



# JACC

## Cardiovascular Interventions

DECEMBER 26, 2016  
VOLUME 9  
NUMBER 24

*A Journal of the American  
College of Cardiology*

### INSIDE THIS ISSUE

#### STATE-OF-THE-ART REVIEW

##### Transseptal Techniques for Emerging Structural Heart Interventions

2465

Mohamad Alkhouli, Charanjit S. Rihal, David R. Holmes, Jr.

The development of new transseptal transcatheter interventions for patients with structural heart disease is fueling increasing interest in transseptal puncture techniques. The authors review contemporary transseptal puncture indications and techniques and provide a step-by-step approach to challenging transseptal access and procedural complications.



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#### CORONARY

##### Coronary Artery Bypass Surgery Versus Drug-Eluting Stent Implantation for Left Main or Multivessel Coronary Artery Disease: A Meta-Analysis of Individual Patient Data

2481

Cheol Whan Lee, Jung-Min Ahn, Rafael Cavalcante, Yohei Sotomi, Yoshinobu Onuma, Pannipa Suwannasom, Erhan Tenekecioglu, Sung-Cheol Yun, Duk-Woo Park, Soo-Jin Kang, Seung-Wan Lee, Young-Hak Kim, Seong-Wook Park, Patrick W. Serruys, Seung-Jung Park

The authors compared long-term outcomes after coronary artery bypass grafting (CABG) versus percutaneous coronary intervention (PCI) with drug-eluting stents (DES) in 3,280 patients with left main or multivessel coronary artery disease (CAD) using pooled data from the BEST (Randomized Comparison of Coronary Artery Bypass Surgery and Everolimus Eluting Stent Implantation in the Treatment of Patients With Multivessel Coronary Artery Disease), PRECOMBAT (Premier of Randomized Comparison of Bypass Surgery vs. Angioplasty Using Sirolimus-Eluting Stent in Patients With Left Main Coronary Artery Disease), and SYNTAX (Synergy Between PCI With Taxus and Cardiac Surgery) trials. CABG, as compared with PCI with DES, reduced long-term rates of the composite of all-cause death, myocardial infarction, or stroke in patients with left main or multivessel CAD.



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#### EDITORIAL COMMENT

##### Coronary Bypass Surgery Versus Percutaneous Coronary Intervention in Left Main and Multivessel Disease: Incremental Data—How Do We Apply It?

2490

John W. Hirshfeld, Jr., Paul N. Fiorilli



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**Incidence, Characteristics, Predictors, and Outcomes of Repeat Revascularization After Percutaneous Coronary Intervention and Coronary Artery Bypass Grafting: The SYNTAX Trial at 5 Years** **2493**

Catalina A. Parasca, Stuart J. Head, Milan Milojevic, Michael J. Mack, Patrick W. Serruys, Marie-Claude Morice, Friedrich W. Mohr, Ted E. Feldman, Antonio Colombo, Keith D. Dawkins, David R. Holmes, Jr., Pieter A. Kappetein, for the SYNTAX Investigators

The present study aims to determine the incidence, characteristics, predictors, and outcomes of repeat revascularization during 5-year follow-up of the SYNTAX (Synergy Between Percutaneous Coronary Intervention With TAXUS and Cardiac Surgery) trial, revealing that repeat revascularization is not a risk-free event. Repeat revascularization rates are significantly higher after initial percutaneous coronary intervention (PCI) than after initial coronary artery bypass grafting (CABG) for complex coronary disease. Patients requiring repeat revascularization are at increased risk of periprocedural and long-term events. Predictors of patients at risk for repeat revascularization highlight the need for adequate medical treatment as secondary prevention, careful patient selection, and improvements in both PCI and CABG technologies and techniques to improve the long-term results.



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■ **EDITORIAL COMMENT**

**CABG Beats Vintage PCI: Does Contemporary PCI Stand a Chance to EXCEL?** **2508**

Roxana Mehran, Michela Faggioni

**Histopathological Differential Diagnosis of Optical Coherence Tomographic Image Interpretation After Stenting** **2511**

Christoph Lutter, Hiroyoshi Mori, Kazuyuki Yahagi, Elena Ladich, Michael Joner, Robert Kutys, David Fowler, Maria Romero, Jagat Narula, Renu Virmani, Alope V. Finn

Optical coherence tomographic (OCT) imaging is used to evaluate vascular responses after stenting. Different descriptive terms have been used to describe neointimal characteristics. The authors conducted a histopathological validation study using stented human coronary arteries to identify histological features that correlate with common OCT and optical frequency-domain imaging (OFDI) terms. Nineteen cases were identified (implantation duration >30 days) in which OCT imaging or OFDI and histological findings were available. Coregistration of OCT or OFDI frames and histopathological sections was performed in 111 frames. The distribution OCT or OFDI changes consisted of 7 distinct patterns. Apart from the honeycomb pattern, all descriptive OCT or OFDI terms showed at least 2 histopathological differential diagnoses. Diagnostic accuracy was greater in restenotic specimens. This study suggests poor correlation between OCT imaging and a distinctive histological tissue characteristic. Caution is advised when interpreting OCT imaging patterns after coronary stent placement.

■ **EDITORIAL COMMENT**

**How Accurate Is Optical Coherence Tomography?** **2524**

Jonathan M. Tobis, Bao G. Tran, Islam Abudayyeh

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