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**Address for Correspondence:** Dr. Ahmet Çağrı Aykan  
Ahi Evren Göğüs ve Kardiyovasküler Cerrahi Eğitim ve Araştırma Hastanesi  
Kardiyoloji Bölümü, Soğuksu Mahallesi  
Çamlık Caddesi, 61040 Trabzon- *Türkiye*  
Fax: +90 462 231 04 83 E-mail: ahmetaykan@yahoo.com

## Mitral annular calcification: left atrial size and left ventricular dysfunction

To the Editor,

We read with great interest the article entitled "Assessment of left atrial volume and mechanical functions using real-time three-dimensional echocardiography in patients with mitral annular calcification" by Bayramoğlu et al. (1) published in *Anatol J Cardiol* 2016; 16: 42-7. We have some commentaries related to the left atrial (LA) volume and left ventricular diastolic dysfunction.

According to brand new recommendations in chamber quantification (2), assessment of the LA size using only the antero-posterior diameter assumes that when LA enlarges, all its dimensions change similarly, which is often not the case during LA remodeling. In this paper, in patients with mitral annular calcification (MAC), changes in the LA diameter seem to be in accordance with the indexed LA volume.

The peak Ea velocity can be measured from any aspect of the mitral annulus from the apical views, with the lateral annulus most commonly used. However, I was wondering how difficult it was to measure TDI parameters in lateral mitral annulus due to the artifacts/noise related to these annular calcifications and how accurate is it.

The authors said that "there were no significant differences in age, gender, smoking status..." I believe that it is important for this study that smoking status was actually statistically significant different between MAC group and controls (36.7% versus 13.3%;  $p=0.037$ ; please see Table 1).

Also the authors concluded that "LA mechanical function was impaired in patients with MAC". Indeed, all parameters of LA mechanical function, assessed by RT3DE, were statistically significant different between the MAC group and controls, but mitral late-diastolic velocity, assessed by TDI (Am), was not ( $8.9\pm 2.1$  cm/s versus  $8.4\pm 1.0$  cm/s;  $p=0.296$ ). How could this be explained?

Patients from the MAC group did not have LA dilation compared with those from the control group according to normal values for RT3DE (3), and even these volumes were statistically different (LA volume index was  $26.9\pm 6.1$  mL/m<sup>2</sup> versus  $20.5\pm 2.4$  mL/m<sup>2</sup>;  $p<0.001$ ). Therefore, these patients with MAC have had left ventricular diastolic dysfunction without LA dilation.

MAC could be related to coronary artery disease, which is frequently associated with left ventricular diastolic dysfunction. It was showed that in patients aged  $\leq 65$  years, MAC is associated with an increased prevalence of severe obstructive coronary artery disease (4). Could we know if these patients did not have asymptomatic non-obstructive coronary artery disease? Also, LV diastolic dysfunction could be associated with arrhythmia risk. In spite of the fact that this is a little bit far from the subject of this study, I am wondering if these patients with MAC underwent arrhythmia risk assessment.

In conclusion, I agree that "LA volumes and fractions reflect the severity of the left ventricular diastolic dysfunction". In this study, LA size, assessed by RT3DE, in both study and control group patients was not dilated. Therefore, could we talk about the left ventricular dysfunction in the absence of LA dilation? This is not in accordance with the current guidelines for left ventricular dysfunction (5). Should we also change the cut-off values of LA volume from the current algorithm of the left ventricular diastolic dysfunction?

**Mariana Floria<sup>1,2</sup>, Livia Genoveva Baroi<sup>1,2</sup>, Catalina Arsenescu Georgescu<sup>1,3</sup>**

<sup>1</sup>Grigore T. Popa University of Medicine and Pharmacy; Iasi-Romania

<sup>2</sup>Sf. Spiridon Emergency Hospital; Iasi-Romania

<sup>3</sup>Prof Dr George I. M. Georgescu Cardiovascular Disease Institute; Iasi-Romania

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**Address for Correspondence:** Mariana Floria, MD, PhD, FESC

From III<sup>rd</sup> Medical Clinic and Grigore T. Popa

University of Medicine and Pharmacy

16 University Street; Iasi-Romania

Phone: +40.232.301.600 Fax: +40.232.211.820

E-mail: floria\_mariana@yahoo.com

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