

EDITOR'S PAGE



The Top Papers of 2017

By Subsequent Citations and Online Views and Downloads

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It seems many journals and media-related websites produce an annual “top 10” or similar list toward the end of each year. The task would seem rather straight forward, but I am learning in my first round as editor that it depends on who is picking the list of “tops,” how the decisions are made, and over what period “the best of” is being considered. Even though you may be reading this page in February or later, I am writing it on New Year’s Eve—the last day to get in on the “top 10 list of 2017” . . . or is it? I thought about the pros and cons on how to select the best papers and considered objectivity, timeliness, and number of assessments. If I am personally picking the top papers published in *JACC: Cardiovascular Interventions*, I should be objective and timely, though with an opinion of one—me alone. If we use the grades (A to F) for priority that the peer reviewers assign to manuscripts, we maintain objectivity and timeliness, but only increase the number of assessments by 2 or 3.

Perhaps the highest recognition of a paper’s merit would be whether it is cited by future research papers or influences clinical practice or guidelines. Citations in subsequent papers can be easily tracked, but this accumulation of “votes” takes many months to occur, and clearly papers published early in the year have a time advantage to those published near the end of the calendar. For example, papers published in the December 26 issue, which is out the week I am writing, have had but days to be read in print, let alone be cited. To attenuate the time factor to some degree and to get a large volume of votes, the journal can track the number of online views a paper gets or the number of times it is downloaded in the first several weeks or months after publication, and this helps because most papers are published online in advance of print.

With only a few hours left before the ball drops tonight, I decided for this Editor’s Page I would provide you a very brief synopsis of the 5 papers that were most cited (10 or more times) by a subsequent paper or had more than 1,000 online views or downloads in their early months (covering November 2016 to November 2017). To be fair, I excluded any guidelines, consensus documents, meta-analyses, or review articles. Considering only original research papers, this method of assessment (citations and views/downloads) is reasonably objective but clearly biases toward papers published in the beginning of 2017. As a follow-up then, I thought for a future Editor’s Page, I would look through papers published during the latter half of 2017, covering my inaugural months as editor, and select my personal top 5.

Early Clinical Outcomes After Transcatheter Aortic Valve Replacement Using a Novel Self-Expanding Bioprosthesis in Patients With Severe Aortic Stenosis Who Are Suboptimal for Surgery: Results of the Evolut R U.S. Study, by Popma et al.

In this report, Popma et al. (1) presented among the very first experiences with Medtronic’s Evolut R transcatheter heart valve (Medtronic, Minneapolis, Minnesota) for patients deemed at least high risk for aortic valve surgery. Whereas the study included a limited number (N = 241) of patients, it was particularly noteworthy that the study was performed only among U.S. sites in an arena where devices often come to U.S. centers behind availability in many other countries. As compared with prior transcatheter heart valve in this lineage, the 30-day outcomes were impressive with relatively low rates for mortality (2.5%), disabling stroke (3.3%), major vascular complications (7.5%), and new permanent pacemakers (16.4%) given the high acuity of the patients treated.

Next in this line of supra-annular, self-expanding, repositionable transcatheter heart valves is the Evolut PRO with a sealing skirt covering the first 2 inflow cells to reduce perivalvular leak.

Endovascular Therapy Versus Bypass Surgery as First-Line Treatment Strategies for Critical Limb Ischemia: Results of the Interim Analysis of the CRITISCH Registry, by Bisdas et al.

Prospective large-scale studies in critical limb ischemia are few, so this paper, even though observational, is important. Bisdas et al. (2) enrolled 1,200 patients from 27 vascular centers in 2013 and 2014 and compared those who underwent endovascular treatment (n = 642) versus bypass surgery (n = 284) as a first-line revascularization strategy for critical limb ischemia. The primary composite outcome of amputation-free survival was assessed at a median follow-up of 12 months and found to be similar between the 2 revascularization strategies (75% and 72%, respectively). No difference in individual endpoints (all-cause mortality, repeat revascularization, or amputation) was observed. Even though this is an interim report from the CRITISCH (Registry of First-Line Treatments in Patients with Critical Limb Ischemia) the results are encouraging.

Culprit Vessel Versus Multivessel Versus In-Hospital Staged Intervention for Patients With ST-Segment Elevation Myocardial Infarction and Multivessel Disease: Stratified Analyses in High-Risk Patient Groups and Anatomic Subsets of Nonculprit Disease, by Iqbal et al.

Another area with limited or conflicting results and of ongoing interest is the question of culprit-only versus complete myocardial revascularization in the setting of ST-segment elevation myocardial infarction. Iqbal et al. (3) turned to the British Columbia Cardiac Registry (2008 to 2014) and assessed outcome among 6,503 ST-segment elevation myocardial infarction patients. The cohort was divided into those who had: 1) culprit-only revascularization versus; 2) complete revascularization in 1 setting; or 3) complete revascularization with staged procedures. Compared with multivessel revascularization in 1 setting, those with culprit-only or staged interventions had significantly lower 2-year mortality rates with hazard ratios of 0.78 and 0.55, respectively. The occurrence of repeat revascularization was higher in the culprit-only group as compared with either of the complete revascularization groups.

Incidence, Predictors, and Outcomes of Permanent Pacemaker Implantation Following Transcatheter Aortic Valve Replacement Analysis From the U.S. Society of Thoracic Surgeons/American College of Cardiology TVT Registry, by Fadahunsi et al.

This paper had the longest interval for being cited as it was technically published at the end of 2016, yet given the huge importance of the topic was already referenced in 12 subsequent papers. Fadahunsi et al. (4), using some early informative data from the STS/ACC TVT (Society of Thoracic Surgeons/American College of Cardiology Transcatheter Valve Therapy) registry and the Centers for Medicare and Medicaid Services database, assessed nearly 10,000 patients enrolled at 229 sites. The investigators reported the need for new permanent pacemaker implantation in 6.7% of patients undergoing transcatheter aortic valve replacement. The rate of new permanent pacemaker varied from 25% with early-generation self-expanding valves to <5% with balloon-expandable valves. Not surprisingly, predictors of need for pacemaker included advanced age, valve type, and prior heart conduction defect. Importantly, the need for pacemaker implantation was associated with a higher rate of 1-year mortality. This paper helped fuel the ongoing successful research into device and technique changes to lower the rate of needed new permanent pacemaker implantations.

Randomized Multicenter Trial Investigating Angiographic Outcomes of Hybrid Sirolimus-Eluting Stents With Biodegradable Polymer Compared With Everolimus-Eluting Stents With Durable Polymer in Chronic Total Occlusions: The PRISON IV Trial, by Teeuwen et al.

Trials considering biodegradable-polymer sirolimus-eluting stents have been encouraging, and it made sense to test them in the arguably toughest restenosis environment—true chronic total occlusions—and against the arguably strongest competitor, the thin-strut, durable-polymer everolimus-eluting stents. Teeuwen et al. (5) performed a noninferiority head-to-head comparison of these 2 stents among 330 successful chronic total occlusion patients though the primary endpoint of comparable in-segment late lumen loss was not met. The binary restenosis rate was also higher in the sirolimus-eluting stent group (8.0% vs. 2.1%; p = 0.028). The rates of reocclusion and stent thrombosis were low and similar between the stent types. It would have been helpful to have intracoronary

imaging to help understand the slight differences in in-segment late lumen loss and whether the ultrathin struts of the biodegradable-polymer sirolimus-eluting stents held radial strength as presumed in the several, larger favorable studies with this stent.

Each of these papers is terrific, as are many others published over the last year. I hope you had a chance to read them and to have also taken a look at the nice

editorial that accompanied each. Stay tuned for “The Top Papers of 2017—Editor’s Picks.”

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