

## Author's Reply

Dear Editor,

We would like to thank the interventional cardiologists/readers for their comments on our review "Percutaneous coronary intervention in patients with active bleeding or high bleeding risk-Review" that was published recently in this journal (1).

We agree with the comments that in case of myocardial infarction (MI) during the peri-operative period of non-cardiac surgery, the best strategy is to perform primary balloon angioplasty (PTCA) without stenting. The reason is that with this strategy, we would have to give only unfractionated heparin (UFH) and aspirin during PTCA without the need for P2Y12 inhibition (clopidogrel, prasugrel, or ticagrelor). The goal is to achieve a TIMI 3 flow with a residual stenosis of <5%.

In the letter, the interventional cardiologists/readers also presented a case of peri-operative MI requiring thrombectomy. It is imperative to use the aspiration catheter because of the heavy thrombotic burden in the setting of an acute stent thrombosis. How about thrombectomy by the aspiration catheter in patients who undergo only plain PTCA? A literature search did not reveal any results from randomized trials or even anecdotal case reports. Even so, when discussing thrombectomy in the setting of perioperative MI, there are 2 questions to answer. First, can thrombectomy alone without PTCA or stenting recanalize the infarct-related artery (IRA) to a TIMI 3 flow? Second, how does one prevent enlargement of the thrombus in a patient with an acute MI with a very short ischemic time (<15 minutes) so that there is less need for aspiration thrombectomy and lower incidence of systemic or distal embolization caused by the aspiration thrombectomy procedure itself?

First, in 2 reports, 1% of patients with AMI had the IRA recanalized to achieve a TIMI 3 flow after lone aspiration thrombectomy (2, 3). So in reality, thrombectomy alone could be performed without involving PTCA or stenting in a very small percentage of patients (1%). The decision for thrombectomy may require the deployment of a proximal or distal protection device because of the high incidence of systemic and distal embolization (~14%) following thrombectomy and PTCA and/or stenting or the deployment of the distal protection device itself (4, 5).

Second, how do we prevent the patient from having a heavier thrombotic burden in a peri-operative MI? Fresh thrombus was present in 60% of patients while an older thrombus was present in 40%. The incidence of distal embolization was higher (18 versus 12%, p=0.01) than in those with fresh thrombus (6). Recently, I had a patient who had undergone 9 minutes of Bruce protocol without chest pain. Five minutes into recovery, the patient developed chest pain with ST segment elevation. An Acute Response Team (ART) code was called, and immediately the patient was given 5000 units of UFH and one aspirin to chew. In less than 10 minutes, the pain subsided and at that time the cardiac catheterization laboratory was ready for the patient. A coronary angiogram showed a tight 80% lesion in the right coronary artery. The border of the lesion was very sharp, without sign of thrombus. The patient underwent stenting successfully.

In conclusion, I would like to thank everyone for their comments. I agree with the strategy of lone angioplasty without stenting, on top of heparin and aspirin, and no strong antiplatelet therapy if it can be avoided. A lone aspiration thrombectomy is acceptable if TIMI 3 is achieved. Two important reminders are: (1) to give aspirin and heparin as early as possible while the patient is waiting for the cardiac catheterization laboratory to be ready, and (2) a TIMI 3 flow is mandatory for the prevention of any acute thrombosis.

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## A new piece of puzzle: inflammation in the prediction of recurrence after successful electrical cardioversion in patients with nonvalvular atrial fibrillation

*Bulmacanın yeni bir parçası: Nonvalvüler atriyal fibrilasyon hastalarında başarılı elektriksel kardiyoversiyon sonrası nüksü öngörmeye enflamasyonun rolü*

Dear Editor,

We have read with great enthusiasm the recently published article entitled "Can neutrophil/lymphocyte ratio (N/L ratio) predict recurrence after electrical cardioversion in non-valvular atrial fibrillation (AF)" by Arbaş et al. (1). In that well-presented study the authors tried to investigate effectiveness of N/L ratio for prediction of recurrence after electrical cardioversion (ECV) in patients with non-valvular AF. They concluded that high sensitive C reactive protein (hs-CRP), left atrium (LA) diameter, spontaneous echo contrast (SEC) positivity, and systolic blood pressure (BP) were independent predictors of recurrence. However they did not detect a statistically significant relationship between N/L ratio and AF recurrence after successful ECV in that patient group.

Atrial fibrillation induces remodeling of the left atrium. In a previously published study LA volume index (LAVI), which is more accurate measure of LA size, was found to be a significant predictor of recurrence of AF after cardioversion (2). This study showed that larger LAVI before

cardioversion, as a more accurate measure of LA remodeling than LA diameter, is strongly and independently associated with higher risks of AF recurrence (2). Besides it was examined predictive value of the LAVI in the recurrence of AF after a successful ECV in patients with non-valvular AF. In that study the authors concluded that lower LAVI values before the ECV are strong and independent predictors of the success of the ECV and the maintenance of SR after a successful ECV (3).

P-wave dispersion (PWD) is an electrocardiographic measurement, which reflects a disparity in an atrial conduction. In a well-designed study, the authors aimed to analyze diagnostic accuracy of PWD in predicting recurrence of AF in patients with sinus rhythm restoration after external cardioversion. Patients with recurrent AF had significantly higher PWD than those who continued to have a sinus rhythm. This study suggests that PWD analysis after successful external cardioversion has diagnostic accuracy to predict the recurrence of AF (4).

Antiarrhythmic drugs used for SR maintenance after successful ECV in patients with chronic AF (1). The authors conducted a prospective study of the efficacy of sequential antiarrhythmic drug therapy in SR maintenance after a successful ECV in individuals with chronic AF. Sequential antiarrhythmic drug therapy improves arrhythmia prognosis in AF within a 12-month. Amiodarone seems to be the most effective antiarrhythmic drug also in patients who required second ECV proceeded by amiodarone treatment to restore SR (5). Some medications such as antihypertensive therapy and statin used (6) can also affect the incidence and shortens the duration of atrial fibrillation. In the previous large population-based study, greater levels of serum phosphorus and the related calcium-phosphorus product were also associated with a greater incidence of AF (7). Proteinuria were also apparently linked to the persistent form of AF (8).

A complete blood count is an practical laboratory test gives us information about the patient's formed blood contents; the red and white cells, the platelets, the count and dimensions of subgroups of cells, and parameters like the distribution weights. White blood cell count is one of the useful inflammatory biomarkers in clinical practice. Leukocyte subtype, and N/L ratio are also indicators of systemic inflammation. Although white blood cells are in normal range, subtypes of white blood cells may predict cardiovascular mortality. The N/L ratio is also an inflammatory marker of major adverse cardiac events (9). However, sometimes acute conditions like bacterial or viral infections, chronic inflammatory disease and drug treatments might affect neutrophil and lymphocyte counts and so the ratio of these parameters might be changed (10). Therefore, N/L ratio itself alone without other inflammatory markers may not give information to clinicians about the chronic endothelial inflammatory condition of the patient. So, we think that it should be evaluated together with other serum inflammatory markers.

In conclusion, we strongly believe that future large-scale prospective clinical studies are needed to clarify the essential pathophysiologic mechanisms in the recurrence of AF after ECV in patients with non valvular AF.

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## Author's Reply

Dear Editor,

We thank the authors for the interest and constructive comments on our article titled with "Can neutrophil/lymphocyte ratio(NLR) predict recurrence after electrical cardioversion in non-valvular atrial fibrillation (AF)" (1).

Atrial substrate determines the risk of recurrence on rhythm control. Importance of arterial remodeling and dilatation has been known for continuation and permanence of AF. A previous 3D-electrocardiography study shown that left atrial (LA) volume was more efficient than LA diameter and LA area for left atrial dilatation (2). Marchese et al. (3) showed that LA volume index (LAVI) was better predictor of AF recurrence compared to LA-diameter (AP-Lad). Therefore, combination of AP-Lad with LAVI may provide more reliable results. Although AP-Lad inaccurately represents true LA size, it was shown that AP-Lad can predict AF recurrence in various studies (4, 5). It was also found to be

relevant with AF recurrence in the present study. In addition, we aimed to predict AF recurrence using parameters that easily applied in daily clinical practice. We therefore preferred AP-Lad that is routinely used in daily electrocardiographic evaluations and more practical than LAVI.

Interatrial conduction delays have been implicated in initiating and maintaining AF (6). P-wave dispersion (PWD) shows the prolonged interatrial conduction and can be used to predict the recurrence of AF. We agree with the opinion that PWD can be used as a practical predictor of AF. It could be exciting and interesting study in which NLR and PWD are evaluated together and these parameters are compared.

We are in absolutely agreement with authors about the improving effects of antiarrhythmic drug therapy on prognosis in AF. Therefore, amiodarone was given to all patients before cardioversion (CV) and was continued for 1 month following CV in this study. Antihypertensive agents such as angiotensin converting enzyme inhibitors and angiotensin receptor blockers have antifibrillatory and antifibrotic actions via inhibition of angiotensin II. Also, statins have anti-inflammatory and antioxidant action. However, according to the ESC 2012 AF guideline, there is only little reason to consider the use of such therapy for the prevention of AF recurrence in patients with little or no underlying heart disease (7).

We agree with authors that bacterial or viral infections, chronic inflammatory disease and drug treatments might affect neutrophil and lymphocyte counts and so the ratio of these parameters might be changed. Therefore, we excluded the patients with chronic obstructive pulmonary disease, malignancy and acute infectious disease. It could be considered to evaluate together with other serum inflammatory markers. However, these inflammation markers are not used in daily practice and are only assayed with commercially available kits. Another limitation of commercial kits is those shelf lives are generally short after first use. However, our aim was to find a basic parameter analysis of which is quick, economical and labor free for predicting AF following electrical cardioversion (ECV). For this reason, other serum inflammatory markers were not evaluated.

Finally, we support the comments of authors that future large-scale prospective clinical studies are needed to clarify the essential pathophysiological mechanisms in the recurrence of AF after ECV in patients with non-valvular AF.

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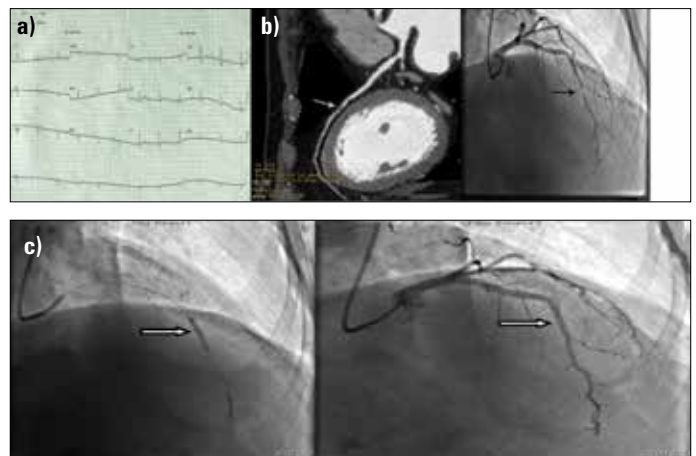
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## Importance of multislice computed tomography angiography for the diagnosis and evaluation of silent coronary ischemia and asymptomatic acute myocardial infarction: long-term follow-up of three cases

*Sessiz koroner iskemisinin ve semptomsuz akut miyokart enfarktüsünün tanısında ve değerlendirilmesinde çok kesitli bilgisayarlı koroner kalp tomografisinin önemi: Uzun dönem takip edilmiş üç olgu*

Multislice computed tomography angiography (MSCTA) is a very useful and an important tool for the noninvasive evaluation, intervention and cure of coronary arterial pathology (1-12). We present the assessment of three patients with coronary artery disease (a 88- year old man, 62- year old man and 66 year- old man, using a MSCTA coronary angiography (64-320 slice technology), that was firstly described by Leschka S (5).



**Figure 1.** This figure shows first patient's ECG (a), MSCTA (b), and angiography and stent implantation (c)

ECG - electrocardiogram, MSCTA - multislice computed tomography angiography