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Benefits and safety of exercise training in patients with severe three coronary vessels diseaseJ. Rojano¹, H. Ilarraza Lomeli¹, M. Garcia Saldivia², M. Rius Suarez¹, A. Lopez Garcia¹, J.C. Perez Gamez², E. Franco Ojeda¹, R. Chavez Dominguez¹¹National Institute of Cardiology Ignacio Chavez, Mexico City, Mexico; ²Hospital of Cardiology at the Siglo XX National Medical Center, Mexico City, Mexico

Background: Coronary heart disease is the leading cause of death in the world. Nowadays, there are still patients with untreatable coronary obstructions and exercise therapy could be an option to improve their quality of life and probably diminish mortality. Cardiac rehabilitation programs are recommended worldwide due its effectiveness and safety. However very high risk patients are often not included.

Purpose: To evaluate the benefit and safety of exercise therapy as a part of a cardiac rehabilitation program in patients with untreatable severe coronary heart disease.

Methods: A cohort of patients with coronary heart disease included in a cardiac rehabilitation program were studied. Those with severe coronary heart disease (Syntax score ≥ 33 , group A) were identified. Patients were stratified using clinical records and cardiopulmonary exercise testing. They trained for 30 minutes, five times a week of aerobic exercise (cycle ergometer) and this therapy was complemented with general strength, coordination, balance and flexibility maneuvers. After twenty exercise sessions,

a second cardiopulmonary exercise test was performed. Symptom limited cardiopulmonary exercise testing was undertaken using a ramp Balke protocol and cardiopulmonary variables were recorded. These patients were compared with their counterparts without severe coronary heart disease (Control group, group B). Studied variables were presented as frequencies (%), mean (SD), median (range) as appropriate. Comparisons between groups were made using chi square or paired T test as needed. All p values < 0.05 were considered stochastically significant.

Results: From a total of 546 patients, seventy-one had severe coronary heart disease (Syntax score ≥ 33). There were no significant differences between groups on change of METs value and number of sessions assisted. No major adverse cardiovascular outcome was observed. The percentage of exercise induced arrhythmias was 75% in very high risk group vs 76% in control group, ($p > 0.05$). Results are shown in table 1.

Conclusion: Exercise training could be performed in an effective and safe manner in patients with very high risk untreated coronary heart disease.

Table 1. Characteristics between groups

Patients	Group A (n=75)	Group B (n=471)	p value
Assisted training sessions	15 \pm 7	14 \pm 6	ns
Increment in MET (ml/kg/min)	1.32 \pm 1.34	1.35 \pm 1.56	ns
Arrhythmias, n (%)	56 (75)	370 (76)	ns
Angor/ST depression, n (%)	11 (15)	15 (3)	< 0.01
Differences in workload (Watts)	20 \pm 13	22 \pm 13	ns