

Assessment of Diastolic Dysfunction: Drugs Could Alter the Results

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To the Editor,

We read with great interest the article by El Aouar et al.¹, entitled "Relationship between left atrial volume and diastolic dysfunction in 500 Brazilian patients", which was published in the previous issue of *Arquivos Brasileiros de Cardiologia*. The authors¹ aimed to evaluate the relationship between left atrial volume index and different grades of diastolic dysfunction in Brazilian patients submitted to echocardiogram. Although we commend the authors for the detailed and valuable information that they have provided, some comments may be beneficial.

Diastolic dysfunction is associated with adverse outcomes and its prevalence among hypertensive, hyperlipidemic and diabetic adults is very high². It has been shown that lowering blood pressure and heart rate, management of impaired lipid profile and blood glucose could improve diastolic dysfunction². Also, thyroid dysfunction has been

associated with the development of diastolic dysfunction even in patients without underlying heart disease³.

Diuretics, ACE inhibitors and angiotension-II receptor antagonists, nitrates and their derivatives, calcium channel blockers, alpha-blockers, nicardipine and phosphodiesterase inhibitors reduce left ventricular filling pressures^{2,3}.

Statins could ameliorate diastolic dysfunction by attenuating myocardial interstitial fibrosis and angiogenesis independently of their lipid lowering effects⁴.

Thyroid hormonotherapies increase cardiac output by affecting stroke volume and heart rate, and reduce systemic vascular resistance by activating the renin-angiotensin-aldosterone system; resulting in an improvement in diastolic dysfunction³.

It has been demonstrated in diabetic cardiomyopathy that eplerenone, the mineralocorticoid receptor blocker, has anti-fibrotic effects which could attenuate cardiac steatosis, apoptosis and remodelling as well as diastolic dysfunction⁵.

In conclusion, if the medication details which can be associated with diastolic dysfunction had been given, the study would have been more valuable.

Keywords

Stroke volume / drug effects; Ventricular dysfunction; Atrial function, left; Brazil.

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Response letter

We appreciate your comments in relation to our article. Left ventricular diastolic function depends on a number of intrinsic and extrinsic factors to the heart. Among intrinsic factors, the most important is the amount and arrangement of collagen deposited in the myocardium. Both the synthesis of the different isoforms of collagen, and the form of deposition of these fibers in myocardial interstice and around the coronary vessels, have an important influence on myocardial relaxation rate which leads, from the hemodynamic point of view, by the fall rate of ventricular pressure during relaxation isovolumetric by transmitral flow rate or by the rate of myocardium movement on mitral annulus. The echocardiogram has been a valuable tool in the assessment of diastolic function and, to the extent that the methods of image become more accessible and improved, and the interest of clinical cardiologists is growing in the accurate measurement of myocardial lusitropism. It is important to note that different types of treatments for heart disease (ACE inhibitors, inhibitors of aldosterone receptors, BRA, etc) or associated clinical conditions, such as hypertension, mellitus diabetes, hypothyroidism, among others, are associated with different degrees of diastolic dysfunction. In this respect the available literature is

extensive. However, the goal of our work was not to explore the pathogenesis of diastolic dysfunction, but rather to focus on two aspects: 1) evaluate the relationship between the volume of VAEi (left atrium indexed by body surface area) and the different degrees of diastolic dysfunction in a number of patients on outpatients treatment with preserved or little reduced systolic function and that were submitted to the transthoracic echocardiography examination in a cardiology diagnostic department; 2) identify clinical and echocardiographic variables independently associated to VAEi increase.

To achieve these goals, the origin and the stage of evolution of diastolic dysfunction are not parameters relevant to the proposed study. However, we consider your comments relevant and they may certainly be used in future substudies within the sample included in our article.

We appreciate the comments made and the interest in our work.

Best regards,

Lilia M. Mameri El Aouar.

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