Mechanical Abnormalities Detected With Conventional Echocardiography Are Associated With Response and Midterm Survival in CRT

Adelina Doltra, Bart Bijnens, José M. Tolosana, Roger Borràs, Malek Khatib, Diego Penela, Teresa María De Caralt, María Ángeles Castel, Antonio Berruezo, Josep Brugada, Lluís Mont, Marta Sitges

VINI: The significant rate of nonresponders to cardiac resynchronization therapy (CRT) prompts the need for better noninvasive prediction tools for identifying those who may benefit from CRT.

VIDI: This retrospective observational, monocentric study of 200 CRT patients demonstrated that correctable mechanical abnormalities on echocardiography (septal flash, abnormal ventricular filling, or exaggerated interventricular dependence) were independently predictive of rate and extent of CRT response and increased survival. Clinical characteristics (creatinine level, left ventricular end-systolic diameter, and New York Heart Association functional class IV) and myocardial viability also have an influence.

VICI: With the incorporation of electrocardiographic, mechanical and clinical features, prediction tools to identify responders to CRT continue to become more sophisticated. The derivation or validation of a risk prediction score is likely to be an important next step in choosing appropriate candidates for this intervention, as is confirmation in a multicenter trial.

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EDITORIAL COMMENT Selection for Cardiac Resynchronization Therapy: All in a Flash?

Thomas H. Marwick

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Handheld Ultrasound Versus Physical Examination in Patients Referred for Transthoracic Echocardiography for a Suspected Cardiac Condition

Manish Mehta, Timothy Jacobson, Dawn Peters, Elizabeth Le, Scott Chadderdon, Allison J. Allen, Aaron B. Caughey, Sanjiv Kaul

VINI: The bedside cardiac physical examination provides important preliminary data, which determines whether additional testing is required for most patients presenting to the cardiology clinic or in the hospital. However, improvements in portable imaging technology now provide a readily accessible alternative to the physical exam that may be more standardized and less susceptible to error.

VIDI: In this observational study of 250 patients, handheld ultrasound provided a more accurate diagnosis than physical examination for the majority of common cardiovascular abnormalities and led to a projected cost savings of about $63.00 per patient.

VICI: With less emphasis being placed on the cardiac physical examination and the advent of newer technologies, such as the handheld ultrasound, the physical examination is quickly becoming a dying art. Additional studies are needed to determine whether the use of such portable imaging modalities, which may be able to detect disease more effectively than the physical exam, improve long-term survival and prove to be cost-effective in the long-term.

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CMR-Verified Diffuse Myocardial Fibrosis Is Associated With Diastolic Dysfunction in HfPEF


VINI: The evolution of cardiac magnetic resonance protocols has allowed for an improved ability to better characterize differences in diastolic function. Such subtle differences can be especially important in disease states such as systolic heart failure (SHF) and heart failure patients with preserved ejection fraction (HfPEF), where pathophysiologic differences can influence prognosis and management.

VIDI: Using cardiac magnetic resonance T1 mapping technique to quantify diffuse myocardial fibrosis in 40 patients with SHF, 62 patients with HfPEF, and 22 patients without heart failure, the authors report that diffuse myocardial fibrosis was significantly associated with diastolic function in HfPEF but not in SHF.

VICI: The ability to provide detailed in vivo tissue characterization using extracellular volume fraction quantification provides an important tool for determining preclinical diastolic dysfunction in heart failure. Future studies will, without a doubt, assess the additional prognostic information added by this information and whether therapies aimed at reverse remodeling, such as angiotensin-converting enzyme inhibitors, can be begun even earlier based on cardiac magnetic resonance abnormalities.

EDITORIAL COMMENT Seeing the Unseen Fibrosis in Heart Failure With Preserved Ejection Fraction

Michael Salerno

Progression to Overt or Silent CAD in Asymptomatic Patients With Diabetes Mellitus at High Coronary Risk: Main Findings of the Prospective Multicenter BARDOT Trial With a Pilot Randomized Treatment Substudy


VINI: Screening asymptomatic diabetics remains controversial and this data further adds to the existing data supporting effective screening with myocardial perfusion single-photon emission computed tomography (MPS).

VIDI: In this prospective multicenter outcome registry, 400 asymptomatic diabetic patients underwent MPS at baseline, revealing that 22% had abnormal MPS findings with a cardiac event rate and were more likely to have additional abnormalities on a repeat MPS scan. By comparison, patients with normal MPS findings had a low rate of cardiac events. The treatment sub-study suggests that a combined invasive-medical strategy for patients with abnormal MPS may reduce MPS abnormalities in those proceeding to an invasive strategy (p < 0.001).

VICI: This outcomes study supports the effectiveness of MPS to serve as a screening tool for asymptomatic diabetics. Additional research is warranted to examine if an MPS-guided strategy can improve outcomes in asymptomatic diabetics.

EDITORIAL COMMENT Screening, Diagnosis, and Management of CAD in Asymptomatic Diabetic Patients

Peter A. McCullough, Poorya Fazel, James W. Choi
Sex-Related Differences of Coronary Atherosclerosis Regression Following Maximally Intensive Statin Therapy: Insights From SATURN


VINI: Although statins are now the cornerstone of our current antiatherosclerotic armamentarium, conflicting data about their efficacy in women due to under-representation has resulted in clinical equipoise.

VIDI: This analysis of 765 men and 274 women reports the novel finding of sex-related differences of serial coronary atheroma responses following 2 years of maximally intensive statin therapy in SATURN (Study of Coronary Atheroma by Intravascular Ultrasound: Effect of Rosuvastatin Versus Atorvastatin). Female sex independently associated with coronary atheroma regression. There was a significant interaction between sex and treatment specification, with rosuvastatin-treated women demonstrating the greatest degree of plaque regression. For on-treatment low-density lipoprotein-cholesterol levels below 70 mg/dl, women demonstrated greater coronary atheroma regression than their male counterparts.

VICI: Although the overall parent study was negative with respect to differences in clinical outcomes, this substudy of SATURN adds further evidence to the growing body of literature that there may be sex-specific differences in response to statin therapy. It raises the question of whether additional prospective statin trials, powered for outcomes, are needed in women.

EDITORIAL COMMENT

Women Are From SATURN and Men Are From an ASTEROID: Deciphering the REVERSAL of Coronary Atheroma

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STATE-OF-THE-ART PAPERS

Carotid Intima-Media Thickness and Plaque in Cardiovascular Risk Assessment

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Brain Imaging Changes Associated With Risk Factors for Cardiovascular and Cerebrovascular Disease in Asymptomatic Patients


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