LETTER TO THE EDITOR

To the Editor — Are we close to a major impact on prevention of sudden cardiac death among coronary artery disease patients?

We read with great interest the article from Hooks and colleagues[1] showing that ventricular tachycardia (VT) or ventricular fibrillation (VF) was the initial rhythm in ~50% of the in-hospital cardiac arrests among patients with heart failure and preserved ejection fraction—indeed, confirming that VT/VF is a significant mechanism of sudden cardiac death (SCD) leading to a major proportion of cardiac mortality in patients with heart failure and preserved ejection fraction.[2] In a recent autopsy study of 5869 SCD victims in the Fingesture registry in Finland,[3] the majority of patients had evidence of myocardial scaring on autopsy, although they had no known clinical history of coronary artery disease (CAD) prior to the cardiac arrest. It is remarkable that a significant proportion of them (42.5%) had autopsy evidence of a remote silent myocardial infarction (MI). It is presumed that the unrecognized presence of MI scarring predisposed these CAD patients to malignant ventricular arrhythmias probably related to the presence of triggering factors such as myocardial ischemia developing during physical exercise.[3] In this context we recently demonstrated that a definite high-risk post-MI group exists, even among those suffering from a limited MI without significant left ventricular systolic dysfunction and symptoms of heart failure.[4] Furthermore, after using a combined 2-step, multifactorial electrophysiology study–inclusive approach, incorporating noninvasive electrocardiographic factors leading to programmed ventricular stimulation, we were able to protect these high-risk post-MI individuals from major arrhythmic events with an implantable cardioverter-defibrillator.[5] The Finnish study further supports the concept that even an unrecognized, presumably limited myocardial scar may predispose a significant number of CAD patients to SCD.[3] It is quite interesting that a significant number of those unrecognized CAD patients had electrocardiographic evidence of abnormality, pointing to the presence of myocardial scarring.[6] Is it really time for the next step for a risk stratification approach beyond that based on left ventricular ejection fraction estimation, in order to achieve a truly significant impact on the epidemic of SCD?[7]

Ioannis Doundoulakis, MD, MSc (Res)*,
Petros Arsenos, PhD*, Dimitris Tsiachris, PhD†,
Athanasios Kordalis, PhD*,
Christos-Konstantinos Antoniou, PhD†,
Konstantinos Tsioufis, Prof*,
Konstantinos A. Gatzoulis, Prof* (kgatzoul@med.uoa.gr)

**First University Department of Cardiology, National and Kapodistrian University of Athens, Athens, Greece; †Athens Heart Center, Athens Medical Center, Athens, Greece*

References

1. Hooks M, Downey MC, Joppa S, et al. Arrhythmic causes of in-hospital cardiac arrest among patients with heart failure with preserved ejection fraction. Heart Rhythm O2 2021;2:665–667.
2. Adabag S, Langsetmo L. Sudden cardiac death risk prediction in heart failure with preserved ejection fraction. Heart Rhythm 2020;17:358–364.
3. Vähätalo JH, Huikuri HV, Holmström LTA, et al. Association of silent myocardial infarction and sudden cardiac death. JAMA Cardiol 2019;4:796–802.
4. Gatzoulis KA, Tsiachris D, Arsenos P, et al. Arrhythmic risk stratification in post-myocardial infarction patients with preserved ejection fraction: the PRESERVE EF study. Eur Heart J 2019;40:2940–2949.
5. Velasquez A, Goldberger JJ. Risk stratification for sudden cardiac death: show me the money. Eur Heart J 2019;40:2950–2952.
6. Mewton N, Strauss DG, Rizzi P, et al. Screening for cardiac magnetic resonance scar features by 12-Lead ECG, in patients with preserved ejection fraction. Ann Noninvasive Electrocardiol 2016;21:49–59.
7. Gatzoulis KA, Sideris A, Kanoupakis E, et al. Arrhythmic risk stratification in heart failure: time for the next step? Ann Noninvasive Electrocardiol Mar 2017; 22:e12430.

Disclosures: The authors have no conflicts to disclose.

https://doi.org/10.1016/j.hroo.2022.01.012