



ORIGINAL RESEARCH

119 Echocardiographic Correlates of Acute Heart Failure, Cardiogenic Shock, and In-Hospital Mortality in Tako-Tsubo Cardiomyopathy

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Vini: Although tako-tsubo cardiomyopathy (TTC) is usually a reversible condition, adverse cardiovascular outcomes during the acute phase can be associated with significant morbidity and mortality. Predictors of such outcomes have not yet been established.

Vidi: The aim of this study was to determine clinical and echocardiographic correlates of major adverse events (composite of acute heart failure, cardiogenic shock, and in-hospital mortality). After multivariate analysis, left ventricular ejection fraction, E/e' ratio, reversible moderate to severe mitral regurgitation and age ≥ 75 years were independent correlates of major adverse events that occurred in 59 patients (25.9%).

Vici: This is a small study and additional external validation of these results is needed. However, one can envision the use of these clinical and echocardiographic correlates in the future to develop a risk prediction score to determine which patients with TTC require more aggressive management during the acute phase.

130 EDITORIAL COMMENT Role of Echocardiography in Tako-Tsubo Cardiomyopathy: Beyond Diagnosis?

John D. Horowitz, Thanh H. Nguyen

133 CMR-Based Differentiation of AL and ATTR Cardiac Amyloidosis

Jason N. Dungu, Oswaldo Valencia, Jennifer H. Pinney, Simon D. J. Gibbs, Dorota Rowczenio, Janet A. Gilbertson, Helen J. Lachmann, Ashutosh Wechalekar, Julian D. Gillmore, Carol J. Whelan, Philip N. Hawkins, Lisa J. Anderson

Vini: As cardiac magnetic resonance (CMR) techniques are continuing to improve, the noninvasive detection of cardiac amyloidosis has increased. In particular, little is known about transthyretin-related amyloidosis (ATTR), which does not have the typical subendocardial late gadolinium enhancement (LGE) that is seen in light chain amyloid (AL) amyloidosis.

Vidi: LGE was more extensive in ATTR compared to AL amyloidosis, with the majority of patients demonstrating transmural LGE and all patients having right ventricular LGE. Using these results, a LGE scoring system was derived to differentiate these 2 subtypes with 87% sensitivity and 96% specificity.

Vici: Precise diagnosis of cardiac amyloidosis is crucial given the role of chemotherapy in AL type and with novel therapies for ATTR type currently in development. This study offers a remarkably effective tool, which is likely to become a mainstay in clinical practice, for distinguishing these 2 subtypes of the disease.

CME

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143 CMR Imaging With Rapid Visual T1 Assessment Predicts Mortality in Patients Suspected of Cardiac Amyloidosis

James A. White, Han W. Kim, Dipan Shah, Nowell Fine, Ki-Young Kim, David C. Wendell, Wael Al-Jaroudi, Michele Parker, Manesh Patel, Femida Gwady-Sridhar, Robert M. Judd, Raymond J. Kim

Vini: There are echocardiographic findings that may suggest cardiac amyloidosis (CA). However, endomyocardial biopsy is usually needed to definitely make the diagnosis. Delayed enhancement cardiac magnetic resonance (DE-CMR) is still evolving as a tool for the noninvasive diagnosis of CA.

Vidi: Here, the diagnostic and prognostic characteristics of DE-CMR with a rapid, visual T1-assessment method for identification of cardiac amyloidosis is reported. Multivariable analysis showed diffuse global hyperenhancement (HE) to be the strongest predictor of death with the accuracy of diffuse HE for the diagnosis of CA to be 84%. Therefore, visual T1-assessment accurately identifies patients with CA and those at risk of death.

Vici: This work offers a practical visual approach to interpreting DE-CMR that provides independent diagnostic and prognostic information that can be easily adopted when considering the diagnosis of CA. Additional correlation with other clinical and imaging correlates still needs further study.

157 Native T1 Mapping in Transthyretin Amyloidosis

Marianna Fontana, Sanjay M. Banypersad, Thomas A. Treibel, Viviana Maestrini, Daniel M. Sado, Steven K. White, Silvia Pica, Silvia Castelletti, Stefan K. Piechnik, Matthew D. Robson, Janet A. Gilbertson, Dorota Rowczenio, David F. Hutt, Helen J. Lachmann, Ashutosh D. Wechalekar, Carol J. Whelan, Julian D. Gillmore, Philip N. Hawkins, James C. Moon

Vini: Cardiac transthyretin-related amyloidosis (ATTR) amyloidosis is an under-diagnosed cause of heart failure and no truly quantitative test exists to diagnose it. Recently, native myocardial T1 mapping has been shown in cardiac light chain amyloid (AL) to track the disease.

Vidi: The diagnostic role of native T1 mapping in ATTR amyloidosis was assessed compared with ATTR mutation carriers, AL patients, healthy volunteers, and hypertrophic cardiomyopathy patients. T1 was elevated in ATTR patients compared to HCM and normal subjects but the elevation was lower than in AL patients. T1 tracked cardiac amyloid burden and was an early disease marker.

Vici: Although this study lacks histological validation, it suggests that septal T1 mapping can be used to distinguish different phenotypes of amyloidosis. The implications for this are tremendous. Once T1 has been standardized across manufacturers, this technology can be utilized, perhaps even with whole-heart T1 mapping, to diagnose and track disease progression in response to treatment.

166 EDITORIAL COMMENT CMR and Amyloid Cardiomyopathy: Are We Getting Closer to the Biology?

Raymond Y. Kwong, Michael Jerosch-Herold

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