Diastolic dysfunction and left atrial appendages: Time to phenotype the process of fibrosis

To the Editor,

We read with interest the article by Demirçelik et al. (1) published in Anadolu Kardiyol Derg 2014 Jan 10. We believe that any effort aimed to elucidate the pathophysiological mechanisms of left atrial appendage (LAA) thrombus formation is valuable since these thrombi are the source of most embolic strokes in patients with nonvalvular atrial fibrillation (AF) and, at this regard, any decrease in filling and emptying velocities of LAA may affect blood coagulability. But the question I want to point out is about the mechanisms responsible for the altered distensibility of the cardiac structures; among them cardiac fibrosis is an excellent candidate as it has effects both on the distensibility of the structures and on the electrical refractoriness, as reported by articles that are now considered classics of the literature (2, 3). In addition in the studied subjects, the reported prevalence of hypertension is very high in both goups, a finding consistent with the hypothesis that arterial hypertension and left ventricular hypertrophy are possible mechanisms underlying myocardial fibrosis (4). Cardiac fibrosis is an heterogeneous process and, as described by Weber some years ago (5), consists of at least two types of independent components: reactive or diffuse versus reparative or discrete fibrosis. Furthermore fibrosis is a process possibly linked with inflammation and it has also been described in atrial appendages, with a different pattern between left and right appendage (6). Thus, to explore the role of fibrosis in supraventricular arrhythmias, a more consistent approach should also include: 1) the quantification of the process of fibrosis, proven feasible even with imaging techniques, 2) the phenotyping of fibroblasts, collagen and junctions responsible for the coupling between cardiomyocytes and fibroblasts together with 3) the exploration of the link with inflammation and, in particular, on the key cytokines, such as TNF and PDGF.

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Author`s Reply

Is it everthing start atrial fibrosis or inflammation?

To the Editor,

First of all, my gratitude for your interest in our work published in Anadolu Kardiyol Derg 2014 Jan 10. We are grateful to the authors' interest in the subject and for their critiques.

The pathogenesis of AF is complex and has not been completely elucidated. One recognized theory is that the occurrence and maintenance of AF are closely associated with atrial remodeling, including electrical and structural remodeling, and that atrial fibrosis is the most important part of the structural remodeling but interrelationship of atrial fibrosis and atrial fibrillation is uncertain (1).

In fact that we think that everything disrupts the electrical activity of the atriums that is related with inflammation including atrial fibrosis. Another issue is the conditions that can make atrial fibrosis. The fact that many of these cases were collected in CHA2DS2-VASc score. Whatever the etiology, one of the primary factors leading to fibrosis is an imbalance between fibrogenic and antifibrotic cell growth factors. Inflammation also disrupts this balance .Various mediators may play a role in the pathogenesis. A growing body of evidence is showing that galectin-3 (2, 3), lipocalin-2/neutrophil gelatinase-B-associated lipocalin (Lcn2/NGAL) (4-6), N-terminal propeptide of type III procollagen (PIIINP) (7-10) and fibroblast growth factor family seem to play important roles in the cardiovascular inflammation and fibrosis that result in cardiac remodeling.

In our study, the high rate of hypertension in the 2 groups is important for in the groups' homogeneities. In addition, statistics are also similar with the real world. Transesophageal echocardiography (TEE) is the most useful methods for evaluating for left atrial appendage (LAA) functions. It can be think, computed tomography angiography computerized tomographic angiography (CTA) may be alternative method to TEE, but CTA is used for anatomic evaluating.

As a result, atrial fibrillation and atrial fibrosis may be due to many reasons. We should not think of them as separate from each other, it should not be think only factor for thrombus formation.

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Initial results of code blue emergency call system: First experience in Turkey

To the Editor,

Despite advances in medical technology, the mortality of in-hospital cardiac arrests is high. Many countries prefer experienced medical emergency teams (MET) for in-hospital cardiopulmonary resuscitation (CPR) (1, 2). Because of its activation criteria involving vital signs of physiological instability happening in 80% of arrest patients 24 h prior to the emergency, MET reaches patients before sudden death and cardiopulmonary arrest. Therefore, sudden death and cardiopulmonary arrest ratios decreased in in-hospital patients after establishment of MET (1-3). No study has examined the efficacy of the code blue system in Turkey since the Turkish Ministry of Health Care Services initiated an application similar to MET called Code Blue in 2009 (4).

In Elazığ Harput State Hospital where study was conducted, a code blue call is activated by pressing a button located on every floor of the hospital. Call buttons activate a central speaker system that is audible throughout the hospital and specifies the location of the code blue.

A total of 166 code blue calls made in a level 2 hospital between January 2010 and December 2010 were evaluated retrospectively. A total of 144 (84.9%) patients required CPR, and 22 (13.3%) required other medical treatments. Three calls were for non-emergency situations. A total of 76 (53.9%) patients were in the mortality group, in whom resuscitative efforts were unsuccessful (group 1). A total of 65 (46.1%) patients achieved return of spontaneous circulation (ROSC) after CPR (group 2). The demographic data of patients are shown in Table 1.

ROSC ratios vary in different countries and even in different regions of countries (1). No study has evaluated the code blue system, or the CPR results of the system, in Turkey so far. We observed an ROSC ratio of 46.1%.

Age is a controversial variable in predicting the outcome of CPR. ROCS rations are lower in patients with end-stage malignancies (1). Because age and co-morbid diseases, such as end-stage malignancies are able to affect the respond to the CPR, these events, while ROCS ratios being are noticed, should be taken into consideration.

ROSC ratios are affected by the quality of the medical emergency team system, time of arrival to the scene and CPR equipment (2). In our code blue system, the MET arrived to all calls in less than 4 min.

Arrhythmias causing sudden cardiac death and cardiac arrest are the most common ventricular tachycardia (VT) and ventricular fibrillation (VF) (5). However, VT/VF rhythms were solely determined in four patients with cardiopulmonary arrest in this study (Table 2). As a cause of this condition, we think that data involving VT/VF could have been missing in some files because electrocardiographic findings were evaluated retrospectively from the blue code forms.

ROSC ratios are determined by the quality of the medical emergency team system, early activation of the code blue system, early

Table 1. Demographic data of patients

		Total n (%)	Group 1 n (%)	Group 2 n (%)	*P*
Gender	Male	78 (55.3%)	39 (50%)	39 (50%)	0.301
	Female	63 (44.7%)	37 (58.7%)	26 (41.3%)	
Age, years	<75	64 (45.4%)	35 (54.6)	29 (45.4)	0.865
	>75	77 (54.6%)	41 (53.2%)	36 (46.8%)	
Co-morbid disease					
Respiratuary		47 (33.3)	23 (48.9)	24 (51.1)	
Cardiac		35 (25.8)	16 (45.7)	19 (16.1)	
Cerebrovascular		25 (17.7)	17 (68)	8 (32)	0.044
Malignity		14 (9.9)	11 (78.6)	3 (6.5)	
DM		5 (3.5)	0	5 (100)	
Renal failure		8 (5.7)	5 (62.5)	3 (37.5)	
Others		7 (4.1)	4 (57.1)	3 (42.9)	

Group 1. Patients no achieved return of spontaneous circulation after CPR, Group 2- Patients achieved return of spontaneous circulation after CPR

Table 2. Initial rhythms

		Total n (%)	Group 1 n (%)	Group 2 n (%)	*P*
Initial rhythm	Asystole	80 (56.7%)	46 (57.5%)	34 (42.5%)	
	Bradicardia	29 (20.6%)	12 (41.4%)	17 (58.6%)	
	PEA*	23 (16.3%)	17 (73.9%)	6 (26.1%)	0.012
	VT/VF**	4 (2.8%)	0	4 (100%)	
	Unknown	5 (3.5%)	1 (20%)	4 (80%)	

*PEA-pulseless electrical activity, **VT/VF-ventricular tachycardia/ventricular fibrillation
Group 1- Patients no achieved return of spontaneous circulation after CPR, Group 2- Patients achieved return of spontaneous circulation after CPR