Apical transverse motion is associated with speckle-tracking radial dyssynchrony in patients with non-ischemic dilated cardiomyopathy

To the Editor,

We have read with great interest the article in press entitled "Apical transverse motion is associated with speckle-tracking radial dyssynchrony in patients with non-ischemic dilated cardiomyopathy" by Gürel et al. (1), published in the latest issue of Anatol J Cardiol. The study demonstrated that the patient's selection for cardiac resynchronization therapy and follow-up of echocardiographic parameters for those who received this therapy is a problem that concerns both echocardiographers and electrophysiologists.

The authors proposed an original comparison of two methods to assess the presence of ventricular dyssynchrony in patients with non-ischemic dilated cardiomyopathy. Mainly, the study population of patients with an ejection fraction below 40% and no evidence of ischemic disease was divided in two groups based on the presence or absence of radial dyssynchrony as assessed by speckle tracking. Speckle-tracking analysis, including global radial and circumferential strain and myocardial rotation, twist and torsion, apical transverse motion analysis, and noting the main direction and amplitude of the curves, were performed. At first glance, it may seem that the small number of patients (n=35) would make the analysis easy, but the authors had to assess a tremendous number of regional strain curves (n=1050). Statistical analysis revealed that even though the two groups were similar regarding clinical characteristics, three out of four parameters reflecting apical transverse motion (ATM loop, ATM4CV, and ATM3CV) were higher in patients with radial dyssynchrony, as well as end-systolic and end-diastolic diameters, while left ventricle torsion and twist were significantly lower for this group. This clearly showed a correlation of these parameters with radial dyssynchrony assessed by speckle-tracking. For distinguishing between patients with and without radial dyssynchrony, the authors found a cut-off value for ATM loop, with a high grade of sensitivity and specificity. It is our belief that such measurements would make the difference between the visual assessments of apical rocking, that is clearly subjective, and a method capable of a precise evaluation for radial dyssynchrony because it has been shown that apical motion is a surrogate parameter comprising information on both regional myocardial function and temporal inhomogeneities of myocardial contraction. In this perspective, a relation between ATM and the extent and location of myocardial scar tissue may be expected (2), making possible the evaluation of patients with ischemic dilated cardiomyopathy also. Although in the present study the follow-up of patients could not be performed, we think that along with other methods capable of detecting not only intraventricular dyssynchrony but also disturbed atrioventricular coupling and interactions between the right and left ventricle (3), assessing ATM may be a useful tool in selecting candidates for CRT as well as in device optimization using echocardiographic methods.

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References

1. Gürel E, Tigen K, Karaahmet T, Dündar C, Güler A, Başaran Y. Apical transverse motion is associated with speckle-tracking radial dyssynchrony in patients with non-ischemic dilated cardiomyopathy. Anatol J Cardiol 2014 June 23. Epub of print.
2. Voigt JU, Schneider TM, Korder S, Szulik M, Gürel E, Daniel WG, et al. Apical transverse motion as surrogate parameter to determine regional left ventricular function inhomogeneities: a new, integrative approach to left ventricular asynchrony assessment. Eur Heart J 2009; 30: 959-68. [CrossRef]
3. Parsai C, Bijnens B, Sutherland GR, Baltabaeva A, Claus P, Marciniak M, et al. Toward understanding response to cardiac resynchronization therapy: left ventricular dyssynchrony is only one of multiple mechanisms. Eur Heart J 2009; 30: 940-9. [CrossRef]

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