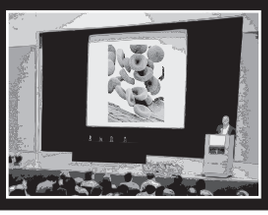
Conference Scene

A congress report from the American Heart Association Scientific Sessions 2013



American Heart Association Scientific Sessions 2013
Dallas, TX, USA, 16–20 November 2013

The American Heart Association Scientific Sessions 2013 was held in Dallas (TX, USA), from the 16th to the 20th of November 2013. More than 18,000 attendees from 105 countries were gathered in Dallas, home of the American Heart Association national headquarters.

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The president of the American Heart Association, Dr Jessup (Penn Medicine Heart and Vascular Center, PA, USA), opened this year's scientific session with a 'remarkable yet troubling' history of heart failure. Thanks to recent developments in heart failure treatment, prognosis has been improved dramatically. However, the worldwide epidemic of heart failure paradoxically becomes a global burden; we should find new ways to correct this situation. In this context, several sessions about prevention and management of cardiovascular risk factors were held during the conference.

One of the intriguing reports was the 'MICROCLINIC' trial by Dr Ding (Harvard School of Public Health, MA, USA), which enrolled 552 individuals in rural Appalachia (KY, USA). This randomized trial of social network lifestyle intervention was designed to compare changes in health outcomes for social clusters (called 'microclinic', consisted of 2–8 individuals) versus standard care received at the local county health department. After the first month of weekly and the subsequent 9 months of biweekly educational sessions, the microclinic group achieved significant loss of waist circumference (1.24 inches) and body weight (6.52 lbs) compared with the standard care group, which was maintained through the 16-month follow-up. Since over 60% of people in the USA are obese or overweight, this novel approach may have a considerable impact on the improvement of health.

In contrast to a growing attention to renal denervation, renal artery stenting could not demonstrate the additional benefit for patients who had atherosclerotic renal artery stenosis and either systolic hypertension while taking two or more antihypertensive drugs or chronic kidney disease. The CORAL trial, presented by Dr Cooper (University of Toledo, OH, USA), randomized 947 patients to combined stent plus medical therapy versus medical therapy alone [1]. Despite the achievement of lower systolic blood pressure in the combined therapy group than the medical therapy group at 3-year follow-up (-2.3 mmHg; p = 0.03), the incidence of primary end point (cardiovascular/renal death, stroke, myocardial infarction, heart failure hospitalization, progressive renal insufficiency and permanent renal replacement therapy) did not differ significantly between the two groups (35.1 vs 35.8%; p = 0.58). These results would warrant further discussion, including the appropriate patient selection to ensure the clinical benefit of the invasive procedure. Meanwhile, one message we could draw at this point is to avoid casual stenting for moderate renal artery stenosis, which was also supported by a previous trial [2].

Adjunctive therapy for acute coronary syndrome, a primary underlying cause of heart failure with reduced ejection fraction, was discussed with great interest. Dr Sinnaeve (University Hospitals Leuven, Leuven, Belgium) reported the 1-year results of the STREAM trial, where 30-day results were published earlier this year [3]. This study was designed to explore the strategy of fibrinolysis with bolus tenecteplase given before transport to a percutaneous coronary intervention (PCI)-capable hospital followed by timely coronary angiography in ST-elevation myocardial infarction patients. The 1-year mortality revealed that the pharmacoinvasive strategy resulted in a slightly increased risk of intracranial bleeding, a similar all-cause

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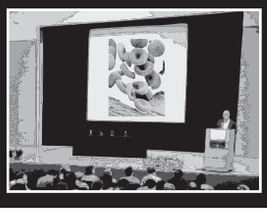


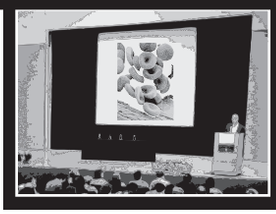
mortality rate to primary PCI (6.7 vs 5.9%; p = 0.52), and a similar occurrence of cardiac death. Dr Dauerman (University of Vermont, VT, USA) discussed that these findings would support current guidelines – while primary PCI remains the preferred approach, the STREAM trial would provide an algorithm for reperfusion with a carefully dose adjusted pharmacoinvasive strategy for countries and regions where primary PCI is not feasible within the current recommendations.

Other treatment strategies in emergency medicine that could impact upon our daily practice involved resuscitation. Dr Kim (Harborview Medical Center, WA, USA) showed the results of a randomized trial assessing pre-hospital hypothermia in out-of-hospital cardiac arrest patients [4]. This study enrolled 583 ventricular fibrillation (VF) and 776 non-VF patients, thereafter randomized to pre-hospital infusion of 4°C saline immediately after resuscitation or standard care. Despite reduced core temperature at hospital arrival and the time to reach 34°C, prehospital cooling did not improve survival or neurological function (survival to hospital discharge: 62.7 vs 64.3%; p = 0.69 for VF patients, and 19.2 vs 16.3%; p = 0.30 for non-VF patients). This was partly because the recurrence of cardiac arrest in the treatment group was higher than in the control group.

Another study investigating specific temperatures for hypothermia within in-hospital settings was presented by Dr Nielsen (Helsingborg Hospital, Helsingborg, Sweden) [5]. Regardless of initial rhythms, 950 patients were randomized to targeted temperature management at either 33 or 36°C for 36-h hypothermia intervention and followed-up through 956 days. The body temperatures of both groups were well controlled, however, no difference in mortality or neurological function was observed at the end of the trial between the two groups (50 vs 48%; p = 0.51). As expected, serious adverse event rates tended to be higher in the 33°C group than the 36°C group (relative risk: 1.03; p = 0.09). These results could have a provocative impact on the current guideline recommending hypothermia to 32–34°C after out-of-hospital cardiac arrest. However, their results should not be misinterpreted as supportive for no cooling at all.

The French Fractional Flow Reserve Registry, presented by Dr Belle (Hopital Cardiologique, Lille, France), provided additional evidence for interrogating ambiguous lesions by fractional flow reserve (FFR) [6]. This study sought to evaluate: first, the rate of reclassification of the revascularization strategy after FFR measurement; and second, the impact of reclassification on functional status and clinical outcomes at 1 year. A total of 1075 patients were evaluated after coronary angiography to decide the best strategy among medical treatment, PCI or coronary artery bypass grafting. Then, FFR measurements of ambiguous coronary lesions (35–65% stenosis) were performed to reconsider a 'final' strategy. Overall, 80% of patients had stable angina, and 1.3 ± 0.7 lesions were investigated in each patient. Although the proportion of strategies were similar before and after FFR measurements, as many as 43% of lesions' strategies were changed (reclassified) after FFR value was taken into account. Moreover, this tendency was consistent whether the patients were previously diagnosed by noninvasive tests or not. Between the nonreclassified group and the reclassified group, angina status did not differ significantly at 12-month follow-up (p = 0.75). Rates of major adverse cardiac events (11.9 vs 11.2%; p = 0.78) and revascularization (9.0 vs 8.4%; p = 0.81) were also equivalent between the two groups. Although there was no control arm in this study, excellent 1-year major adverse cardiac events in both groups suggests the safety of revascularization decision-making for real-world patients referred for diagnostic angiography.

Regarding heart failure treatment, a prominent trial that compared mitral valve repair versus chordal-sparing replacement for severe ischemic mitral regurgitation was presented by Dr Acker (Penn Medicine Heart and Vascular Center) [7]. This trial randomized 251 patients with severe functional mitral regurgitation into the two treatment arms. Unlike previous registry reports, no significant difference was found in the rate of a composite of major adverse cardiac or cerebrovascular events, in functional status, or in quality of life at 12 months. The left ventricular end systolic volume index at 12 months, the primary end point of this trial, was also



similar between the two treatment arms (54.6 ± 25.0 ml/m^2 in the repair group versus 60.7 ± 31.5 ml/m^2 in the replacement group). In the repair group, however, the 12-month left ventricular end systolic volume index was significantly better in patients without recurrent mitral regurgitation than in those with recurrent mitral regurgitation (47.3 ± 23.0 vs 64.1 ± 23.9 ml/m^2; $p < 0.001$). The impact of operative procedural differences in repair on prognosis remains a matter of debate.

Another valvular heart disease treatment option was presented by Dr Popma (Beth Israel Deaconess Medical Center, MA, USA). The pivotal US CoreValve Extreme Risk Iliofemoral trial enrolled 471 high-risk patients who were ineligible for the surgery to evaluate the safety and efficacy of transcatheter implantation of the CoreValve™ aortic bioprosthesis (Medtronic, Inc., MN, USA). Compared with an objective performance goal (based on the results of a meta-analysis of five balloon valvuloplasty studies), CoreValve achieved a remarkably low 1-year all-cause mortality or major stroke rate (26 vs 43%; $p < 0.0001$). Specifically, the major stroke rate was low and stable during the follow-up (2.3% at 30 days and 4.1% at 1 year). Of note, 80% of the patients with moderate paravalvular regurgitation at 1 month who survived to 1 year experienced a reduction in the paravalvular regurgitation rate over time, suggesting the benefit of the self-expanding valve technology.

The American Heart Association Scientific Sessions is one of the most authoritative cardiology conferences, which attracts a wide range of medical professionals and its diverse content spans basic science to clinical cardiology. In addition to several important studies discussed in the dedicated interventional sessions, we found many reports that could have an impact on our daily clinical practice or implications for the interventional field. For instance, the novel approach using social networking may possibly be applied to our secondary prevention program or for improving our patient compliance with dual antiplatelet therapy after drug-eluting stent implantation. The controversial results reported from several randomized trials also highlight the importance of diverse study design of clinical trials in establishing clinical evidence and practice guidelines for better patient care.

Financial & competing interests disclosure

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