

Subclinical left ventricular systolic function in rheumatic mitral stenosis: What is the role for clinical practice?

To the Editor,

We have read the article by Gereade et al. (1) recently published in the *Anatolian Journal of Cardiology* 2016; 16: 772-7 entitled "Use of strain and strain rate echocardiographic imaging to predict the progression of mitral stenosis: a 5-year follow-up study" with a great interest. In this study, the authors evaluated the left ventricular global longitudinal strain (GLS) and strain rate (GLSR) in mitral valve stenosis (MS) and concluded that GLS and GLSR might be used as predictors of MS progression. There are some limitations of the present study. No detailed information was provided regarding the volume measurements of the cardiac chambers, presence of mitral regurgitation, assessment of the regional strain, and correlations of the deformation parameters with other comprehensive echocardiographic measures. There was no control group, which made it difficult to draw a conclusion. It would have been interesting to see the changes in the deformation measures over time if the investigators have measured GLS/GLSR at the end of the study.

Left ventricular dysfunction can be observed in MS (2, 3). Different mechanisms behind this association have been postulated. Increased pressure gradient and decreased blood flow between the left atrium and the left ventricle caused by mitral inflow obstruction are mechanisms that result in underfilled left ventricle. In rheumatic MS, there might also be a direct effect of the rheumatic fever causing chronic myocardial inflammation and extended involvement of the subvalvular apparatus leading to a subsequent scarring. Regional strain analysis has also confirmed this. Basal myocardium that is closer to valvular structures displays lower strain measurements, whereas the strain of the apical myocardium is more preserved (4). Left ventricular dyssynchrony is another contributing factor, likely due to involvement of the myocardium heterogeneously (2). Left ventricular dysfunction is reversible and tends to improve after balloon valvuloplasty as shown in previous studies (4, 5). However, even after the intervention, GLS was lower in the study group compared to controls, confirming the fact that there is still affected myocardium despite removing the obstruction, which suggests that both hemodynamic and myocardial factors contribute to the process (4).

The question is what would the clinical impact be if we use GLS/GLSR as predictors of MS progression? Would they be the indicators of early valvular intervention? Can we prevent myocardial damage if we start screening earlier and how often should we screen for myocardial dysfunction? Apparently, we need larger prospective studies to answer these questions.

Uyanga Batnyam, Esra Gücük İpek
University of Central Florida College of Medicine HCA GME
Consortium Internal Medicine Residency Program; Orlando-FL-USA

References

1. Gereade DM, Ongun A, Tulunay Kaya C, Acıbuca A, Özyüncü N, Erol Ç. Use of strain and strain rate echocardiographic imaging to predict the progression of mitral stenosis: a 5-year follow-up study the progression of mitral stenosis: a 5-year follow-up study. *Anatol J Cardiol* 2016; 16: 772-7.
2. Güven S, Şen T, Tüfekçioğlu O, Gücük E, Uygur B, Kahraman E. Evaluation of left ventricular systolic function with pulsed wave tissue Doppler in rheumatic mitral stenosis. *Cardiol J* 2014; 21: 33-8.
3. Özdemir AO, Kaya CT, Özcan OU, Özdöl C, Candemir B, Turhan S, et al. Prediction of subclinical left ventricular dysfunction with longitudinal two-dimensional strain and strain rate imaging in patients with mitral stenosis. *Int J Cardiovasc Imaging* 2010; 26: 397-404.
4. Roushdy AM, Raafat SS, Shams KA, El-Sayed MH. Immediate and short-term effect of balloon mitral valvuloplasty on global and regional biventricular function: a two-dimensional strain echocardiographic study. *Eur Heart J Cardiovasc Imaging* 2016; 17: 316-25.
5. Sengupta SP, Amaki M, Bansal M, Fulwani M, Washimkar S, Hofstra L, et al. Effects of percutaneous balloon mitral valvuloplasty on left ventricular deformation in patients with isolated severe mitral stenosis: a speckle-tracking strain echocardiographic study. *J Am Soc Echocardiogr* 2014; 27: 639-47. **Crossref**

Address for Correspondence: Dr. Esra Gücük İpek
 University of Central Florida College of Medicine HCA
 GME Consortium Internal Medicine
 Residency Program, Orlando-FL-US
 Phone: 001- 321-697-1730 E-mail: esragucuk@hotmail.com
 ©Copyright 2017 by Turkish Society of Cardiology - Available online
 at www.anatoljcardiol.com
 DOI:10.14744/AnatolJCardiol.2017.7635



Author's Reply

To the Editor,

We thank the authors et al. (1) for their important comments to our paper entitled "Use of strain and strain rate echocardiographic imaging to predict the progression of mitral stenosis: a 5-year follow-up study" published in the *Anatolian Journal of Cardiology* 2016; 16: 772-7.

As you mentioned, we have not provided some data in the text, for example the volume measurements. There is no data regarding the volume measurements in the text because we aimed to compare routine measurements taken in our laboratory. We routinely do not take volume measurements; therefore, we only provided information regarding the dimensions of the chambers. Similarly, we did not mention the degree of mitral regurgitation because we only included patients with isolated mitral stenosis. No patients with moderate or severe MR were included in our study; therefore, we did not mention this data in the text.

You have mentioned that there was no control group and GLS/GLSR was not measured at the end of the study. However, we have mentioned this as a study limitation. The use of GLS/GLSR as a predictor of MS progression can be helpful to decide the frequency of control visits and to plan optimal management of

the patient. Our study results are positive, but as you have mentioned, we need larger prospective studies for more clinical use.

Demet Menekşe Gerede
Department of Cardiology, Faculty of Medicine, Ankara University;
Ankara-Turkey

Reference

1. Gerede DM, Ongun A, Tulunay Kaya C, Acıbuca A, Özyüncü N, Erol Ç. Use of strain and strain rate echocardiographic imaging to predict the progression of mitral stenosis: a 5-year follow-up study the progression of mitral stenosis: a 5-year follow-up study. *Anatol J Cardiol* 2016; 16: 772-7.

Address for Correspondence: Dr. Demet Menekşe Gerede
Ankara Üniversitesi Tıp Fakültesi, Kardiyoloji Anabilim Dalı
Cebeci Kalp Merkezi, 06590, Cebeci, Ankara-Türkiye
Phone: +90 312 595 62 86 Fax: +90 312 636 22 89
E-mail: drmeneksegerede@yahoo.com

Prognostic value of high on-treatment platelet reactivity

To the Editor,

We have read the article by Tekkesin et al. (1) entitled "The first six-month clinical outcomes and risk factors associated with high on-treatment platelet reactivity of clopidogrel in patients undergoing coronary interventions" published in *Anatol J Cardiol* 2016; 16: 967-73 with great interest. A meta-analysis of 17 studies consisting of 20839 patients indicated that clopidogrel-treated patients with high on-treatment platelet reactivity (HTPR) had a 2.7-fold higher risk for stent thrombosis (ST) and a 1.5-fold higher risk for mortality following percutaneous coronary intervention (PCI) (2). Lack of association of ST and mortality with HTPR in the present study could be linked to the following reasons. Firstly, study population was heterogeneous in stent type and generation. Implantations of bare-metal stents (BMS) and drug-eluting stents (DES) were mentioned without further detail. However, even the second generation DES (everolimus and zotarolimus eluting stents) have lower ST rates than first generation DES (3). Sub-group analysis of HTPR and control groups were not depicted in the study. We think that it could affect the ST and mortality rates. Moreover, platelet function testing after PCI is also of importance in influencing formation of HTPR and control groups. Even though, light transmission aggregometry is historically gold standard, VerifyNow P2Y12 assay and Multiplate analyzer are generally used in studies on HTPR and ischemic events for their advantage of ease of performing. Determination of cut-off level is crucial for the study results. We think that cut-off level should be based on the expert position paper of European Society of Cardiology (4). Additionally, the study by Ko et al. (5) indicated that

HTPR measured by VerifyNow assay was able to discriminate patients who were at a higher risk for myocardial infarction and major adverse cardiac events after PCI better than Multiplate analyzer. This could be also a contributing factor for no differences observed in cardiovascular mortality and ST.

Ali Doğan, Serkan Kahraman¹, Emrah Özdemir, Nuri Kurtoğlu
Department of Cardiology, Faculty of Medicine, İstanbul Yeni Yüzyıl
University, Gaziosmanpaşa Hospital; İstanbul-Turkey
¹Department of Cardiology, Silivri State Hospital; İstanbul-Turkey

References

1. Tekkeşin Aİ, Kaya A, Çakıllı Y, Türkkan C, Hayıroğlu Mİ, Borklu EB, et al. The first six-month clinical outcomes and risk factors associated with high on-treatment platelet reactivity of clopidogrel in patients undergoing coronary interventions. *Anatol J Cardiol* 2016; 16: 967-73. [Crossref](#)
2. Aradi D, Kirtane A, Bonello L, Gurbel PA, Tantry US, Huber K, et al. Bleeding and stent thrombosis on P2Y12-inhibitors: collaborative analysis on the role of platelet reactivity for risk stratification after percutaneous coronary intervention. *Eur Heart J* 2015; 36: 1762-71.
3. Palmerini T, Biondi-Zoccai G, Della Riva D, Stettler C, Sangiorgi D, D'Ascenzo F, et al. Stent thrombosis with drug-eluting and bare-metal stents: evidence from a comprehensive network meta-analysis. *Lancet* 2012; 379: 1393-402. [Crossref](#)
4. Aradi D, Storey RF, Komócsi A, Trenk D, Gulba D, Kiss RG, et al. Expert position paper on the role of platelet function testing in patients undergoing percutaneous coronary intervention. *Eur Heart J* 2014; 35: 209-15. [Crossref](#)
5. Ko YG, Suh JW, Kim BH, Lee CJ, Kim JS, Choi D, et al. Comparison of 2 point-of-care platelet function tests, VerifyNow Assay and Multiple Electrode Platelet Aggregometry, for predicting early clinical outcomes in patients undergoing percutaneous coronary intervention. *Am Heart J* 2011; 161: 383-90. [Crossref](#)

Address for Correspondence: Dr. Ali Doğan
Gaziosmanpaşa Hastanesi, İstanbul Yeni Yüzyıl Üniversitesi
Tıp Fakültesi Kardiyoloji Bölümü
Gaziosmanpaşa, İstanbul-Türkiye
E-mail: drdali@hotmail.com

©Copyright 2017 by Turkish Society of Cardiology - Available online
at www.anatoljcardiol.com
DOI:10.14744/AnatolJCardiol.2017.7665



Author's Reply

To the Editor,

We would like to thank you for your comments on our article (1) entitled "The first six-month clinical outcomes and risk factors associated with high on-treatment platelet reactivity of clopidogrel in patients undergoing coronary interventions" published in *Anatol J Cardiol* 2016; 16: 967-73, about high on-treatment platelet reactivity of clopidogrel (HTPR), clinical outcomes, and associated risk factors and for the opportunity to discuss the clinical outcomes further.