

Mechanical dispersion: are we one step closer to a more reliable risk prediction of sudden cardiac death

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KEYWORDS: mechanical dispersion, prognosis, strain echocardiography.

CITATION: *Cardiol Croat.* 2021;16(5-6):205. | <https://doi.org/10.15836/ccar2021.205>

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Cardiovascular diseases continue to be the leading cause of death in the world. A quarter of them occur by the mechanism of sudden cardiac death. Current criteria for identifying high-risk patients are unreliable and misclassify most at-risk patients as a low-risk group. Several studies in the last ten years confirmed the usefulness of mechanical dispersion in differentiating patients with high versus low risk for sudden cardiac death. Mechanical dispersion is a consequence of slow and inhomogeneous conduction of electrical impulse in the scar border zone, resulting in inhomogeneous myocardial activation and heterogeneity of myocardial contraction. This is why mechanical dispersion is in fact an expression of electrical dispersion, but unlike electrical dispersion it can be measured more easily and more reliably. It is obtained by speckle tracking echocardiography and is expressed as the standard deviation of all time intervals to the maximum myocardial shortening. Several studies have shown this method is significantly more reliable than the left ventricular ejection fraction and the left ventricular global longitudinal strain in differentiating high-risk from low-risk patients. Best results have been obtained in conditions characterized by fibrosis and/or scarring of the myocardium, such as in patients with myocardial infarction, hypertrophic, dilated and arrhythmogenic cardiomyopathy, some valvular heart diseases and heart failure. Mechanical dispersion could be useful as a risk stratification tool in identifying patients that can optimally benefit from the prophylactic treatment.¹⁻³ Although promising, for now this method is not listed in the current guidelines for the prevention of sudden cardiac death. It remains to be seen whether the new ones will bring changes in this field.

RECEIVED:
March 28, 2021

ACCEPTED:
April 2, 2021



LITERATURE

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