no one except the principal investigator has access.

The study has been approved by the Clinical Research Ethics Committee of the Hospital San Pedro de Alcántara de Cáceres. The study has been presented and approved by the Spanish Society of Cardiology and is funded by a grant from the Spanish Society of Cardiology.