

EDITOR'S PAGE



The Top Papers of 2017

Editor's Pick

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As mentioned in my last Editor's Page, there are several different ways to select the top papers when reflecting on the past year's manuscripts. For that page, I selected the several *JACC: Cardiovascular Interventions* papers that already had been cited 10 or more times by a subsequent paper or downloaded/viewed online more than 1,000 times in 2017. Since then, I have paid attention to what some other journals have done summarizing top papers. I was surprised to see one journal cited literally hundreds of "hot" papers in the field for an annual review. To me that plethora list is not helpful to readers, but with the overwhelming majority of the "hot" papers actually being self-citations for that journal family, I think I see the motive. I am glad Dr. Fuster has avoided this perilous path for *JACC* and its sister journals (1).

As I flipped through the published issues from my first 6 months at the helm, I was challenged to select just a few papers (because there are so many great papers), but I held true to the mission and picked 5. As before, I only selected from the new research papers. And in seeing which papers I selected, you will get a sense for papers I personally give high regard. Similar to many other readers, I favor papers that reflect the best science, are novel, and have the potential to influence care to our patients and the field.

Neointimal Modification With Scoring Balloon and Efficacy of Drug Coated Balloon Therapy in Patients With Restenosis in Drug-Eluting Coronary Stents: A Randomized Controlled Trial, by Kufner et al.

As the title states, this is a randomized clinical trial, and while it is small (N = 252), the study was conducted in the usual high-quality manner we know

and expect from the ISAR (Intracoronary Stenting and Antithrombotic Results) group. Kufner et al. (2) enrolled patients with restenosis within a drug-eluting stent and randomized them to a scoring balloon or standard therapy before being treated with a drug-coated balloon. The primary endpoint of in-segment percentage of diameter stenosis at 6 to 8-month angiographic follow-up (completed in 81%) was lower in the scoring balloon group (35% vs. 40%) as was binary restenosis (19% vs. 32%). As expected, there was no difference in harder clinical endpoints at 1 year. Interestingly, there was also no difference in target lesion revascularization during this interval (16% vs. 22%, respectively).

Stenting or Surgery for De Novo Common Femoral Artery Stenosis, by Gouëffic et al.

The French TECCO (Traitement des Lésions Athéromateuses de l'Artère Fémorale Commune par Technique Endovasculaire Versus Chirurgie Ouverte [Endovascular Versus Open Repair of the Common Femoral Artery]) trial is also small but a randomized assessment of the safety and effectiveness of stenting versus open surgery for de novo atherosclerotic lesions of the common femoral artery (3). A total of 117 symptomatic patients underwent percutaneous or surgical revascularization with endpoints being periprocedural morbidity and mortality as well as late patency. At 30 days, a higher frequency of morbidity occurred in the surgical group, largely due to delayed wound healing, and length of hospital stay was twice as long in the surgical group (6.3 days vs. 3.2 days). At 2-year follow-up, the primary patency rate and the occurrence of repeat revascularization was similar between the 2 revascularization strategies.

Death and Dialysis After Transcatheter Aortic Valve Replacement: An Analysis of the STS/ACC TVT Registry, by Hansen et al.

Among the challenges or limitations with new techniques, devices, or interventional strategies is that they appropriately involve a more selected patient population in their early experience and reports. So although there has been a large amount of information amassed over the past several years regarding transcatheter aortic valve replacement (TAVR) outcomes, there are some areas of relative data lag, one of which regards patients with new, severe renal dysfunction. Hansen et al. (4) turned to the STS/ACC TVT (Society of Thoracic Surgeons/American College of Cardiology Transcatheter Valve Therapy) registry and the Center for Medicaid and Medicare Services to assess the incidence (1-year occurrence of new cases) of renal replacement therapy (i.e., dialysis) among patients undergoing TAVR. They categorized patients as chronic kidney disease stages 1 to 5 according to their calculated pre-procedure glomerular filtration rate and separately assessed glomerular filtration rate as a continuous variable. Considering nearly 45,000 patients, they found the need for new renal replacement therapy at 30 days was <1% for chronic kidney disease stages 1 and 2, but that the need rose sharply in frequency for stages 3, 4, and 5 (2.2%, 8.9%, and 35.3%, for each stage respectively). The frequencies increased 1.5-fold at 1 year with an incidence of (1.2%, 3.5%, 14.6%, and 60.1%, respectively). Mortality followed a similar pattern at 30 days and 1 year.

In-Hospital Outcomes of Percutaneous Coronary Intervention in America's Safety Net: Insights From the NCDR Cath-PCI Registry, by Acharya et al.

Similar to the Hansen et al. (4) paper, this one does not come from a randomized prospective clinical trial but rather from a very large, prospective registry, and in this case, it is the dataset needed to address the question. Analyzing roughly 3.8 million patients who underwent percutaneous coronary intervention (PCI) between 2009 to 2015 at 282 safety-net hospitals and 1,134 non-safety-net hospitals, Acharya et al. (5) found substantial differences between the PCI populations at these 2 categories of hospitals and some differences between the facilities. The safety-net hospitals were smaller and more often in a rural setting, while their PCI patients were younger and more often nonwhite, smokers, admitted through the emergency department, and presenting with an ST-segment elevation myocardial infarction. The risk-adjusted in-hospital

mortality for PCI patients was higher (odds ratio: 1.23) at safety-net hospitals, though the absolute difference was 0.4%. This difference was lessened at higher volume centers.

Comparison of Stenting Versus Bypass Surgery According to the Completeness of Revascularization in Severe Coronary Artery Disease: Patient-Level Pooled Analysis of the SYNTAX, PRECOMBAT, and BEST Trials, by Ahn et al.

The completeness of coronary revascularization has been an important topic in interventional cardiology for many years. So, too, among the leading reasons patients are referred for surgical rather than percutaneous revascularization has to do with the greater ability to provide complete revascularization in some cases, particularly for patients with complex chronic total occlusions. While pooling data from separate studies or performing meta-analysis do not excite me, such data compilations can be helpful and valuable if the question being addressed is particularly challenging to answer given the small size of subjects in individual studies. Where pooling is best accomplished is when the data are from randomized trials that have similar designs, patient-level data are combined, and blinded endpoint adjudication occurs. That was the case when Ahn et al. (6) pooled patient data from SYNTAX (Synergy Between PCI With Taxus and Cardiac Surgery), PRECOMBAT (Premier of Randomized Comparison of Bypass Surgery Versus Angioplasty Using Sirolimus-Eluting Stent in Patients with Left Main Coronary Artery Disease), and the BEST (Randomized Comparison of Coronary Artery Bypass Surgery and Everolimus-Eluting Stent Implantation in the Treatment of Patients With Multivessel Coronary Artery Disease) trials, which enrolled patients with multivessel coronary artery disease who were randomized to surgical or percutaneous revascularization. These studies included patients from Europe, the United States, and Asia. Although operators self-defined whether or not they were able to achieve complete revascularization at the end of each case, it is impressive that complete revascularization reportedly occurred in 67% with surgery and in 57% with PCI. Considering the 4 groups—surgery with or without complete revascularization and PCI with or without complete revascularization—at 5-year follow-up, mortality was frankly higher for PCI patients without complete revascularization than in the other 3 groups. Importantly, PCI patients with complete revascularization had a similar rate of death or the composite of death, myocardial infarction, or stroke

as compared with patients who had complete revascularization with surgery.

So these are my top several picks from 2017. I did not provide many details in interpreting the studies as I believe their messages are pretty clear, and each has an attractive editorial to put the information into perspective. There were many other top-notch papers covering areas such as the exciting early experience with percutaneous mitral valve replacements, cerebral embolic protection during TAVR, in-depth explorations to understand what

went wrong with bioresorbable vascular scaffolds, and the list goes on. I am already filled with anticipation for what will be the best papers for 2018. Be sure to send us yours!

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REFERENCES

1. Fuster V. Impact factor: a curious and capricious metric. *J Am Coll Cardiol* 2017;70:1530-1.
2. Kufner S, Joner M, Schneider S, et al., for the ISAR-DESIRE 4 Investigators. Neointimal modification with scoring balloon and efficacy of drug-coated balloon therapy in patients with restenosis in drug-eluting coronary stents: a randomized controlled trial. *J Am Coll Cardiol Intv* 2017;10:1332-40.
3. Gouëffic Y, Schiava ND, Thaveau F, et al. Stenting or surgery for de novo common femoral artery stenosis. *J Am Coll Cardiol Intv* 2017;10:1344-54.
4. Hansen JW, Foy A, Yadav P, et al. Death and dialysis after transcatheter aortic valve replacement: an analysis of the STS/ACC TVT Registry. *J Am Coll Cardiol Intv* 2017;10:2064-75.
5. Acharya T, Salisbury AC, Spertus JA, et al. In-hospital outcomes of percutaneous coronary intervention in America's safety net: insights from the NCDR Cath-PCI Registry. *J Am Coll Cardiol Intv* 2017;10:1475-85.
6. Ahn JM, Park DW, Lee CW, et al. Comparison of stenting versus bypass surgery according to the completeness of revascularization in severe coronary artery disease: patient-level pooled analysis of the SYNTAX, PRECOMBAT, and BEST trials. *J Am Coll Cardiol Intv* 2017;10:1415-24.