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Inside This Issue of JACC

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Clinical Trials

Percutaneous Left Atrial Appendage Closure for Stroke Prevention

The left atrial appendage (LAA) is the originating site for up to 90% of the strokes related to atrial fibrillation. This study tested the feasibility of percutaneously occluding the ostium of the LAA with a transeptally delivered self-expanding nitinol cage (PLAATO device). The device was successfully implanted in 108 of 113 procedures with 9 significant adverse events. The subjects were followed for an average of 10 months with a 1-year stroke incidence of 2.2%, which is 67% lower than predicted based on the subjects' high risk for stroke. [See page 9.](#)

Acute Ischemia or Infarction

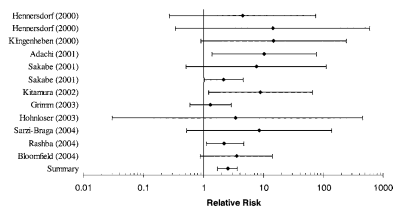
Survivors of Cardiac Arrest Develop Systemic Inflammation and Coagulation Abnormalities

Patients who are successfully resuscitated from cardiac arrest often develop a systemic inflammatory response and diffuse activation of coagulation pathways which likely contributes to multiple organ failure. Adrie and colleagues measured the levels of several proteins involved in inflammation and coagulation in 67 subjects admitted to the hospital after an out-of-hospital cardiac arrest. They found high levels of interleukin-6, increased thrombin-antithrombin complex, and reduced levels of anti-coagulation proteins such as proteins C and S. The abnormalities were more severe in subjects who died and correlated with early refractory shock. [See page 21.](#)

Heart Failure

Comparison of Intravenous Vasoactive Treatments for Decompensated Heart Failure

Acutely decompensated heart failure accounts for significant morbidity and mortality, yet the optimal treatment strategy remains ill-defined. The sickest patients are often treated with either a vasodilator (nitroglycerin or nesiritide) or an inotrope (dobutamine or milrinone); the choice appears to be guided more by anecdotal experience than rigorous study. Using a large registry of inpatient treatments and outcomes for heart failure subjects, Abraham and colleagues compared mortality rates with these medications in a retrospective, non-randomized study. The adjusted mortality rates were higher with dobutamine and milrinone, and similar between nitroglycerin and nesiritide. [See page 57.](#)



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Heart Rhythm Disorders

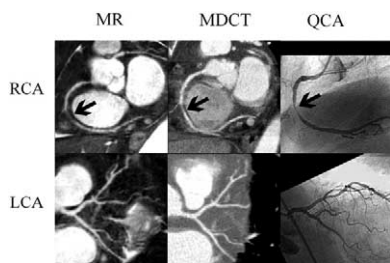
Meta-Analysis of Risk Stratification With T-Wave Alternans

With increasing heart rates, some patients will have subtle beat-to-beat variations in the amplitude of the T-wave. Some studies have suggested that these alternations herald an increased risk for sudden cardiac death. This meta-analysis combined 19 previous small studies to increase the statistical power. Overall, subjects with a positive microvolt T-wave alternans test were nearly four times as likely to suffer an arrhythmic event as subjects with a negative test, although this relative risk varies significantly with the population studied. **See page 75. See figure.**

Comparison of Cardiac Imaging

Direct Comparison of MR and CT Scanning for Coronary Angiography

Both magnetic resonance imaging (MRI) and computed tomography (CT) scanning have been proposed as alternatives for non-invasive coronary angiography but this is the first study to compare them head to head with quantitative coronary angiography (QCA) as a gold standard. Kefer and colleagues report on 52 patients who underwent all three modalities: QCA, 16-slice multi-detector row computed tomography scan (MDCT), and three-dimensional navigator gated magnetic resonance (MR) with a 1.5-T machine. Both MDCT and MR have similar sensitivities, specificities, and diagnostic accuracy for lesions >50%. The MDCT performed poorly with calcified lesions, but the higher spatial resolution allowed a better quantitative assessment of the severity of the stenosis. **See page 92. See figure.**



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Clinical Insights From Cardiac Imaging

Non-Compaction Common, Readily Detectable by MRI

Compaction refers to the intrauterine process whereby the muscle fibers of the left ventricle become more tightly organized with less intervening space. Non-compaction (NC) can result in significant morbidity and mortality, but asymptomatic cases are also common. Petersen and colleagues compared cardiac magnetic resonance images from seven cases of confirmed NC and from subjects with left ventricular hypertrophy. Areas of NC were defined as those segments where there was a distinct two-layered appearance of trabeculated and compacted myocardium. They report that areas of NC are common in the apical and lateral walls and a high ratio of non-compacted to compacted thickness can distinguish pathological NC from normal hypertrophy. **See page 101.**

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