septum during percutaneous mitral balloon valvuloplasty (PMBV) (2). We attributed the thrombus formation to the damage to interatrial septum during septostomy and no anticoagulation with UFH before septostomy in patients with AF. Despite severe mitral regurgitation (MR) reducing left atrial spontaneous echo contrast (LASEC) and thrombus formation in left atrium due to jet flow (3), we considered that reduced MR by MitraClip does not have an influence on thrombus formation, at least, in acute period in these cases. Patients with AF who were not anticoagulated until septostomy may develop LASEC and thrombus by virtue of mechanical trauma during septostomy. There is a case report in literature regarding a patient without AF having developed large thrombus in left atrial posterolateral wall after 5 days of MitraClip procedure because the patient was not administered UFH (4). We consider that mechanical trauma and possibly lack of anticoagulation before septostomy may have resulted in thrombus formation in the region of septal puncture as Bilge et al. (1) stated.

Administration of UFH during septostomy in PMBV procedure, as in MitraClip procedure, is an increasingly debated issue. Application of UFH at the beginning of PMBV procedure diminishes embolic complications; meanwhile, it is associated with increased risk of bleeding and length of hospital stay. However, cases that developed thrombus following UFH administration after septostomy have also been observed (5).

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Author`s Reply

To the Editor,

We thank the authors for their interest and comments regarding our paper entitled "Left atrial spontaneous echo contrast and thrombus formation at septal puncture during percutaneous mitral valve repair with the MitraClip system of severe mitral regurgitation: a report of two cases" published in Anatol J Cardiol 2014; 14: 549-50 (1).

It is common preference to initiate administration of heparin after transseptal access has been safely performed because of the possibility of occurrence of bleeding complications. We also administered unfractioned heparin after transseptal puncture in both our cases. However, this short dwell time of catheters within the left atrium without heparinization may be sufficient for thrombus or spontaneous echo contrast (SEC) formation within the left atrium. Ideally, heparin should be administered following venous and arterial sheath placement but before transseptal puncture. In our recent cases, as we have gained extensive experience with transseptal catheterization, we have started early administration of low-dose heparin (2000-2500 U) before transseptal access to minimize the risk of thrombus formation and embolism.

In both the current cases, another mechanism of thrombus and SEC formation within left atrium after MitraClip implantation could be the disappearance of protective effect of severe mitral regurgitation against the generation of left atrial thrombus and SEC and the reduced mitral valve area due to MitraClip. Immediately after publication of our article, another case report supporting our hypothesis was published by Ohno et al. (2). In their article, the authors described a patient in whom acute SEC appeared in the left atrium after complete reduction of MR with two MitraClips. When the second clip was withdrawn, SEC immediately disappeared in their case. This finding confirms "wash out" effect of regurgitant blood even in acute period.

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Noninvasive cardiac imaging for the diagnosis of coronary artery disease in women

To the Editor,

I read with interest the review article entitled "Noninvasive cardiac imaging for the diagnosis of coronary artery disease in women," which

was written by Canpolat et al. (1) and published in Anatol J Cardiol 2014; 14: 741-6. As presented there, noninvasive imaging techniques (TET, cardiac echocardiography, myocardial perfusion SPECT, and perfusion PET) are actually the most useful and easy-to-perform tests to evaluate functional or anatomical properties in the patients with suspected or known ischemic heart disease (IHD). These tests particularly offer the potential to identify women at increased IHD risk. Planar imaging (with Tc-99m labeled agents or Tl-201 chloride) may be performed, and it still used in daily practice but not routinely performed. It is only obtained in limited circumstances such as imaging at the bedside of acutely ill patients or instrumented patients (2). SPECT imaging, mostly apply simultaneously with gated, is preferably performed in daily practice because of its high sensitivity, specificity, diagnostic accuracy and reader's confidence in the interpretation of MPS SPECT results. Gated MPS helps in defining the suspected artifacts, risk stratification of patients with known or suspected CAD, myocardial viability, and enhanced detection of multivessels disease (3). Finally, high-sensitivity dedicated cardiac camera systems aid in injecting lower doses for MPS SPECT with an effective radiation dose of less than 1 mSv without significant loss of accuracy (4). Medical literature contains several studies using novel dedicated cardiac imaging systems and acquisition methods. Nevertheless, this review article does not offer the innovation of nuclear cardiology field.

References used for myocardial perfusion imaging are old (the newest one was published in 2009), the information provided on nuclear cardiac studies is erroneous, with use of incorrect technical terminology. Therefore, it the authors seem to have not effectively mastered the subject. For example, the authors have identified that SPECT and PET as functional tests. Assuming myocardial perfusion is function, this definition is correct; however, the term of function in the nuclear cardiology implies the left ventricular functional data (including EF, EDV, and ESV) obtained by ECG-triggering studies (ERNA or gated study) rather than only perfusion imaging.

The sentence of "Also, technetium Tc 99m sestamibi (MIBI), thallous chloride TL-201 (thallium) and fluorodeoxyglucose are the most commonly used radioactive materials in nuclear medicine for cardiovascular system." in the section of myocardial perfusion imaging techniques is also incorrect because F-18 fluorodeoxyglucose is not a perfusion agent; it is a metabolism agent, which is used to evaluate myocardial viability. In cardiac studies, PET perfusion agents (Rb-82, O-15 water, and NH-13) have several advantages in women, particularly those who are obese with slightly higher effective dose (5). This information has been obtained from the reference #24 in this paper (1). Notably, the authors have not presented any PET perfusion agent; the reason for this is unclear.

In figure 1, the meaning of "The statement TM should be corrected as 'ETT'" could not be understood.

Finally, the novel knowledge in the field of nuclear cardiology, appropriate use criteria, and algorithms for diagnosing and follow-up in the women and men with IHD can be easily available from ASNC page (www.asnc.org) and PubMed. I believe that revision is necessary for the part of myocardial perfusion imaging techniques in this review article to prevent incorrect information from reaching junior inexperienced readers.

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Author`s Reply

To the Editor,

We thank the authors for their constructive criticisms about our paper (1) in this issue. It was known that both sexes exhibit great differences with regard to hospital admission, symptomatology, accuracy of diagnostic tests, and therapeutic efficacy and outcomes. Although various studies have provided abundant evidence for diagnostic evaluation of coronary artery disease (CAD) among women in recent decades, we used an old consensus statement published in 2005 to guide us during the preparation of our review (2). However, an updated version of this consensus statement was published recently (3). As authors outlined in their letter, we have defined myocardial perfusion imaging (MPI) techniques under the title of functional tests for evaluation of CAD. It was shown that MPI techniques provide us both functional and prognostic data in patients with suspicion or diagnosis of CAD (2, 3). In addition, it has been clearly defined in the consensus statements that stress MPI with single-photon emission computed tomography (SPECT) or positron emission tomography (PET) provides information on the extent and severity of myocardial perfusion and wall-motion abnormalities as well as left ventricular ejection fraction and volumes assessment at rest and after stress.

We thought that the statement of "Also, technetium Tc 99m sestamibi (MIBI), thallous chloride TL-201 (thallium) and fluorodeoxyglucose are the most commonly used radioactive materials in nuclear medicine for cardiovascular system." was correctly written, but its title must be corrected to "Nuclear-based imaging techniques." Stress MPI PET, with superior spatial resolution, has been reported to improve image quality and diagnostic accuracy data for women, particularly for obese subjects (4). It also provides absolute coronary blood flow at rest and stress, which aided us to calculate myocardial flow reserve. Rubidium-82 is the more commonly used radioisotope, but 13N-ammonia MPI is also used in some laboratories for PET (3).

Radiation exposure is one of the most commonly encountered issues when suggesting a non-invasive test for women. The average

radiation exposure doses for rest-stress MPI Tc-99m SPECT (≈11 mSv), stress-only MPI SPECT (≈3 mSv), rest-stress MPI PET Rubidium-82 (≈3 mSv), and rest-stress MPI PET 13N (≈2 mSv) are represented in the recent consensus document (3). In addition, as defined by the authors, novel SPECT camera technology may allow us to reduce radiation doses with SPECT imaging (5). Stress-only MPI use may be encouraged whenever possible to reduce radiation exposure. Finally, in figure 1, the statement of "TM" should be corrected as "ETT" as this was a typographical error.

In conclusion, stress MPI SPECT and PET imaging performed with currently available techniques have a high diagnostic accuracy in the assessment of symptomatic women with intermediate and intermediate-high CAD risk. In addition, technological advancements in nuclear cardiology including novel cameras and coronary flow reserve calculation by PET hold promise in reducing the radiation exposure and risk stratification of women with CAD.

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Epicardial fat and coronary artery disease: An open debate

To the Editor,

Epicardial adipose tissue (EAT), a source of several adipokines, is located between the outer wall of the myocardium and the visceral layer of the pericardium. The paracrine or vasocrine secretion of several bioactive molecules such as tumor necrosis factor alpha, interleukin-6, plasminogen activator inhibitor-1, and resistin from EAT may have a promoting effect on atherosclerosis (1). Indeed, several studies have reported a positive association between epicardial fat thickness (EFT) and coronary artery disease (CAD) (2, 3).

We read with great interest the article titled "Epicardial adipose tissue thickness is associated with myocardial infarction and impaired coronary perfusion" published by Tanındı et al. (4) in Anatol J Cardiol. They reported that increased EFT is associated with acute myocardial infarction (AMI), and it may prove beneficial for identifying patients who would need more aggressive approach in terms of risk reduction.

In agreement with previous studies (1-3), the present study provides further information which aims to determine the relationship between impaired coronary perfusion and EFT in a wide range of chest pain syndromes.

As mentioned by the authors, the measurement of EFT with two-dimensional echocardiography has some advantages, including easy accessibility, rapid applicability, and good reproducibility. However, EAT has a three dimensional distribution and two-dimensional echocardiography may not provide sufficient information about the total epicardial volume (1).

It has been demonstrated that EAT may display cardioprotective properties by secreting antiinflammatory and antiatherogenic adipokines such as adiponectin and adrenomedullin. It may also promote the expansion of the coronary lumen during the early phases of atheromatous plaque obstruction (5). On the other hand, stable angina pectoris, unstable angina pectoris, and AMI are different clinical entities with respect to pathophysiology, presentation, and management. It would be useful if Tanındı et al. (4) examined the association between EFT and CAD after adjusting for other cardiovascular risk factors. Therefore, the conclusion stated by Tanındı et al. (4) should be interpreted with caution because their correlations do not necessarily prove causation.

Main issues that need to be answered are as follows: Is epicardial fat a modifiable risk factor or how can we translate these encouraging results into the clinical practice? More importantly, what is the mean of more aggressive approach other than percutaneous coronary intervention, statins, anticoagulants, and other therapies in a wide range of patient population as per the present study?

In conclusion, the role of EAT in atherosclerosis is an open debate. Further clinical and experimental studies are needed to determine the function of EAT in different pathological conditions.

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