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Cardiac rehabilitation in women

Rehabilitación cardiaca en la mujer

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DEFINITION, INDICATIONS, BENEFITS, AND CHARACTERISTICS OF WOMEN

Cardiac rehabilitation (CR) is the set of activities aimed at achieving the best physical, mental, and social level for the cardiovascular patient based on comprehensive management, an interdisciplinary team, patient evaluation, supervised exercise, management of risk factors, and education.[1]

Its recommendation is Class IA for patients after an acute coronary event, percutaneous or surgical myocardial revascularization, and heart failure; for the known benefits for both men and women, in improved functional capacity, quality of life, lower risk of hospitalizations and decreased morbidity and mortality.[1,2]

Women have specific differences in the presentation, diagnosis, and treatment of coronary heart disease related to biological, psychosocial, and socioeconomic aspects, older age, comorbidities, worse quality of life, more significant depression, and worse prognosis.[1,3]

INCORPORATION

The average reference to CR around the world ranges from 30 to 50% for men and 15 to 30% for women.[4,5] There are different factors for not referring to CR: a) Clinical factors: older age, comorbidities, anxiety, and depression; b) Psychosocial: absence of a support network, educational and socioeconomic level c) From the health system: access to CR centers. Of all the factors described, the independent prognostic predictor for referral to CR is the doctor's order, which makes it a determining factor in the incorporation route.[1,4,5] After the referral and incorporation, it is vital to achieve the participation, adherence, and completion of the patients in the program, since benefits such as decreasing the risk of death and the risk of a new heart attack are related to the number of sessions performed, with its most significant impact by completing 36 sessions.[6]

BENEFITS FOR WOMEN OVER 75 YEARS OF AGE

Life expectancy increases every time we have a larger population older than 75. Cardiovascular disease occurs later in women, with the characteristics previously exposed. There is no age limit for women's participation in CR programs; studies have shown benefits in quality of life and functional capacity.[1,2]

CARDIAC REHABILITATION MODELS

Implementing new cardiac rehabilitation models that improve patient engagement while maintaining core components, safety, and benefits have evolved over the past two years. In addition to the Center-Based Cardiac Rehabilitation (CCR) model, the Home-Based Cardiac Rehabilitation (HBCR) model and the Hybrid-CR model. The home-based model includes possibilities, such as community centers and parks, which define itself as a community-based model (CBR).

The HBCR and the hybrid-CR models use information and telecommunications

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technologies (smartphones, internet, portable sensors, etc.) according to availability, the environment, and the patient's and their caregivers' characteristics. They include the components of exercise and education. Some advantages: low cost, greater privacy, independence and flexibility, less travel time, individual time planning, and integration into daily routines. Disadvantages; lack of direct contact and social interaction for patients, feeling of insufficient security. Lack of published standards, regulations, and economic recognition for the programs.[7,8]

SECURITY

Serious events in a CCR rarely occur (one per 50,000 patient hours). No cardiovascular complications or death have been reported in HBCR in low- and moderate-risk patients. Several studies have shown that, with proper evaluation, detection, and monitoring in higher-risk patients, out-of-center CR may be safe and doable.[1,2,7]

EFFECTIVITY COST

CR programs with a multidisciplinary approach have proven to be cost-effective in caring for patients with chronic cardiovascular diseases. The evaluation of this relationship is based on costs and indicators such as reduction of re-hospitalizations, years of life gained, and rate back to work. CR programs reduced re-hospitalizations from 16 to 11 days, return to work increased from 38 to 53%, and years of life increased from 2.4 to 20.8. 12-week participation in CR reduces medical costs by approximately $700 per patient, considering direct and indirect costs, after 21 months of follow-up.[1,2,9]

EXERCISE PRESCRIPTION IN CR

Exercise prescription should be individualized and follow physical training principles. A comprehensive evaluation is required through a multidisciplinary team, including a cardiac rehabilitative cardiologist, physiotherapist, nurse, psychologist, and nutritionist. And risk stratification through a review of the clinical history, disease evolution, laboratory tests, and test of effort. In a hemodynamically stable patient, admission to the outpatient CR program can be initiated two weeks after uncomplicated myocardial infarction and 4 to 6 weeks after uncomplicated cardiac surgery.[2]

Exercise is recommended according to individual limitations or comorbidities. It is based on FITT-VP (frequency, intensity, time, type, volume, and progression). Two exercise modalities: moderate-intensity continuous aerobic exercise (MICE), high-intensity interval training (HIIT), and resistance exercise (strength is evaluated with maximum voluntary resistance 1RM) *(Table 1)*. Coordination, balance, and elasticity exercises should be included. Each session should consist of a warm-up period of 5-10 minutes, a primary (training) phase of between 20-45 minutes, and a cool-down period of at least 5 minutes, for 30-60 minutes per session.[2,10]

Table 1: Prescription of physical training.

	Aerobic exercise	Resistance exercise
Frequency	3-5 days/week	2-3 non-consecutive days/week
Intensity	40 to 80% RHR, VO_2max, Max HR in CPET or ST; borg rating 12-14 (6-20 scale)	10 to 15 reps, Borg 11 to 13, 40 to 60% MR
Duration	10-20 to 60 min/session	1 to 3 sets, 8 to 10 exercises (for larger muscle groups) 30 min
Equipment	Treadmill, cycle ergometer, arm ergometer. To walk	Use safe and comfortable equipment. (Weights, leagues, balls)

RHR = reserve heart rate. VO_2max = maximal oxygen uptake. Max HR = maximun heart rate. CPET = cardiopulmonary exercise test. ST = cardiopulmonary stress test. MR = maximum resistance.

FINAL MESSAGES

1. All women should be referred to CR after an acute coronary event, percutaneous or surgical myocardial revascularization, or heart failure.
2. The implementation of the automatic referral to CR before hospital discharge improves the rate of incorporation to CR.
3. There is no age limit to participate in RC.
4. CR models outside the center (home, community, hybrid) are safe and favor the participation and adherence of women to CR programs.

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