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Fragmented QRS Complex as an Emerging Risk Indicator in Severe Aortic Stenosis

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Dear Editor,

We read with interest the paper by Agac et al. [1] in which they reported for the first time that the frequency of fragmented QRS (fQRS) was higher in the severe aortic stenosis (AS) group compared to the control group and that the presence of the severity of AS was a strong predictor of fQRS.

Although mitral valve diseases are more prevalent in Turkey, there has been a significant increase in the number of patients with calcific AS due to an increased life span and an aging population in recent decades [2]. The pathophysiological aspects of the disease adversely affect the aortic valve and then the left ventricular myocardium due to increased work load. While initial compensatory mechanisms result in left ventricular hypertrophy [3], progress in the pathology results in decompensation, and patients present with symptoms such as angina, dyspnea and/or syncope and heart failure, as evidenced by histologically progressive myocardial fibrosis instead of hypertrophy [4]. Hence, fQRS plays a role as an indicator of myocardial fibrosis, which is consistent with the findings of cardiac magnetic resonance imaging and nuclear scintigraphy, particularly in patients with coronary artery disease [5]. In the study by Agac et al. [1], 46% of the patients with severe AS had fQRS complex and the severity of AS was significantly associated with the presence of fQRS. However, the study should be interpreted with some limitations. First, the study population should have been evaluated with the probability of symptomatology because clinical studies are aimed at stratifying high-risk asymptomatic patients with severe AS. Hence, if the patients in the study by Agac et al. [1] were asymptomatic, the presence of fQRS complex

may be a risk stratifier. Second, the frequency of hypertension and medication with angiotensin-converting enzyme inhibitor/angiotensin receptor blocker were more prevalent in the severe AS group compared to the control group. It has been known that the renin-angiotensin-aldosterone system has a central role in the myocardial fibrosis process. Therefore, these confounding factors may alter the exact frequency of fQRS in AS patients. Third, as an important risk factor for more pronounced left ventricular remodeling, the body mass index for both study groups in the study by Agac et al. [1] should have been emphasized. Finally, besides the presence of fQRS alone, 'the number of leads with fQRS' may also be seen as an indirect reflector of extensive myocardial fibrosis, as demonstrated in other studies [6].

In conclusion, as an easily available noninvasive indicator of myocardial fibrosis with low cost, fQRS may serve as a risk stratifier in patients with severe AS.

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Editor's Note: We asked the author M.T. Agac to respond to the letter but he declined.