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

JS. Lainez\textsuperscript{1}, EA. Berrios Barcenas\textsuperscript{2}, E. Alexanderson\textsuperscript{2}, JC. De La Fuente\textsuperscript{2}, E. Magaña-Bailon\textsuperscript{2}, S. Maury\textsuperscript{-O\textsuperscript{1}}, A. Monroy\textsuperscript{2}, A. Barrero-Mier\textsuperscript{2},

\textsuperscript{1}(1) National Institute of Cardiology Ignacio Chavez, ELECTROPHYSIOLOGY, Mexico City, Mexico \textsuperscript{2}(2) National Institute of Cardiology Ignacio Chavez, CARDIOVASCULAR IMAGING, Mexico City, Mexico

Purpose: In patients with heart failure, cardiac resynchronization therapy (CRT) improves maximal oxygen consumption (VO2), left ventricular ejection fraction (LVEF) and quality of life, with a decrease in mortality. On the other hand, physical rehabilitation improves exercise capacity, VO2 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 VO2, 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 VO2, 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: VO2 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 VO2 (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, VO2 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±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 VO2, LVEF and DDLV.

**Conclusion:** In patients with chronic heart failure, dual therapy showed a significant increase in VO2, 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.