

Beneficial effect of angiotensin converter enzyme inhibitors on left ventricular deformation in patients with hematologic malignancies after bone marrow transplantation

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Funding Acknowledgements: Type of funding sources: Foundation. Main funding source(s): Hellenic society of lipidology, atherosclerosis and cardiovascular disease

Background/Introduction: Optimal medical treatment for heart failure may reverse myocardial dysfunction in the early stages of cardiotoxic treatment.

Patients and methods: 60 patients age $46,3 \pm 12,9$ years old, 19 male) with preserved ejection fraction, who suffered from hematologic malignancies (lymphoma, leukemia) and underwent bone marrow transplantation, were randomized to receive 2,5 mg enalapril bid daily or placebo. We measured at baseline, before transplantation, and after three months: i) Global Longitudinal Strain of left ventricle (LV) (GLS), ii) LV Epicardial Strain (GLS_{epi}), iii) LV Endocardial Strain (GLS_{endo}), by speckle tracking imaging, iv) LV End Diastolic ,End Systolic Volume and Ejection Fraction (LVEF).

Results: The two treatment groups had similar age, sex atherosclerotic risk factors and cardiotoxic medication before and after bone marrow transplantation. Compared to baseline, patients treated with enalapril did not show a deterioration of LV GLS and GLS_{epi} [$p = 0,540$ and $p = 0,422$]. Conversely, patients treated with placebo group, presented a significant impairment of LV GLS and GLS_{epi} [$p = 0,041$ and $p = 0,028$] three months after bone marrow transplantation. No significant changes were found in LVEF after treatment with enalapril ($p = 0,692$) or the placebo ($p = 0,892$). Table 1

Conclusions: Treatment with enalapril prevented deterioration of myocardial deformation three months after bone marrow transplantation

Table 1

	group	baseline	3 months follow-up	p
Longitudinal strain apical 4 chambers view	placebo	-20.56 ± 2.55	-19.46 ± 2.59	0.154
	enalapril	-20.41 ± 3.31	-19.70 ± 3.70	0.433
Longitudinal strain apical 2 chambers view	placebo	-20.5 ± 1.97	-16.11 ± 10.38	0.149
	enalapril	-20.30 ± 3.90	-20.00 ± 3.82	0.763
Longitudinal strain apical 3 chambers view	placebo	-19.55 ± 2.36	-18.55 ± 2.43	0.197
	enalapril	-20.01 ± 4.09	-19.26 ± 3.68	0.489
Global Longitudinal Strain	placebo	-20.19 ± 1.76	-18.96 ± 2.08	0.041
	enalapril	-20.24 ± 3.58	-19.66 ± 3.65	0.540
Average Global Epicardial Strain	placebo	-17.82 ± 1.45	-16.60 ± 1.68	0.028
	enalapril	-17.84 ± 3.09	-17.16 ± 3.20	0.422
Average Global Endocardial Strain	placebo	-23.03 ± 2.15	-21.96 ± 2.56	0.181
	enalapril	-23.07 ± 4.19	-23.60 ± 4.17	0.666
EF (Simpon's method)	placebo	59.46 ± 6.59	59.69 ± 6.79	0.892
	enalapril	58.65 ± 7.63	59.45 ± 9.28	0.692

Left ventricular parameters during 3 months of follow-up.