

EVALUATION OF LEFT ATRIAL EJECTION FORCE AND ASCENDING AORTA ELASTICITY IN CHILDREN AFTER REPAIR OF COARCTATION OF THE AORTA

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INTRODUCTION

Coarctation of the aorta is a chronic vascular disease characterized by persistency of myocardial and vascular alterations. What remain obscure in these patients are intrinsic mechanisms of hypertension, and its relationship with elastic properties of aorta and left atrium performance.

The aim of present study was to evaluate the elasticity of aorta, left atrium function and myocardial performance collectively at midterm follow-up, in normotensive children who have had successful coarctation surgery or balloon dilatation.

METHODS

In this prospective study, nineteen patients (9 boys, 10 girls; mean age: $7,15 \pm 0,9$) with native coarctation who underwent surgery or balloon angioplasty and 21 age matched healthy children were studied. Aortic wall stiffness index, distensibility, left atrial ejection force, M-mode echocardiography, diastolic functions and myocardial performance index were calculated in both groups.

RESULTS

No difference was found in systolic blood pressure at rest between patients and controls. Left atrial ejection force index were found to be higher in study group than in the control group (12.69 ± 1.76 kdyne/m² versus 4.57 ± 1.12 kdyne/m², p: 0.001). Aortic stiffness index in patient group was significantly increased (5.12 ± 1.24 versus 2.57 ± 0.68 , p: 0.000). Ascending aorta distensibility was significantly lower in patient group than in the controls (42.13 ± 11.02 versus 78.79 ± 20.49 , p: 0.000). Correlation was found between LAEF index and right arm systolic blood pressure, E velocity as well as E/A ratio was found in current study (Table 1).

Table 1 Relationship between LAEF index and E velocity, E/A ratio and right arm systolic blood pressure

Variables	LAEF index	
	p value	r coefficient
E velocity	0.019	0.561
E/A ratio	0.013	- 0.586
Systolic blood pressure	0.015	- 0.572

CONCLUSIONS

Increased stiffness index of ascending aorta may be indicative of late onset hypertension in children who successfully treated in early childhood. Left atrial ejection force index is a reliable method to detect diastolic abnormalities in the follow-up of coarctation of the aorta. Further studies are needed to elucidate the potential role of stiffness index in follow-up of aortic coarctation.



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