NEW BIOMARKER OF OXIDATIVE DAMAGE IN PATIENTS WITH LEFT VENTRICULAR HYPERTROPHY

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BACKGROUND AND GOAL OF STUDY

Left ventricular hypertrophy (LVH) is a problem in the clinic. Oxidative stress has been implicated in LVH. Our research group investigates new therapies in the early regression of cardiovascular remodeling that act on biomarkers of oxidative stress (1,2). The aim of the study is to search for new plasmatic oxidative stress biomarkers that allow the diagnosis of LVH and the search in the future of new therapies in patients with left ventricular hypertrophy (therapeutic target).

Figure 1. Left ventricular hypertrophy

RESULTS AND DISCUSSION

No significant differences were observed between both groups in the total thiols. However, we detected an increase in the thiolated proteins ($P < 0.01$) and TPI ($p < 0.001$) in the HVI Group with respect to the Control Group. The area under the ROC curve for PTI was of 0.75 (95% CI: 0.63-0.86). The regression model demonstrated that PTI is an independent risk factor ($P = 0.02$, OR = 7.68, 95% CI: 1.37- 42.99) for clinical variables (sex, age, arterial hypertension, diabetes mellitus, dyslipidaemia, renal insufficiency, coronary/valvular pathology).

Figure 3. ROC curve analysis.

CONCLUSION

Our results suggest that TPI could be a specific biomarker of oxidative stress in patients with LVH

MATERIALS AND METHODS

Observational, prospective, non-randomized, comparative study of 2 groups of patients: LVH group ($n = 35$) and control group (without LVH, $n = 35$). The echocardiographic study allowed the detection of patients with LVH. The extraction of a blood sample allowed us to study the variables of oxidative stress in the plasma of both groups: total thiols, thiolated proteins and thiolated protein index (TPI = thiolated proteins / thiols). The area under the curve for TPI was calculated and we use the logist regression analysis to estimate the association between TPI and clinical variables of interest. The biomarkers were compared in both group using student independent t-test. The data were expressed as mean $\pm$ SEM. $P < 0.05$ was considered significant. All procedures were approved by the Ethics Committee of Hospital General Universitario Gregorio Marañón, Madrid, Spain.

Figure 2. TPI and student independent t-test.

	Group C (n = 35)	Group H (n = 35)	P
Total thiols	7.819 $\pm$ 0.34	7.414 $\pm$ 0.38	0.437
Thiolated proteins	0.079 $\pm$ 0.005	0.102 $\pm$ 0.006	0.01

Table 1. Mean $\pm$ SD of stress oxidative variables.

Variables	OR (95% IC)	P
PTI	7.68 (1.37-42.99)	0.02
Gender	3.05 (0.07-13.22)	0.06
Age	1.07 (1-1.14)	0.06
Valvular pathology	1.57 (0.18-13.37)	0.67
Coronary pathology	6 (1-35.9)	0.06
Hypertension	1.84 (0.37-9)	0.44
Mellitus diabetes	1.95 (0.33-11.25)	0.45
Dyslipidemia	0.74 (0.17-3.27)	0.69
Obstructive sleep apnea	9.35 (0.68-128.80)	0.09
Renal failure	0.39 (0.08-1.82)	0.23

Table 2. Logistic regression analysis of variables.

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References:

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