

Cardiology News / Recent Literature Review / First Quarter 2017

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Rhythmios 2017;12(2):33-37.*

HRS Scientific sessions: Chicago, 10-13/5/2017

EHRA Europace-Cardiostim: Vienna, 18-21/6/2017

ESC Congress: Barcelona, 26-30/8/2017

TCT Congress: Denver, Colorado, 29/10-2/11/2017

AHA Meeting: Anaheim, Ca, 11-15/11/2017

Anterior T-Wave Inversion (ATWI), Present in 2.3% of Young Whites, More Common in Women and in Athletes, 77% Confined to Leads V₁ - V₂, Could be a Normal Variant in Asymptomatic Individuals Without a Family History of Cardiomyopathy or Premature SCD / In Contrast, ATWI Extending Beyond V₂, Present in only 1% of Females and 0.2% in Men, May Justify Further Evaluation, Particularly when Preceded by J-Point or ST-Segment Depression

Among 14,646 individuals 16 to 35 years of age, including 4,720 females (32%) and 2,958 athletes (20%), ATWI was detected in 338 individuals (2.3%) and was more common in women than in men (4.3% vs. 1.4%, respectively; $p < 0.0001$) and more common among athletes than in nonathletes (3.5% vs 2%, respectively; $p < 0.0001$). T-wave inversion was predominantly confined to leads V₁ to V₂ (77%). Only 1.2% of women and 0.2% of men exhibited ATWI beyond V₂. No one with ATWI fulfilled diagnostic criteria for ARVC after further evaluation. Over 23.1±12.2 months none of the individuals with ATWI experienced an adverse event (Malhotra A et al, *J Am Coll Cardiol* 2017;69:1-9).

Alcohol Abuse Increases the Risk of AF, MI, and Heart Failure to an Extent Similar to that of Other Strong Risk Factors, and Affects Healthier Individuals Disproportionately / Protective Effects of Alcohol Against MI are Outweighed at Heavy Levels of Consumption by its Adverse Effects

Among 14,727,591 patients, 268,084 (1.8%) had alcohol abuse, which was associated with an increased risk of incident atrial fibrillation (AF) (hazard ratio -HR: 2.14; $p < 0.0001$), myocardial infarction (MI) (HR: 1.45; $p < 0.0001$), and heart failure (HF) (HR: 2.34; $p < 0.0001$). Individuals without conventional risk factors for cardiovascular disease exhibited a disproportionately enhanced risk of each outcome. The population-

attributable risk of alcohol abuse on each outcome was of similar magnitude to other well-recognized modifiable risk factors (Whitman IR et al, *J Am Coll Cardiol* 2017;69:13-24).

LEADERS FREE Trial: in Patients at High Risk of Bleeding Undergoing PCI Followed by 1 Month of Dual Antiplatelet Therapy (DAPT), Polymer-Free Drug-Coated Stents (DCS) are both Safer and More Effective Than Bare Metal Stents (BMS) at 2 Years

Among 2,466 high bleeding risk patients randomized to a drug-coated stent (DCS) or a BMS followed by 1-month DAPT, at 2 years, the primary safety endpoint (cardiac death, MI, or stent thrombosis) had occurred in 147 DCS (12.6%) and 180 BMS patients (15.3%) (hazard ratio-HR: 0.80; $p = 0.039$). Clinically driven target lesion revascularization occurred in 77 DCS (6.8%) and 136 BMS patients (12%) (HR: 0.54; $p < 0.0001$). Major bleeding occurred in 8.9% of DCS and 9.2% of BMS patients ($p = 0.95$), and a coronary thrombotic event (MI and/or stent thrombosis) occurred in 8.2% of DCS and 10.6% of BMS patients ($p = 0.045$). One-year mortality was 27.1% for a major bleed and 26.3% for a thrombotic event. At 2 years, multivariate correlates of major bleeding were age >75 years, anemia, increased creatinine, and long-term anticoagulation. Correlates of the primary safety endpoint were age, anemia, heart failure, multivessel disease, number of stents, and use of a BMS (Garot P et al, *J Am Coll Cardiol* 2017;69:162-171).

CHAMPION Trials: Cangrelor's Reduction in Periprocedural Ischemic Complications Compared With Clopidogrel was Maintained Irrespective of GPI Use / GPI Use was Associated With Higher Bleeding Rates, Regardless of Randomization to Cangrelor or Clopidogrel

Pooled analysis of the 3 CHAMPION (PCI/PLATFORM/ PHOENIX) trials comprising 24,902 patients, indicated that among 3,173 patients (12.7%) who received a glycoprotein IIb/IIIa inhibitor (GPI), most commonly eptifibatid (69.4%), rates of the primary composite endpoint (mortality, MI, ischemia-driven revascularization, or stent thrombosis at 48 h) were lower with cangrelor compared with clopidogrel in patients who did (4.9% vs 6.5%; odds ratio - OR: 0.74) or did not receive a GPI (3.6% vs 4.4%; OR: 0.82; $P_{int} = 0.55$). Cangrelor did not increase the primary safety endpoint, severe/life-threatening bleeding, in patients who did (0.4% vs. 0.5%; OR: 0.71) or did not receive GPIs (0.2% vs. 0.1%; OR: 1.56; $P_{int} = 0.21$). GPI use was associated with increased risk of bleeding in both treatment arms (Vaduganathan M, et al, *J Am Coll Cardiol* 2017;69:176-185).

Left Atrial Appendage Closure (LAAC): Reported Rate of Procedure-Related Complications has been Low (Tamponade ~1% & Mortality <0.1%) After FDA Approval of the LAAC Device, Despite that ~70% of the Implanters Were Previously Inexperienced With the Procedure

After FDA approval (March 2015) of the left atrial appendage closure (LAAC) (Watchman) device, among 3,822 consecutive AF cases, implantation was successful in 3,653 (95.6%), with a median procedure time of 50 min (10 - 210 min). Implanting physicians (n= 382) included 71% new, nonclinical trial implanters, who performed 50% of the procedures. Procedural complication rates comprised 39 pericardial tamponades (1.02%) (24 treated percutaneously, 12 surgically, and 3 fatal); 3 procedure-related strokes (0.078%); 9 device embolizations (0.24%) (6 requiring surgical removal); and 3 procedure-related deaths (0.078%) (Reddy VY et al, *J Am Coll Cardiol* 2017;69:253-261.).

Ablating Areas with Spatiotemporal Dispersion of Multipolar Electrograms, Presumed Identifiers of Electrical Drivers, May Eliminate AF

In 105 AF patients, AF was mapped in both atria with a 20-pole PentaRay catheter and regions displaying electrogram dispersion during AF were identified and ablated. Ablation at dispersion areas (presumed to be at the vicinity of a driver), without PVI, terminated AF in 95% of patients (to SR in 15% or atrial tachycardia-AT in 80%). Subsequent mapping and ablation of ~1.9 ATs per patient resulted in an overall ablation to SR in 77% vs ~20% for the validation set. Over 18 months, arrhythmia recurrence rate was 15% after 1.4±0.5 procedures per patient vs 41% in the validation set after 1.5±0.5 procedures per patient (arrhythmia free-survival: 85% vs 59%; log-rank p< 0.001). Compared with the validation set, radiofrequency times (49±21 min vs 85±34.5 min; p=0.001) and procedure times (168±42 min vs 230±67 min; p<0.0001) were shorter (Seitz J et al, *J Am Coll Cardiol* 2017;69:303-321).

In Older Hypertensive Patients, Intensive BP Control (<140 mmHg) Reduces MACE, Cardiac Mortality, and HF, But May Increase Risk of Renal Failure

Meta-analysis of 4 trials involving 10,857 older hypertensive patients with a mean follow-up of 3.1 years, indicated that intensive BP lowering was associated with a 29% reduction in MACE (RR: 0.71), 33% in cardiovascular mortality (RR: 0.67), and 37% in heart failure (RR: 0.63) compared with standard BP lowering. Rates of MI and stroke did not differ between the 2 groups. There was no significant difference in the incidence of serious

adverse events (RR: 1.02) or renal failure (RR: 1.81). The fixed effects model yielded largely similar results, except for an increase in the risk of renal failure (RR: 2.03) with intensive BP-lowering therapy (Bavishi C et al, *J Am Coll Cardiol* 2017;69:486-493).

Exercise-Induced Arrhythmogenic Remodeling (EIAR) vs Arrhythmogenic Right Ventricular Cardiomyopathy (ARVC): Isolated Subepicardial RVOT Scar as a VT Substrate in Endurance Athletes that can be Treated by Ablation

In 57 patients (mean age 48 ± 16 years; 83% male) undergoing catheter ablation for scar-related right ventricular VT, 2 distinct scar distributions were identified: scars involving the subtricuspid right ventricle in 46 patients (group A); and scars restricted to the anterior subepicardial RVOT in 11 patients (group B, all high-level endurance athletes). ARVC or post-inflammatory cardiomyopathy was diagnosed in 40 (87%) of 46 group A patients but none in group B. Scar-related VTs were significantly faster in group B patients (257 ± 34 ms vs 328 ± 72 ms in group A; p=0.003). Catheter ablation resulted in complete procedural success in 10 (91%) of 11 group B patients vs 26 (57%) of 46 group A patients (p= 0.034). During a median of 27 months, 50% of group A patients but none of the group B patients had a VT recurrence (Venlet J et al, *J Am Coll Cardiol* 2017;69:497-507).

High-dose NOACs Provide Overall Efficacy and Safety Similar in AF Patients with or without Valvular Heart Disease (VHD) (other than Moderate/Severe Mitral Stenosis or Mechanical Heart Valves)

According to a meta-analysis of the 4 phase III AF trials of NOACs vs warfarin in patients with coexisting VHD, compared with warfarin, the rate of thromboembolism in patients treated with higher-dose NOACs was lower and consistent among 13,585 patients with (RR:0.70) or 58,098 without VHD (RR: 0.84; p = 0.13). Major bleeding in patients on higher-dose NOACs vs warfarin was similar and consistent among patients with (RR: 0.93) or without VHD (RR: 0.85). Intracranial hemorrhage was lower with higher-dose NOACs than with warfarin irrespective of VHD (RR: 0.47, & 0.49, respectively; p=0.91). No protective effect of higher-dose NOACs in preventing all-cause death was present in patients with VHD vs without VHD (Renda G et al, *J Am Coll Cardiol* 2017;69:1363-1371).

Catheter-Based Radiofrequency Renal Denervation (RDN) in Sheep with Hypertensive Chronic Kidney Disease (CKD) Compromised the Compensatory Hemodynamic Response to Hemorrhage

RDN in sheep caused a complete reversal of hypertension and improved renal function in CKD-RDN (n=7) sheep (p< 0.0001 for 2 and 5 months vs pre-RDN).

In response to hemorrhage, mean arterial pressure fell in all groups, with greater fall in the RDN (n=15) than the intact (n=13) group ($p<0.001$). Hemorrhage increased heart rate and plasma renin activity in intact sheep, but these responses were significantly attenuated in control-RDN (n=8) and CKD-RDN (n=7) animals. Responses to hemorrhage were remarkably similar at 2 and 5 months post-RDN, which suggests that nerve function had not returned within this time frame (Singh RR et al, *J Am Coll Cardiol* 2017;69:951-964).

PEITHO Trial: Systemic Thrombolysis for Pulmonary Embolism (PE) in Normotensive Patients With RV Dysfunction (Intermediate-Risk PE) did not Confer a Benefit / Thus, a Strategy of Anticoagulation, Early Monitoring, and Rescue Reperfusion in Cases of Hemodynamic Decompensation is Preferable

In the PEITHO trial, long-term (median 37.8 months) survival was assessed in 353 of 359 (98.3%) patients in the thrombolysis arm and in 343 of 350 (98.0%) in the placebo arm. Overall mortality rates were 20.3% and 18%, respectively ($p=NS$). Between day 30 and long-term follow-up, 65 deaths occurred in the thrombolysis arm and 53 occurred in the placebo arm. At follow-up examination of survivors, persistent dyspnea or functional limitation was reported by 36% vs 30.1% of the patients ($p = NS$). Echocardiography (performed in 144 and 146 patients, respectively) did not reveal significant differences in residual pulmonary hypertension or RV dysfunction. Chronic thromboembolic pulmonary hypertension was confirmed in 4 (2.1%) vs 6 (3.2%) cases ($p= NS$) (Konstantinides SV et al, *J Am Coll Cardiol* 2017;69: 1536-1544).

Meta-Analysis of TAPAS, TASTE & TOTAL: Routine Thrombus Aspiration During PCI for STEMI did not Improve Clinical Outcomes / In the High Thrombus Burden Group, there were Trends Toward Reduced Cardiovascular Death and Increased Stroke or TIA

Meta-analysis of 3 randomized thromboaspiration trials (TAPAS, TASTE, TOTAL) comprising 19 047 patients, of whom 18 306 underwent PCI indicated that cardiovascular death at 30 days occurred in 221 of 9155 patients (2.4%) randomized to thrombus aspiration and 262 of 9151 (2.9%) randomized to PCI alone (hazard ratio - HR, 0.84; $P=0.06$). Stroke or TIA occurred in 66 (0.8%) randomized to thrombus aspiration and 46 (0.5%) randomized to PCI alone (odds ratio-OR, 1.43; $P=0.06$). There were no significant differences in recurrent MI, stent thrombosis, heart failure, or target vessel revascularization. In the subgroup with high thrombus burden, thrombus aspiration was associated with fewer cardiovascular deaths (170 [2.5%] vs 205 [3.1%]; hazard ratio, 0.80; $P=0.03$) and with more strokes or TIAs (55 [0.9%] vs 34 [0.5%]; OR, 1.56, $P=0.04$) (Jolly SS et al, *Circulation* 2017;135:143-152).

Meta-Analysis of All the Published Randomized Controlled Trials (RCTs) To Date Demonstrates Significant Clinical Benefit on All-Cause Mortality in Favor of ICD Use for Primary Prevention in Patients With Non-Ischemic Cardiomyopathy (NICM)

Updated meta-analysis of 6 RCTs enrolling 2970 patients with NICM studying the efficacy of ICDs for primary prevention demonstrated a statistically significant 23% risk reduction in all-cause mortality in favor of ICD therapy (hazard ratio-HR, 0.77). In addition, when separate analysis of trials that assessed ICD plus optimal medical therapy (OMT) vs OMT alone (after exclusion of CRT-D trials) was performed, a statistically significant 24% reduction was found in all-cause mortality with ICD (HR, 0.76). When the 2 trials, COMPANION and DANISH-CRT subgroup with ICD plus CRT plus OMT vs CRT plus OMT alone were compared, a trend was found toward benefit in terms of all-cause mortality in the ICD group, although it did not meet statistical significance (HR, 0.70) (Golwala H et al, *Circulation* 2017; 135:201–203).

PIONEER Study / Post Hoc Analysis: Among Patients With AF Undergoing Intracoronary Stenting, Administration of Either Rivaroxaban 15 mg qd Plus P2Y₁₂ Inhibitor Monotherapy (Group 1) or 2.5 mg Rivaroxaban bid Plus DAPT (Group 2) was Associated With a Reduced Risk of All-Cause Mortality or Recurrent Hospitalization Compared With Standard-Of-Care VKA Plus DAPT (Group 3)

Among stented subjects with AF (n=2124), the risk of all-cause mortality or recurrent hospitalization was 34.9% in group 1 (hazard ratio-HR=0.79; $P=0.008$ vs group 3; number needed to treat=15), 31.9% in group 2 (HR=0.75; $P=0.002$ vs group 3; number needed to treat=10), and 41.9% in group 3 (VKA+DAPT). Both all-cause death plus hospitalization potentially resulting from bleeding (group 1=8.6%, $P=0.032$ vs group 3, group 2=8%, $P=0.012$ vs group 3, and group 3=12.4%) and all-cause death plus rehospitalization potentially resulting from a cardiovascular cause (group 1=21.4%, $P=0.001$ vs group 3; group 2=21.7%, $P=0.011$ vs group 3, and group 3=29.3%) were reduced in the rivaroxaban arms compared with the VKA arm, but other forms of rehospitalization were not (Gibson CM, *Circulation* 2017;135:323-333).

MIDA Registry: Among Patients With Degenerative Mitral Regurgitation With a Flail Leaflet Referred to Mitral Surgery, MV Repair was Associated With Lower Operative Mortality, Better Long-Term Survival, and Fewer Valve-Related Complications Compared With MV Replacement (MVR)

Patients undergoing MV repair (n=1709) were younger, had more comorbidities, and were more likely to present

with a posterior leaflet prolapse than those undergoing MVR (n=213). After propensity score matching, operative mortality was lower after MV repair than after replacement in both the entire population (1.3% vs 4.7%; $P<0.001$) and the propensity-matched population (0.2% vs 4.4%; $P<0.001$). During a mean of 9.2 years, 552 deaths were observed, of which 207 cardiovascular; 20-year survival was better after MV repair than after MVR in both the entire population (46% vs 23%; $P<0.001$) and the matched population (41% vs 24%; $P<0.001$). Similar superiority of MV repair was obtained in patient subsets on the basis of age, sex, or any stratification criteria (all $P<0.001$). MV repair was also associated with reduced incidence of reoperations and valve-related complications (Lazam S et al; *Circulation* 2017;135:410-422).

Genetic Obesity and the Risk of Atrial Fibrillation (AF): Data are Consistent With a Causal Relationship Between BMI and Incident AF

In age- and sex-adjusted meta-analysis among 51 646 individuals of European ancestry without AF at baseline, both genetic instruments (FTO genotype & a BMI gene score) were significantly associated with BMI (FTO: 0.43 kg/m² per A-allele, $P<0.001$; BMI gene score: 1.05 kg/m² per 1-U increase, $P<0.001$) and incident AF (FTO, hazard ratio-HR, 1.07 per A-allele, $P=0.004$; BMI gene score, HR, 1.11 per 1-U increase, $P<0.001$). Age- and sex-adjusted instrumental variable estimates for the causal association between BMI and incident AF were HR, 1.15 per kg/m², $P=0.005$ (FTO) and 1.11 per kg/m², $P<0.001$ (BMI gene score). Both these estimates were consistent with the meta-analyzed estimate between observed BMI and AF. Multivariable adjustment did not significantly change findings (Chatterjee NA et al, *Circulation* 2017;135:741-754).

Brain Emboli After Left Ventricular Endocardial Ablation: 58% of Patients Having Routine LV Ablation Experienced New Brain Emboli After the Procedure

Among 18 patients undergoing left (n=12) or right (n=6) ventricular ablation for VT or PVCs over a 9-month period, 7 (58%) undergoing LV ablation experienced a total of 16 cerebral emboli detected by MRI, in comparison with zero patients undergoing right ventricular ablation ($P=0.04$). 7 of 11 patients (63%) undergoing a retrograde approach to the LV developed at least 1 new brain lesion (Whitman IR et al; *Circulation* 2017;135:867-877).

STICH Trial: The Monthly Risk of Sudden Death (SCD) Shortly After CABG Among Patients with Low Ejection Fraction is Highest Between First & Third Months, Suggesting That Risk Stratification for SCD Should Occur Early in the Postoperative Period

Over a median of 46 months, 113 of 1411 patients who received CABG without (n=934) or with (n=477) surgical

ventricular reconstruction had SCD. The mean LVEF at enrollment was 28±9%. The 5-year cumulative incidence of SCD was 8.5%. Patients who had SCD and those who did not die were younger and had fewer comorbid conditions than did those who died of causes other than SCD. In the first 30 days after CABG, SCD (n=5) accounted for 7% of all deaths. The numerically greatest monthly rate of SCD was in the 31- to 90-day time period. In a multivariable analysis, end-systolic volume index and B-type natriuretic peptide were most strongly associated with SCD (Rao MP, *Circulation* 2017;135:1136-1144).

MOMENTUM 3: Among Patients With Advanced Heart Failure, Implantation of a Fully Magnetically Levitated Centrifugal-Flow Pump was Associated With Better Outcomes at 6 Months Than was Implantation of an Axial-Flow Pump, Primarily Because of the Lower Rate of Reoperation for Pump Malfunction

Of 294 patients, 152 were assigned to the centrifugal-flow pump group and 142 to the axial-flow pump group. In the intention-to-treat population, the primary end point (survival free of disabling stroke or reoperation) occurred in 131 patients (86.2%) in the centrifugal-flow pump group and in 109 (76.8%) in the axial-flow pump group ($P<0.001$ for noninferiority; hazard ratio, 0.55; two-tailed $P=0.04$ for superiority). There were no significant between-group differences in the rates of death or disabling stroke, but reoperation for pump malfunction was less frequent in the centrifugal-flow pump group than in the axial-flow pump group (Mehra MR et al, *N Engl J Med* 2017; 376:440-450).

No Device/Lead Failure During Nonthoracic MRI (1.5 Tesla) for Non-MRI-Conditional Pacemakers or ICDs

MRI was performed in 1000 pacemaker cases and 500 ICD cases. No deaths, lead failures, losses of capture, or ventricular arrhythmias occurred during MRI. One ICD generator could not be interrogated after MRI and required immediate replacement; the device had not been appropriately programmed per protocol before the MRI. There were observed 6 cases of self-terminating atrial fibrillation or flutter and 6 cases of partial electrical reset. Changes in lead impedance, pacing threshold, battery voltage, and P-wave and R-wave amplitude exceeded prespecified thresholds in a small number of cases. Repeat MRI was not associated with an increase in adverse events. (Roussio RJ et al, *N Engl J Med* 2017; 376:755-764).

COMPARE-ACUTE Trial: In Patients With STEMI and Multivessel Disease Who Underwent Primary PCI of an Infarct-Related Artery, the Addition of FFR Resulted in a Lower Risk (Mainly Reduction in Subsequent Revascularizations)

Among 885 patients with STEMI and multivessel disease who underwent primary PCI of an infarct-related

artery randomized to undergo complete revascularization of non-infarct-related arteries guided by fractional flow reserve (FFR) (295 patients) or to undergo no revascularization of non-infarct-related arteries (590 patients), the primary outcome (death from any cause, nonfatal MI, revascularization, and cerebrovascular events at 12 months) occurred in 23 patients in the complete-revascularization group and in 121 patients in the infarct-artery-only group that did not receive complete revascularization (hazard ratio-HR, 0.35; $P < 0.001$). Death occurred in 4 patients in the complete-revascularization group and in 10 patients in the infarct-artery-only group (1.4% vs. 1.7%) (HR, 0.80), MI in 7 and 28 patients, respectively (2.4% vs 4.7%) (HR, 0.50), revascularization in 18 and 103 patients (6.1% vs 17.5%) (HR, 0.32), and cerebrovascular events in 0 and 4 patients (0 vs 0.7%). An FFR-related serious adverse event occurred in 2 patients (both in the group receiving infarct-related treatment only) (Smits PC et al, *N Engl J Med* 2017; 376:1234-1244).

Novel Insights into the Mechanism Through Which Emotional Stressors Can Lead to Cardiovascular Disease (CVD) in Humans via a Link of Regional Brain Activity: Amygdalar Activity Independently and Robustly Predicted CVD Events, Partly Via a Path that Includes Increased Bone-Marrow Activity and Arterial Inflammation

Of 293 patients (median age 55 years), 22 had a CVD event during median follow-up of 3.7 years. Amygdalar activity was associated with increased bone-marrow activity ($r=0.47$; $p < 0.0001$), arterial inflammation ($r=0.49$; $p < 0.0001$) (all assessed via PET/CT), and risk of CVD events (hazard ratio 1.59; $p < 0.0001$), a finding that remained significant after multivariate adjustments. The association between amygdalar activity and CVD events seemed to be mediated by increased bone-marrow activity and arterial inflammation in series. In 13 patients who underwent psychometric analysis, amygdalar activity was significantly associated with arterial inflammation ($r=0.70$; $p=0.0083$). Perceived stress was associated with amygdalar activity ($r=0.56$; $p=0.0485$), arterial inflammation ($r=0.59$; $p=0.0345$), and C-reactive protein ($r=0.83$; $p=0.0210$) (Tawakol A et al, *Lancet* 2017; 389(10071):834-845).

Important Review and Other Articles

HIV and heart disease (Vachiat A et al / Manga P et al, *J Am Coll Cardiol* 2017;69:73-81 & 83-91), Cardiac pacemakers (Mulpuru SK et al/ Madhavan M et al *J Am Coll Cardiol* 2017;69:189-210 / 211-235), Challenges in infective endocarditis (Cahill TJ et al, *J Am Coll Cardiol* 2017;69:325-344), Appropriate use criteria for revascularization in acute coronary syndromes (Patel MR

et al, *J Am Coll Cardiol* 2017;69::570-591), Mode of death in heart failure with preserved ejection fraction (Vaduganathan M et al, *J Am Coll Cardiol* 2017;69:556-569), 2016 AHA/ACC clinical performance and quality measures for prevention of sudden cardiac death (Al-Khatib SM et al, *J Am Coll Cardiol* 2017;69:712-744), Sleep apnea & cardiovascular consequences (Javaheri S et al, *J Am Coll Cardiol* 2017;69:841-858), Carcinoid heart disease diagnosis and management (Davar J et al, *J Am Coll Cardiol* 2017;69:1288-1304), 2017 ACC Expert Consensus on TAVI (Otto CM et al, *J Am Coll Cardiol* 2017;69:1313-1346), 2016 AHA/ACC Guideline on the management of patients with lower extremity peripheral artery disease (Gerhard-Herman MD et al, *J Am Coll Cardiol* 2017;69:1465-1508), Coronary anomalies (Cheezum MK et al, *J Am Coll Cardiol* 2017;69:1592-1608), Cardiovascular effects of performance-enhancing drugs (La Gerche et al, *Circulation* 2017;135:89-99), Management of pregnancy in patients with complex congenital heart disease (Canobbio MM et al, *Circulation* 2017;135:e50-e87), AHA Scientific Statement on Meal timing and frequency: Implications for cardiovascular disease prevention (St-Onge M-P et al, *Circulation* 2017; 135:e96-e121), Heart disease and stroke statistics 2017 (Benjamin EJ et al, *Circulation* 2017;135:e146-e603), Management of patients on NOACs in acute care and peri-procedural setting (Raval AN et al, *Circulation* 2017;e604-633), Non-obstructive coronary artery disease (Merz CNB et al, *Circulation* 2017;135:1075-1092), Telemedicine in pediatric cardiology (Satou GM et al, *Circulation* 2017; 135:e648-e678), Arrhythmogenic right ventricular cardiomyopathy (Corrado D et al, *N Engl J Med* 2017; 376:61-72), Hypertrophic cardiomyopathy (Veselka J et al, *Lancet* 2017;389(10075):1253-1267), Acute MI (Reed GW et al, *Lancet* 2017; 389(10065):197-210), Natriuretic peptides in acute heart failure (McQuade CN et al, *Ann Intern Med* 2017;166:180-190), Benefits and harms of intensive blood pressure treatment (Weiss J et al, *Ann Intern Med* 2017; 166:419-429).

Just in (ACC'17)! SURTAVI: TAVI was a Noninferior Alternative to Surgery in Patients With Severe Aortic Stenosis (AS) at Intermediate Surgical Risk

Among 1660 intermediate-risk AS patients (aged 79.8 ± 6.2 years) undergoing TAVI (self-expanding prosthesis) or surgery, at 24 months, death or stroke incidence was 12.6% in the TAVI group and 14% in the surgery group. Surgery was associated with higher rates of acute kidney injury, AF, and transfusion requirements, whereas TAVI had higher rates of residual aortic regurgitation and need for pacemaker implantation. TAVI resulted in lower mean gradients and larger aortic-valve areas than surgery (Reardon MJ, *N Engl J Med* 2017;376:1321-1331).