

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: <http://www.journals.elsevier.com/hellenic-journal-of-cardiology/>

EDITOR'S PAGE

New modalities assessing left and right ventricular function: How they apply to myocardial infarction



The combination of left ventricular function, especially left ventricle ejection fraction (LVEF), with clinical characteristics has been successfully used for an extended period to guide therapeutic decisions in patients with heart failure (HF) and myocardial infarction,¹ despite numerous approaches to identify better prognostic indices. In recent years, new echocardiographic modalities have been introduced that can identify and measure the motion, deformation and translation of the heart, as well as quantifying the functional properties of the myocardium. Speckle technology can precisely and independently use the angle of incidence to assess several parameters of myocardial function, including left ventricle mechanical dyssynchrony, left ventricle strain and left ventricle torsion.² With the use of these new echocardiographic modalities (twist, rotation and deformation images), Toumanidis et al. report, in this issue of HJC, that left ventricular pacing at the apex, outside the ischemic area, displays a better response.³ These findings may be explained by the observation that pacing from this site leads to a more physiological propagation of electrical conduction and warrants further research in specific clinical situations and in patients with advanced ischemic heart failure.

These new echocardiographic techniques can be used to assess the left ventricle and right ventricle function.⁴ On this specific topic, Maragiannis et al. summarize, in their review article, how these new imaging modalities can improve the assessment of the right ventricle and tricuspid valve function, especially for prosthetic tricuspid valves.⁵ Furthermore, they strongly recommend using a combined approach to functionally evaluate tricuspid prosthetic valves with both Doppler parameters, which have been traditionally used, and newer three-dimensional imaging modalities in a clinical meaningful algorithm because this approach may increase the accuracy and reproducibility of the results.

The preferred revascularization technique in the setting of acute coronary syndrome and use of primary percutaneous intervention as the gold standard method for revascularization in STEMI patients differ between countries and national health systems due to variance in the organization and policy of the national health systems. This issue of Hellenic Journal of Cardiology, PHAETHON study (An Epidemiological Cohort Study of Acute Coronary Syndromes in The Greek Population), which included 800 consecutive patients with ACS, showed that ACS management resembles that in other European countries; 44.5% of STEMI patients were treated with thrombolysis and 34.1% were treated with percutaneous coronary intervention. However, the time from symptom onset to first medical contact (168 min) was a little worse than that described in the Stent for Life study (140 min),⁶ demonstrating the need for better patient education and organization of prehospital services. These findings highlight several issues with the timely and proper management of ACS patients that public authorities must address to improve outcomes.⁷

Moreover, the timely management in cases of ACS is further highlighted because interventional skills and experience have been improved and primary percutaneous coronary interventions can be applied safely and cost effectively from the radial artery. This approach may shorten the in-hospital stay, as reported in this issue of Hellenic Journal of Cardiology.⁸

Multiple other interesting topics are also discussed in this issue of Hellenic Journal of Cardiology. Indeed Papanikolaou et al. emphasize the importance and excellent outcome of total arterial revascularization with the use of left and right internal mammary arteries in patients with multi-vessel coronary artery disease.⁹ The association between Prinzmetal angina and sudden cardiac death is also discussed in a case report highlighting the significant role of electrophysiology study in primary prevention settings.¹⁰ Moreover, Mermerelis et al. reported their findings

Peer review under responsibility of Hellenic Cardiological Society.

<http://dx.doi.org/10.1016/j.hjc.2016.07.001>

1109-9666/© 2016 Hellenic Cardiological Society. Publishing services by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

associating arterial stiffness with anxiety and depression in patients with resistant hypertension, supporting the hypothesis that psychological and neurological factors may precipitate hypertension.¹¹

Finally, the concept that different environmental pollutants can differentially affect cardiovascular risk is reported in this issue. The rationale of the "Corinthia study", a large-scale, epidemiological prospective study that aims to examine the impact of environmental pollution in indices of cardiovascular morbidity and mortality has been presented.¹² The "Corinthia study" began in October 2015 and aims to recruit 1500 individuals from different regions of Corinthia country with different environmental exposure to pollutants and different patterns of soil-ground and/or air pollution by December 2016. The follow-up is planned to extend prospectively up to 10 years, and when this study is finished, it is anticipated to provide valuable data on the distinct impact of soil and air pollution in early markers of atherosclerosis and cardiovascular disease and in the overall impact of environment pollution to cardiovascular morbidity and mortality.

In conclusion, new methods have been introduced to assess the left ventricle systolic performance better and evaluate the right ventricle function in patients with heart failure and post myocardial infarction. These methods can be used to improve patient care and achieve a better long-term prognosis.

References

1. Curtis JP, Sokol SI, Wang Y, et al. The association of left ventricular ejection fraction, mortality, and cause of death in stable outpatients with heart failure. *J Am Coll Cardiol*. 2003; 42:736–742.
2. Leitman M, Lysyansky P, Sidenko S, et al. Two-dimensional strain—a novel software for real-time quantitative echocardiographic assessment of myocardial function. *J Am Soc Echocardiogr*. 2004;17:1021–1029.
3. Toumanidis S, Kaladaridou A, Bramos D, et al. Effect of left ventricular pacing mode and site on hemodynamic, torsional and strain indices. *Hellenic J Cardiol*. 2016;57:169–177.
4. Ponikowski P, Voors AA, Anker SD, et al. 2016 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure: The Task Force for the diagnosis and treatment of acute and chronic heart failure of the European Society of Cardiology (ESC) Developed with the special contribution of the Heart Failure Association (HFA) of the ESC. *Eur Heart J*. 2016 Jul 14;37(27): 2129–2200. <http://dx.doi.org/10.1093/eurheartj/ehw128>.
5. Maragiannis D, Aggeli C, Nagueh SF. Echocardiographic Evaluation of Tricuspid Prosthetic Valves: An update. *Hellenic J Cardiol*. 2016;57:145–151.
6. Kanakakis J, Ntalianis A, Papaioannou G, Hourdaki S, Parharidis G. Stent for Life Initiative—the Greek experience. *EuroIntervention*. 2012;8(Suppl P):P116–P120.
7. Andrikopoulos G, Terentes-Printzios D, Tzeis S, et al. Epidemiological characteristics, management and early outcome of acute coronary syndromes in Greece: the PHAETHON study. *Hellenic J Cardiol*. 2016;57:157–166.
8. Kottowski L. Cost-effectiveness of radial vs. femoral approach in primary percutaneous coronary intervention in stemi – randomized, control trial. *Hellenic J Cardiol*. 2016;57:198–202.
9. Papakonstantinou AN, Baikoussis GN. Total arterial revascularization: a superior method of cardiac revascularization. *Hellenic J Cardiol*. 2016;57:152–156.
10. Polytarachou K, Vouliotis AI, Kappos K, Manolis AS. Primary prevention of sudden cardiac death in Prinzmetal angina: the role of electrophysiology study in risk stratification. *Hellenic J Cardiol*. 2016;57:205–209.
11. Mermerelis A, Kyvelou SM, Vellinga A, Papageorgiou N, Stefanadis C, Douzenis A. Association between anxiety and depression symptoms with resistant hypertension and central hemodynamics: A pilot study. *Hellenic J Cardiol*. 2016;57: 203–204.
12. Oikonomou E, Lazaros G, Georgiopoulos G, et al. Environment and cardiovascular disease: rationale of the Corinthia study. *Hellenic J Cardiol*. 2016;57:194–197.

Dimitris Tousoulis, MD, PhD *
1st Cardiology Department,
Athens University Medical School,
Hippokraton Hospital, Athens, Greece

*Prof. Dimitris Tousoulis, MD, PhD, FESC, FACC, Vasilissis Sofias 114, TK 115 28, Hippokraton Hospital, Athens, Greece. Tel.: +30 213 2088099; fax: +30 213 2088676. E-mail address: drtousoulis@hotmail.com

Available online 12 July 2016