

Highlights From the American Heart Association's EPI|LIFESTYLE 2018 Scientific Sessions

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The American Heart Association's (AHA's) EPI|Lifestyle specialty conference, with an overall theme of promoting risk prediction and prevention, was held March 19 to 23, 2018, in New Orleans. The primary learning objectives were (1) identifying modifiable risk factors and ways to meet AHA ideal cardiovascular health (CVH) standards, (2) elucidating the causes and consequences of health disparities and ways to address the AHA goals, (3) discussing the current guidelines and what adherence means for CVH in both adults and juveniles, and (4) understanding and identifying opportunities to incorporate precision medicine.¹ Programming included sessions for all career levels, from trainees to seasoned professionals. Attendees' understanding of promoting CVH was enhanced by oral and poster presentations and participation in networking opportunities.

Overall Conference Theme: "Health Promotion: Risk Prediction to Risk Prevention"

The conference theme was "Health Promotion: Risk Prediction to Risk Prevention." This topic was not only a focus of the plenary session but also intertwined throughout the meeting with oral and poster presentations. The plenary speakers were Drs Alfredo Morabia, Mintu Turakhia, and Angela Odoms-Young.

Dr Morabia presented the history of risk prediction within the field of epidemiology. He provided a whirlwind overview of how prominent epidemiologists first identified risk factors and how combined exposures improved risk prediction for chronic diseases. Dr Turakhia challenged the audience to consider "wearables" as a potential technology to identify risk factors and discussed the tradeoff between risk identification and an individual patient's confidentiality. Dr Odoms-Young discussed the struggles in improving dietary patterns and weight among African American women living in impoverished communities in the south side of Chicago. She highlighted the importance of understanding how barriers associated with low socioeconomic status interfere with a person's ability to improve his or her individual cardiovascular risk through behavioral changes.

Biomarkers Session

The biomarkers session highlighted novel research in the use of biomarkers to identify individuals at increased risk of cardiovascular disease (CVD). Dr Ambarish Pandey reported on heart failure risk in the African American population and identified left ventricular hypertrophy and high-sensitivity troponin as a "malignant preclinical" heart failure phenotype. Dr Gregory Shearer summarized results showing that eicosapentaenoic acid was associated with reduced risk of heart

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failure. Dr Majken Jensen presented results suggesting that free fatty acids were associated with cognitive decline and increased risk of dementia over time. Dr Justin Echouffo Theugui reported that higher early morning serum cortisol was associated with structural brain changes and impaired memory in young adults.

Early Career Events and Mentorship

The early career events were well planned and attended. Both the Council on Lifestyle and Cardiometabolic Health and the Epidemiology and Prevention Council incorporated early career panel discussions into their networking luncheons. During the lifestyle council's discussion, Ryan Demmer, Mercedes Carnethon, and Bethany Baron Gibbs shared strategies for avoiding burnout in academia, including finding a mentor who practices good work–life balance and developing resiliency to failure in order to reach goals. In addition, they suggested seeking a career close to a support network. The epidemiology council lunch panel comprised Gerald Bloomfield, Tom Riberio, and Kunihiro Matsushita, who provided summaries of international cardiovascular studies, along with tips for successful global collaboration in epidemiology. For example, they shared pointers on how to choose the best times to conduct conference calls for participants at distant locations.

Other early career programming included 2 new formats. First, “Connection Corners” consisted of interactive and informative small round-table sessions with established investigators who led discussions with the early career researchers. Topics included grant writing, communication, and career development. Drs Brooke Agarawal and Mercedes Carnethon, for example, shared their strategies for writing an elevator pitch, placing emphasis on the importance of preparing a pitch for each research topic of interest. They suggested that the pitch open with a question to pique the listener's interest, followed by a succinct picture with analogies of the potential impact of successful results. Second, the “fire-side chat” format evolved from a traditional question-and-answer session to an exceptional discussion about building mentoring networks and reflection as a key part of professional development. Anonymously submitted questions that are often unasked because of their sensitivity included, “How do you separate your niche from your mentor?” and “What can you do to fix a falling-out with your mentor?” The panel, including Drs Emelia Benjamin, Norrina Allen, Jean-Pierre Després, Chiadi Nduemle, and Lenny Lopez, provided useful guidance. Key suggestions were (1) fostering a mentoring team of researchers with varying backgrounds and perspectives to create a support network; (2) reflecting on past projects while exploring future interests to identify the evolution of a research niche that may be overlooked; and (3) creating a 1-page personal statement to elucidate the

researcher's career goals to reviewers, whether on grant panels or potential employers.

Stamler Award Abstracts

The Jeremiah and Rose Stamler Research Award Finalist panel featured 5 abstracts by early career investigators who were recognized for their important contributions to CVD epidemiology. The award winner was Merrisa Reitsma from the University of Washington Seattle for her work on tracking lifestyle behavior, healthcare access, and healthcare quality for cardiometabolic diseases at the state level. Although Reitsma won the award, all of the abstracts made a significant impact on the body of scientific knowledge. An abstract presented by Dr Stephanie Mayne from Northwestern University evaluated the impact of smoke-free policies on blood pressure (BP) changes. Using data from the CARDIA (Coronary Artery Risk Development in Young Adults) study, smoke-free policies in indoor public places were associated with reduction in systolic and diastolic BP among nonsmokers. Dr Emily Bucholz from the Boston Children's Hospital explored prescription rates for statins among patients with severe dyslipidemia or with diagnosed familial hypercholesterolemia. Results indicated that only approximately half the adults in the United States with familial hypercholesterolemia are on statin therapy, indicating a need to improve treatments for patients in high-risk populations. Dr Sadiya Khan from Northwestern University presented information on the validation of a 10-year novel risk equation to identify individuals at risk of heart failure. The model focused on readily available data that could be used in the primary care setting as a tool to identify increased risk of heart failure. The final abstract, presented by Dr Yujin Lee from Tufts University, examined the health and economic impacts of programs to incentivize eating healthy foods, offered through Medicare and Medicaid for patients with a history of cardiovascular events. Lee concluded that programs that incentivize eating healthy foods could decrease the risk of cardiovascular events, ultimately leading to cost savings.

Physical Activity Session

This session provided new insights into research suggesting that physical activity may improve CVH. Dr Andrea LaCroix reported that in a cohort study of almost 6000 older women followed for up to 4 years, those with more light-intensity physical activity had reduced risk of CVD and coronary heart disease incidents after controlling for other known risk factors, including moderate-to-vigorous physical activity. In a cross-sectional and longitudinal study of the ARIC (Atherosclerosis Risk in Communities) neurocognitive study,

Dr Priya Palta and colleagues found that high physical activity was associated with higher brain volumes in late life, but midlife physical activity did not predict late-life brain atrophy. These results raised questions about the potential causal interpretation of their cross-sectional results. Over 30 years of follow-up, Dr Amanda Paluch reported that baseline cardiorespiratory fitness was associated with reduced risk of chronic kidney disease. Dr Isaac Thomas and colleagues found that high leisure-time physical activity was cross-sectionally associated with higher coronary artery calcium density but not higher coronary artery calcium volume; they posited that this may explain why athletes have favorable CVD incidence even though they also have greater coronary artery calcium density. Dr Kara Whitaker reported that women with higher prepregnancy fitness had lower odds of developing gestational diabetes during pregnancy, but neither moderate-to-vigorous physical activity nor high television viewing time was associated with this condition. Finally, Dr John Bellettiere and colleagues found that among older women, greater amount of sedentary time and longer bouts of sedentary time increased the risk of CVD and coronary heart disease.

Tobacco and Behavior Change

The toxic effects of tobacco are well accepted. During the “Tobacco and Behavior Change” session, Dr Aruni Bhatnagar expounded on the potential dangers of newly marketed e-cigarettes and cigars not only for a person’s cardiac health but also for public health. The particulate matter produced by combustible products is metabolically toxic and has yet to be banned from public establishments, making it a risk to public health via second- and third-hand smoke. E-cigarettes and cigars are marketed as cleaner, more stylish products that will make it easier for smokers to quit; however, even short-term exposure may have detrimental effects. Long-term exposure has the potential to decrease air flow, preventing vasodilation and thus making combustible products 50% more harmful than commercial cigarettes. In addition, whereas traditional tobacco products come with a warning about adverse effects to deter new smokers and children, e-cigarettes and cigars are produced in flavors that may in fact attract new smokers, including juveniles.

Omics

The omics session incorporated intriguing data concerning precision medicine by incorporating lifestyle and genetics to improve CVH. The session started with Dr Deirdre Tobias discussing a cohort study describing the role that circulating branched-chain amino acids and cardiometabolites play in

women’s CVH. It is commonly accepted that diet and exercise significantly modulate heart health; however, the subsequent sessions covered genetic participation in CVD. Summarizing data from the ARIC study, Dr Di Zhao reported finding that the number of mitochondrial DNA copies contributed to the onset of atrial fibrillation. This group further argued that mitochondrial DNA decline with age increased the risk of atherosclerosis in older communities. In a phenome-wide association study, Dr Tianxi Cai indicated IL6R (interleukin 6 receptor) variants could potentially be used to identify drug targets for medicinal therapy for CVD and inflammation. Last, Dr Laura Raffield² and colleagues analyzed platelet-related traits in the TOPMed (Trans-Omics for Precision Medicine) whole-genome sequencing project. In this study they explored D-dimer products in relationship to CVD in participants of African American ancestry compared with those of European descent and found D-dimers are potential predictors of CVD that could be sex-specific. These data indicate genetic testing is an attractive method of researching vascular diseases and could improve on precision medicine.

Hot off the Press

The “Hot off the Press” session focused on important publications released within 6 months of the conference. The findings of these research projects were published in impactful journals. The publications included a cross-sectional study, an analysis using a large cohort study, simulation modeling using neighborhood-level data, and 2 randomized trials.

Dr Paul Muntner³ leveraged the NHANES (National Health and Nutrition Examination Survey) cross-sectional study and discussed the population impact analysis of updated 2017 American College of Cardiology and AHA guidelines for prevention, detection, evaluation, and management of high BP and the initiation of antihypertensive therapy. The new guidelines will result in an increase in prevalence of hypertension, from 32% to 46% of the US population, but only a modest increase in patients who will be recommended for therapy and more intensive BP-lowering approaches.

Type 2 diabetes mellitus has historically been a pronounced disparity in US among African American adults. explored modulating risk behaviors, including those affecting biological, neighborhood, psychosocial, socioeconomic, and behavioral risk, among young adults at risk for type 2 diabetes mellitus in the CARDIA cohort study. Their work indicated that among adults with risk factors, incidence of type 2 diabetes mellitus did not differ among African American and white men and women after including the contribution of modifiable risk factors during young adulthood.

Dr Tiffany Powell-Wiley studied the impact of crime on physical activity patterns and rate of obesity in African

American women, using simulation modeling of neighborhood-level data.⁵ The results indicated that women living in high-crime areas had a 25% probability of exercising; however, areas with lower crime rates perpetuated higher physical activity among this group. An inverse association between neighborhood crime and leisure-time physical activity was found, suggesting that interventions to reduce neighborhood crime may help encourage physical activity and reduce the prevalence of obesity.

In a randomized, double-blind clinical trial, Dr Flávio Fuchs explored the efficacy of combination low-dose diuretic therapy as a mechanism to achieve optimal BP in adults with prehypertension based on the definitions in the Seventh Report of the Joint National Committee.⁶ They found a 6% increase in the number of adults in the treatment arm achieving optimal BP levels (<120/80 mm Hg).

Last, Dr Christopher Gardner published the results of a randomized clinical trial evaluating the effects of healthy low-fat versus healthy low-carbohydrate diets to determine if genotype altered weight-loss effects in either dietary pattern.⁷ The results indicated no significant difference in weight loss by genotype, insulin interactions, or difference in weight loss with either healthy low-fat or healthy low-carbohydrate diet.

Patient-Centered Outcomes Research Institute

The Patient-Centered Outcomes Research Institute (PCORI) is an independent, nonprofit, nongovernmental organization that funds studies aimed at healthcare effectiveness, patient decision-making, and patient-reported outcomes. PCORnet, the National Patient-Centered Clinical Research Network, is an initiative of PCORI aimed at transforming clinical research through large patient-centered data sets. During the EPI|Lifestyles meeting, PCORnet Cardiovascular Health Collaborative Research Group (CVH CRG) primary leads (Drs Veronique Rogers, Mark Pletcher, Geoffrey Tison, Anitha John, and Ken Gregoire) conducted a panel discussion sharing highlights of the PCORI preconference meeting. The CVH CRG goals to catalyze high-quality, patient-driven studies to engage patients in treatment plans will make a significant impact on what can and cannot be achieved to improve CVH. In addition, they proposed mutual respect in patient/physician exchanges to advance knowledge of the different perspectives in care, for example, understanding what matters to patients and caregivers compared with clinicians. These data can be shared as preliminary data that can be used in investigators' CVH-related grant applications. CVH CRG is an ongoing project that seeks new collaborators to participate in supported CVH interests.

American Society of Preventative Cardiology Annual Debate

The American Society of Preventative Cardiology is a multidisciplinary group of clinicians and investigators with a shared interest in preventative cardiology. During an informal discussion, Drs Matthew DeCamp and William Weintraub discussed the challenging issues of "Medical Cost When Considering Cardiovascular Disease Prevention and Treatment." One argument was that reducing waste can reduce cost, which will create savings that can be passed down to patients. Alternatively, it was proposed that financial incentive programs to improve diet through Medicare and Medicaid can reduce CVH cost. Because the cost of health care continues to be debated and more people are denied access to care, the goal of this debate was to raise awareness of topics for consideration and innovative tools that will assist clinicians and office staff in creating practices that will contribute to cost reduction. However, Dr Yujin Lee summed it up with his research findings that suggest economic incentives through Medicare or Medicaid could contribute significantly to substantial health gains and cost savings.

Poster Sessions

As with most scientific meetings, the poster presentations were the most attended. There were >450 posters at this year's meeting, 78 of which were moderated. Among them, Andrea Stewart discussed the impact of social roles on women's CVH, as measured by "Life's Simple 7," when taking into consideration diet and activity. She suggested that as social role stress increases, there is an increased prevalence of CVD. In a moderated group, Nicholas Howell shared his work describing the effects of air pollution on CVD; his results indicated that living in a high-pollution area had a negative effect on CVH. Jie Hu addressed clinical and subclinical BP, exploring factors before and during pregnancy that affect CVD gravidae. Mary Rooney presented her work discussing the inverse effect of magnesium levels on CVD factors before gestation. Having some posters moderated gave them an interesting dimension. Moderated poster presentations gave the feel of a small study group, allowing for the listener to hear the presenter more easily. In addition, this concept of incorporating a moderator pushed the presenter to give more detail and engage with the listeners.

Conclusion

The 2018 EPI|Lifestyles specialty conference was a resounding success. It included innovative programming and presentations from world-renowned researchers as well as graduate

students and early career investigators. Ample time was provided for networking and impactful scientific discussions. Unfortunately, we could not report on the William B. Kannel Memorial Lectureship presented by Dr Emelia J. Benjamin or the life course epidemiology sessions, but readers are encouraged to visit the AHA EPI|Lifestyles 2018 Web page (https://professional.heart.org/professional/EducationMeetings/MeetingsLiveCME/EPI|Lifestyle/UCM_316976_Programming-EPI-Lifestyle.jsp)¹ for more information on those topics. We look forward to another successful meeting next year in Houston.

Disclosures

None.

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