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The New 2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease

Running Title: *Bittner; New Guideline for Primary Prevention*

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Introduction

Much of the cardiovascular disease burden and mortality can be traced back to four adverse health behaviors (smoking, poor diet, elevated body mass index, sedentary lifestyle) and three major risk factors (hypercholesterolemia, hypertension, diabetes). Ideal cardiovascular health defined as having all seven factors at goal is very rare among US adults. It is estimated that 87% of middle-aged US adults and 95% of individuals ≥60 years old meet ≤4 of these health metrics.[1]

Detailed guidelines are available that discuss cardiovascular risk assessment, lifestyle management, and treatment of individual risk factors. Each one of these guidelines provides a superb summary of evidence-based care, but for busy practitioners, the number of guidelines and updates can be overwhelming. The new Primary Prevention Guideline[2] fills a critical gap by pulling together and updating, as appropriate, guidance on 9 topic areas: risk assessment, diet, exercise/physical activity, obesity, Type 2 diabetes mellitus, blood cholesterol, hypertension, smoking cessation and aspirin use. Paramount is a patient-centered treatment paradigm that emphasizes team-based care, shared decision-making, and evaluation of social determinants of health. This perspective will highlight several key aspects of the new guideline. Given extensive coverage in the recent literature, recommendations for risk assessment, hypertension and hypercholesterolemia are not reviewed.

Patient Centered Care

Team based care involving a multidisciplinary group of health professionals that effectively engages patients and their families through shared decision making has been the standard of care in cardiac rehabilitation for many years, resulting in improved risk factor levels and health and reduction in re-hospitalizations, cardiovascular events and cost.[3] Randomized trials have since shown that team-based care in the outpatient setting similarly improves cardiovascular disease

risk among patients at risk. Team based care with an emphasis on shared decision making can be implemented in traditional outpatient care, telehealth settings, or a combination of outpatient and home care. To achieve wider implementation, greater flexibility in reimbursement paradigms by third party payers will be necessary.

Social determinants of health (e.g. poor health literacy, financial strain, food and housing insecurity and lack of transportation among others) are associated with increased cardiovascular risk in the US and globally and these factors are often major barriers to cardiovascular risk modification. While most clinicians are sensitive to these issues, these factors are generally not formally assessed in clinical encounters. To do just that, the primary prevention guideline identifies a screening tool developed by the Centers for Medicare & Medicaid Services (https://nam.edu/standardized-screening-for-health-related-social-needs-in-clinical-settings-the-accountable-health-communities-screening-tool/) and provides examples for incorporating social determinants of health considerations across various prevention areas.

Aspirin

Recommendations for the use of prophylactic aspirin have been substantially revised. The guideline now explicitly advises against such use among individuals >70 years of age and among adults who are at increased risk of bleeding (e.g. with prior bleeding, coagulopathy, thrombocytopenia or chronic renal disease, or concomitant use of medications that increase bleeding risk). Use among middle-aged individuals is now a Class IIb recommendation. The latter reflects evolving data from recent primary prevention trials that suggest less benefit from aspirin use in an era of evidence-based care for hypertension and hypercholesterolemia and a narrower gap between number needed to treat to prevent an event and number needed to harm due to bleeding. European guidelines recommend against antiplatelet therapy among individuals

without cardiovascular disease at any age.[4] The complexity of assessing risk and benefit related to prophylactic aspirin use in individual patients mandates thorough assessment of cardiovascular risk and bleeding risk and re-emphasizes the importance of shared decision making.

Tobacco Use

Cigarette use in the US has declined, but it is estimated that 34.8% of men and 20.8% of women are current users of some form of tobacco.[1] The guideline reaffirms the importance of routine assessment of tobacco use during clinic visits and firm advice to quit (including e-cigarettes) and to avoid secondhand smoke. A strategy of combined behavioral intervention and pharmacotherapy maximizes quit rates. Detailed instructions for use of nicotine replacement therapy and bupropion and varenicline are provided. It is of note that the FDA has removed black box warnings related to neuropsychiatric events for the latter agents. At a systems level, the guideline encourages that every health system dedicate trained staff to tobacco treatment.

Nutrition, Diet, Overweight and Obesity

The guideline recommends a diet that emphasizes intake of vegetables, fruits, legumes, nuts, whole grains and fish, replacement of saturated fat with mono- and polyunsaturated fat, avoidance of trans fat, reduction of cholesterol and sodium, and minimizing intake of processed meats, refined carbohydrates, and sweetened beverages. Additional recommendations are provided in the diabetes and hypertension sections. This dietary guidance is abstract and not actionable for many providers and patients. Furthermore, there are large disparities in access to healthy foods and many meals are consumed outside the home. We will have to rely on our dietitian colleagues to translate these recommendations into individualized, ready-to-implement healthy meal plans. For patients with overweight/obesity, counseling, caloric restriction and

comprehensive lifestyle intervention for >6 months is recommended to achieve and maintain weight loss.

Exercise and Physical Activity

Exercise has been likened to a "polypill" with many beneficial health effects and reductions in morbidity and mortality.[5] Assessment of physical activity and counseling to optimize activity levels should be routine in healthcare encounters. Recommendations for 150 min/week of accumulated moderate intensity activity, 75 min/week of vigorous activity, or a combination thereof are unchanged from prior guidance. The prevention guideline also specifically comments on targeting sedentary behavior which is increasingly recognized as a cardiovascular risk factor. Emphasizing to our sedentary patients that some activity is better than none and that even brief bouts of activity count can be critical in overcoming low self-efficacy for change.

Diabetes

More than 1 in 3 US adults has prediabetes and approximately 11% of US adults have Type II diabetes.[1] Diet, physical activity, and body weight play critical roles in development and progression of diabetes. The new guideline emphasizes the importance of dietary modification, weight loss, increase in physical activity and a structured exercise program that includes both aerobic and resistance exercise components. Designing an individually tailored nutrition plan and exercise regimen can be complex and time consuming. Team based care that leverages expertise from dietitians, diabetes educators and exercise physiologists can be helpful in initiation and maintenance of lifestyle changes. For individuals with Type II diabetes, metformin is considered first line therapy (Class IIa). Sodium-glucose cotransporter 2 inhibitors or glucagon-like peptide-1 receptor antagonists are reserved for those with Type II diabetes and additional cardiovascular risk factors (Class IIb).

Conclusions

The new primary prevention guideline concisely summarizes recommendations for comprehensive risk factor modification in the healthcare setting. It is up to us to develop multidisciplinary models of care to implement these guidelines in our individual practices and to engage our patients to become our partners in this lifelong process.

Disclosures

Dr. Bittner reports the following relationships with the following:

UAB contracts with the entities listed:

Sanofi - Member of Steering Committee of Odyssey Outcomes Trial

Amgen - Co-investigator on a School of Public Health Contract to do Pharmacoepidemiology Analyses (PI Muntner)

Astra Zeneca - National Coordinator Strength Trial

Bayer - Site PI Compass Trial

Dalcor - National Coordinator DalGene Trial

Esperion - National Coordinator CLEAR Trial

Received honoraria:

Attended Sanofi Ad Boards to present Odyssey Outcomes Trial Data

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