

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.

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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