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Inside This Issue

(continued on page A-32)

CLINICAL RESEARCH

INTERVENTIONAL CARDIOLOGY

This study investigates the safety and feasibility of transradial catheterization across the whole spectrum of Allen's test (AT) results. A total of 203 patients were recruited, of whom 83, 60, and 60 presented a normal, intermediate, and abnormal AT results, respectively. Lactate did not differ among the 3 study groups after the procedure and there were no hand ischemic complications. Plethysmography readings and ulnar frame count suggested enhanced ulnar flow in abnormal AT patients after transradial access (TRA). These results suggest the safety and feasibility of TRA across the whole spectrum of AT results.

INTERVENTIONAL CARDIOLOGY

The investigators sought to determine the impact of coronary calcification on outcomes after percutaneous coronary intervention (PCI) for patients presenting with non–ST-segment elevation and ST-segment elevation acute coronary syndrome (ACS). Data from 6,855 patients from 2 large randomized trials was pooled. The presence of moderate/severe target lesion calcification was an independent predictor of 1-year definite stent thrombosis (hazard ratio [HR]: 1.62) and ischemic target lesion revascularization (HR: 1.44). The authors conclude that moderate/severe lesion calcification is relatively frequent in patients with non–ST-segment elevation ACS syndromes and ST-segment elevation myocardial infarction, and is strongly predictive of stent thrombosis and ischemic target lesion revascularization at 1 year.

(continued on page A-34)

ACUTE CORONARY SYNDROMES

Hypothermia for STEMI **1857**

David Erlinge, Matthias Götberg, Irene Lang, Michael Holzer, Marko Noc, Peter Clemmensen, Ulf Jensen, Bernhard Metzler, Stefan James, Hans Erik Bötker, Elmir Omerovic, Henrik Engblom, Marcus Carlsson, Håkan Arheden, Ollie Östlund, Lars Wallentin, Jan Harnek, Göran K. Olivecrona

In this investigation, the authors attempted to confirm the cardioprotective effects of hypothermia using a combination of cold saline and endovascular cooling in patients with ST-segment elevation myocardial infarction (STEMI). A total of 120 patients with STEMI (<6 h) were randomized, and the primary endpoint was infarct size as a percent of myocardium at risk (IS/MaR). IS/MaR was not significantly reduced by hypothermia, but the incidence of heart failure was lower. Analysis of early anterior infarction (0 to 4 h) found a reduction in IS/MaR of 33%. The authors conclude that hypothermia did not lower the primary endpoint of IS/MaR; however, the lower incidence of heart failure and a possible effect among early anterior STEMI need confirmation.

ACUTE CORONARY SYNDROMES

Prognostic Value of BARC Bleeding in STEMI **1866**

Wouter J. Kikkert, Nan van Geloven, Mariet H. van der Laan, Marije M. Vis, Jan Baan, Jr, Karel T. Koch, Ron J. Peters, Robbert J. de Winter, Jan J. Piek, Jan G. P. Tijssen, José P. S. Henriques

The aim of this analysis was to compare 1-year mortality predictions of Bleeding Academic Research Consortium (BARC)–defined bleeding complications with existing bleeding definitions in patients with ST-segment elevation myocardial infarction (STEMI) and to investigate the prognostic value of individual data elements of the bleeding classifications. GUSTO (Global Utilization of Streptokinase and Tissue plasminogen Activator for Occluded Arteries) and International Society of Thrombosis and Haemostasis–defined bleeding were not associated with 1-year mortality, whereas TIMI (Thrombolysis In Myocardial Infarction) major and BARC type 3b or 3c bleeding conferred a 2-fold higher risk of 1-year mortality. The data elements most strongly associated with mortality were a hemoglobin drop ≥5 g/dl, the use of vasoactive agent for bleeding, cardiac tamponade, and intracranial hemorrhage. Both the BARC and TIMI bleeding classifications identify STEMI patients at risk of 1-year mortality.

Editorial Comment: Harold L. Dauerman, p. 1876

(continued on page A-35)

HEART RHYTHM DISORDERS

SCD Risk Stratification in NIDCM **1879**

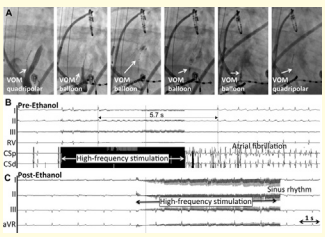
Jeffrey J. Goldberger, Haris Subačius, Taral Patel, Ryan Cunnane, Alan H. Kadish

In this study, the authors evaluated the performance of 12 commonly reported risk stratification tests as predictors of arrhythmic events in patients with nonischemic dilated cardiomyopathy (NIDCM). A meta-analysis of 45 studies (n = 6,088) evaluating the association between arrhythmic events and predictive tests (baroreflex sensitivity, heart rate turbulence, heart rate variability, left ventricular end-diastolic dimension, left ventricular ejection fraction, electrophysiology study, nonsustained ventricular tachycardia, left bundle branch block, signal-averaged electrocardiogram, fragmented QRS, QRS-T angle, and T-wave alternans [TWA]) was conducted. The odds ratio (OR) was highest for fragmented QRS and TWA (OR: 6.73 and 4.66, respectively) and lowest for QRS duration (OR: 1.51). No autonomic test was a significant predictor of arrhythmic outcomes. The study concludes that the parameters studied provided only modest risk stratification for sudden cardiac death in patients with NIDCM.

Editorial Comment: James P. Daubert, Robert K. Lewis, p. 1890

HEART RHYTHM DISORDERS

Ethanol-Induced Regional Left Atrial Denervation **1892**



José L. Báez-Escudero, Takehiko Keida, Amish S. Dave, Kaoru Okishige, Miguel Valderrábano

The objective of this study was to determine whether ethanol infusion in the vein of Marshall (VOM) can ablate intrinsic cardiac nerves (ICN). Patients undergoing catheter atrial fibrillation (AF) ablation additionally underwent high-frequency stimulation (HFS) using a multipolar catheter introduced in the VOM. Parasympathetic activity and AF inducibility was assessed before and after VOM ethanol infusion. Using burst HFS, parasympathetic activity was found in all patients undergoing de novo AF ablation and 75% of patients undergoing repeat ablation. After VOM ethanol infusion, the parasympathetic response was abolished in all patients. The results reveal that the VOM contains ICN that connect with the atrioventricular node and can trigger AF. Retrograde ethanol infusion in the VOM reliably eliminates local ICN responses.

Editorial Comment: Pradeep S. Rajendran, Eric Buch, Kalyanam Shivkumar, p. 1902

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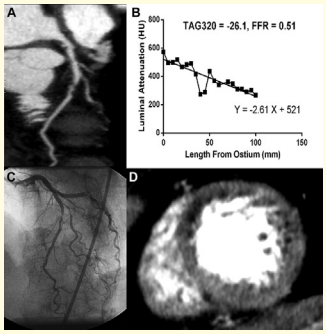
CARDIAC IMAGING

Combined CT Techniques to Assess Invasive FFR 1904



Dennis T. L. Wong, Brian S. Ko, James D. Cameron, Darryl P. Leong, Michael C. H. Leung, Yuvaraj Malaiapan, Nitesh Nerlekar, Marcus Crossett, John Troupis, Ian T. Meredith, Sujith K. Seneviratne

This study compares the diagnostic accuracy of combined adenosine stress computed tomography myocardial perfusion (CTP) + computed tomography coronary angiography (CTA), transluminal attenuation gradient (TAG320) + CTA, and CTP + TAG320 + CTA (multidetector computed tomography integrated protocol [MDCT-IP]) assessment in predicting significant fractional flow reserve (FFR) vessels in patients undergoing coronary angiograms. In 167 vessels, CTA predicted FFR-significant stenosis with 89% sensitivity and 65% specificity, and MDCT-IP showed 88% sensitivity and 83% specificity. TAG 320 + CTA and CTP + CTA provided comparable per-vessel diagnostic accuracy, and MDCT-IP was superior to both. The authors conclude that MDCT-IP may provide the best diagnostic accuracy for functional assessment of coronary artery stenosis.

Editorial Comment: Daniel S. Berman, Richard A. Stoebner, Damini Dey, p. 1913

HYPERTENSION

Remodeling After Renal Denervation Independent of HR and BP 1916

Stephan H. Schirmer, Marwa M. Y. A. Sayed, Jan-Christian Reil, Christian Ukena, Dominik Linz, Michael Kindermann, Ulrich Laufs, Felix Mahfoud, Michael Böhm

This study investigates the interaction between blood pressure (BP) and heart rate (HR) reduction and changes in left ventricular (LV) structure and function following renal sympathetic denervation (RDN). LV size, mass, and diastolic function were evaluated in 66 patients before and 6 months after RDN. There was a decrease in systolic/diastolic BP (172.9 ± 3.0 mm Hg/92.5 ± 2.3 mm Hg to 151.3 ± 3.2 mm Hg/85.5 ± 1.6 mm Hg) and reduction in LV mass index (61.5 ± 2.0 g/m$^{2.7}$ to 53.4 ± 1.5 g/m$^{2.7}$). There was also an improvement of diastolic function as well as an increase in vascular compliance. Structural and cardiac changes were not exclusively related to BP or HR changes, suggesting a direct role of the sympathetic nervous system activity on cardiac morphology and function.

Editorial Comment: George Bakris, Sandeep Nathan, p. 1924