

THE EFFECT OF DUAL THERAPY (PHYSICAL REHABILITATION AND CARDIAC RESYNCHRONIZATION) IN FUNCTIONAL CLASS MEASURED BY MAXIMAL OXYGEN CONSUMPTION IN PATIENTS WITH CHRONIC HEART FAILURE

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**Purpose:** In patients with heart failure, cardiac resynchronization therapy (CRT) improves maximal oxygen consumption (VO<sub>2</sub>), left ventricular ejection fraction (LVEF) and quality of life, with a decrease in mortality. On the other hand, physical rehabilitation improves exercise capacity, VO<sub>2</sub> and quality of life. There are reports that a combination of both therapies produces additive effects in the aforementioned variables. The purpose of this study is to determine the change in VO<sub>2</sub>, LVEF, diastolic diameter of the left ventricle (DDLV) and the grade of mitral regurgitation (MR) in patients with II-IV functional class of chronic heart failure submitted to dual therapy (CRT and physical rehabilitation).

**Methods:** Cohort study of 22 patients in whom we measured VO<sub>2</sub>, LVEF, DDLV and MR at admission. Measurements were repeated a month after receiving CRT. Finally patients received physical rehabilitation for 2 months, taking the third measurement of parameters after this period.

**Results:** The mean age of the study population was 49±16 years, 63% were male, all of them were in a NYHA class II or III, with ischemic etiology being the cause in 36% of the population. The functional initial parameters were: VO<sub>2</sub> of 16.2±0.9 ml/kg/min LVEF of 21±5%, DDLV of 59±6mm and 60% presented severe MR. A month later after CRT, improvement in VO<sub>2</sub> (18.3±1.4 ml/kg/min, p <0.05), and LVEF (27.3±4.2%, p <0.05) was observed, meanwhile no significant change was observed in DDLV (59±4 mm, p: NS), or in severe MR (60%, p= NS). After three months of dual therapy, VO<sub>2</sub> improved to 20.9±2.4 ml/kg/min (p <0.05), LVEF increased to 30.4±4.4% (p <0.05), the DDLV decreased

to  $56.3 \pm 5$  mm ( $p < 0.05$ ), and the proportion of serious MR decreased to 36% ( $p < 0.05$ ). ANOVA repeated samples test showed a significant change in VO<sub>2</sub>, LVEF and DDLV.

Conclusion: In patients with chronic heart failure, dual therapy showed a significant increase in VO<sub>2</sub>, and LVEF while significantly decreasing DDLV and severe MR. This can be interpreted as an increase in functional capacity, and probably an improvement in quality of life and outcome.