LETTER TO THE EDITOR

fQRS as a Noninvasive Marker for an Overgrowing Epidemy Affecting both Aortic Valve and Myocardium in the Era of Aging Population

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Dear Editor,

In the recent issue of your journal, we were grateful to read an interesting article by Açıköz et al.¹ demonstrating for the first time that fQRS is independently associated with higher peak systolic transaortic gradient in addition to manifest heart failure, systolic pulmonary artery pressure, and lower left ventricular ejection fraction in patients with moderate and severe aortic stenosis (AS).

AS as a most common form of the valvular heart diseases in the Western world has an impact on both aortic valve and left ventricular myocardium. At the beginning phase of the disease, left ventricular hypertrophy restores the wall stress to provide adequate cardiac performance.² However, ongoing process results in failure to compensate and end up with symptoms and heart failure which were histologically represented with progressive myocardial fibrosis instead of hypertrophy.³ Various noninvasive methods aimed to associate the severity and prognosis of AS with LV hypertrophy and fibrosis like in the study by Açıköz et al.^{1,4} Although the paper by Açıköz et al.¹ has promising results in regard to show close relationship between the severity of AS and fQRS, there are some methodological issues to be concerned in the study. It has been already known that symptomatology had a diagnostic and

prognostic value in patients with moderate and severe AS. In recent years, efforts aimed to stratify asymptomatic high risk patients who benefit from early intervention. So, the authors of this study should mention about the presence of symptoms or not. Also, as a degeneration in the aortic valve, mixed aortic valve disease including both stenosis and regurgitation can also be found concomitantly which has more pronounced LV remodeling and more severe hemodynamic consequences.⁵ In the study by Açıköz et al.,¹ the study exclusion criteria has no comment on the presence of aortic regurgitation simultaneously. Moreover, previous studies evidenced that increased body mass index and metabolic syndrome has been linked to pronounced LV hypertrophy independent from the severity of valvular stenosis in AS patients.^{6,7} As an inclusion of the patients with hypertension, diabetes, and hyperlipidemia, the study by Açıköz et al.¹ also consisted of patients with metabolic syndrome which should be considered during the analysis of the predictors of AS severity. The authors should also comment on the impact of LV diastolic dysfunction grade on the presence of fQRS. Also, lack of the biomarkers showing myocardial apoptosis in association with extensive LV hypertrophy and fibrosis like *high sensitive Troponin-I*⁸ and severity of LV diastolic dysfunction

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like *BNP*⁹ were also might be mentioned in the limitation section. Finally, besides the presence of *fQRS*, the number of leads with *fQRS* may also be presented as an indirect indicator of the myocardial fibrosis extent like other studies.^{10,11}

In conclusion, as a simple, easily available, and noninvasive marker of myocardial fibrosis with low cost, *fQRS* may serve as an indicator of myocardial fibrosis in patients with AS. This study was the first in the literature showing the association of the presence of *fQRS* with AS severity. However, the study should be interpreted with the limitations mentioned above and also prospective studies are needed to clarify the prognostic importance of *fQRS* in AS patients.

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