Healthy Lifestyle and Risk of Heart Failure
An Ounce of Prevention Well Worth the Effort

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Despite the well-publicized decline in incidence of coronary heart disease and stroke in the United States over the past half century, prevalence and incidence of heart failure (HF) have not experienced a parallel decline. Approximately 5.5 million Americans currently have chronic HF, which represents the most common reason for hospitalization among Medicare recipients. Annual healthcare costs for HF are estimated at $40 billion. Although major advances in medical and device therapy have modestly improved survival for the subset of HF patients with reduced left ventricular ejection fraction, 5-year survival remains lower than many cancers. From a public health perspective, therefore, the primary prevention of HF is of tremendous importance to reduce the medical and societal costs of this disorder.

Several epidemiological studies in the last decade have demonstrated an association between lifestyle variables and HF risk in the general population. In these studies, a healthy lifestyle, defined by maintaining regular physical activity, a healthy dietary pattern, a normal body mass index, and not smoking resulted in 45% to 81% reductions in HF incidence.2–4 Furthermore, these studies have shown a graded reduction in HF risk in parallel to the number of healthy lifestyle practices followed.

With this background, the study by Larsson et al in this issue of Circulation: Heart Failure provides additional strong epidemiological evidence of a consistent and graded relationship between a healthy lifestyle and a lower risk of HF in 2 large Swedish cohorts over a 13-year follow-up.5 In 33,966 men from the Cohort of Swedish Men and 30,713 women from the Swedish Mammography Cohort, a detailed questionnaire administered in 1997 assessed smoking habits, physical activity patterns, diet, and body mass index. A healthy lifestyle was defined as not smoking, performing at least 150 minutes/week of walking, bicycling, and other exercise, adherence to a Mediterranean diet, and maintaining a body mass index of 18.5 to 24.9 kg/m². Incident HF was ascertained by linkage of participants with the Swedish National Patient Register and Swedish National Cause of Death Register. After adjustment for key demographic and clinical variables, a strong graded inverse relationship was found between the number of healthy lifestyle variables and HF incidence. Compared with individuals with no healthy lifestyle variables, men reporting following all 4 variables experienced a 62% lower HF risk and women a 72% lower risk. Removing potential intermediates from the model (history of diabetes mellitus, hypertension, hypercholesterolemia, and atrial fibrillation) and excluding HF cases that developed within the first 2 years had minimal effect on the risk of HF. Although each of the 4 lifestyle variables was associated with a significantly lower risk of HF, smoking was the variable most strongly associated with HF risk. It is noteworthy that the large reductions in HF risk associated with a healthy lifestyle occurred in a population that was generally physically active, with a high-quality diet and low prevalence of obesity.

Strengths of the study include the large sample of well-characterized men and women followed for 13 years and tracked for development of fatal and nonfatal HF by the Swedish National Registers. The strong graded relationship between the number of healthy lifestyle variables and the incidence of HF provides additional evidence that this relationship is likely causal. Limitations that must be recognized include the reliance on self-report for all 4 lifestyle variables assessed and absence of data regarding HF pathogenesis or whether accompanied by reduced or preserved left ventricular ejection fraction. One might anticipate that the reduction in HF incidence was primarily that from an ischemic origin. In addition, no information was available on changes in blood pressure, lipids, glycemia, or smoking status during follow-up. As with all epidemiological studies, the possibility of residual confounding exists.

A substantial literature has described the beneficial effects of a healthy lifestyle on cardiovascular disease incidence and its antecedent risk factors. In the Nurses’ Health Study, daily vigorous exercise, body mass index <25, and high adherence to a DASH diet was associated with a 54% lower risk of hypertension compared with lack of these characteristics.6 Incidence of type 2 diabetes mellitus7 and atrial fibrillation8 are lower in populations adhering to a healthy lifestyle. Such favorable lifestyle habits are also associated with reductions in incidence of myocardial infarction9 and stroke.10 In the same Swedish male cohort studied by Larsson et al in this issue of the journal, the 4 lifestyle variables previously described plus moderate alcohol intake were associated with 86% lower...
risk of myocardial infarction compared with having none of these habits. Even cognitive performance seems to be better maintained in older adults who adhere to a healthy lifestyle and control their blood pressure, cholesterol, and glucose; a relationship was found between the number of favorable lifestyle variables and smaller declines in executive function and episodic memory.11

Given this consistently demonstrated benefit from adherence to a healthy lifestyle in multiple epidemiological studies, with support for focused lifestyle interventions from clinical trials, the low overall adoption of these positive habits is disappointing. Recent data indicate that although smoking rates have declined to 17%, ≈69% of Americans are obese or overweight; an ideal healthy diet score is found in only 1.5% of adults and <50% meet the 2008 Physical Activity Guidelines benchmark of ≥150 minutes of moderate/vigorous physical activity.12 Thus, a major challenge to the physical, societal, and economic well-being of the US population is to improve our lifestyles.

Major public health campaigns by government and private organizations have helped to publicize the importance of lifestyle variables in improving and maintaining cardiovascular health. For example, the 2020 Strategic Impact Goal of the American Heart Association includes improving the cardiovascular health of Americans by 20% by focusing on achieving 7 health metrics—Life’s Simple 7.12 These include regular physical activity, a healthy diet, maintaining a desirable weight, and smoking cessation (the same 4 variables studied by Larsson et al)3 plus control of blood pressure, cholesterol, and blood glucose. The US Preventive Services Task Force has published a Clinical Guideline on Behavioral Counseling to Promote a Healthy Diet and Physical Activity for Cardiovascular Disease Prevention in Adults with Cardiovascular Risk Factors.13 A community-wide cardiovascular disease prevention program in rural Maine emphasizing lifestyle variables and control of traditional risk factors between 1970 and 2010 was accompanied by reduced smoking rates, improved control of hypertension and cholesterol, and lower rates of hospitalization and mortality.14

Clinical studies have suggested that economic incentives are likely to improve adoption and adherence to healthy lifestyle behaviors.15 The escalating costs of health insurance in the United States could be mitigated by rewarding individuals who exercise regularly, adhere to a Mediterranean diet, control body weight, and do not smoke by lowering their premiums. On the provider side, pay for performance incentives should include financial rewards for practitioners who reduce obesity and smoking rates and increase physical activity in their practices. However, one obstacle to such progress is the lack of emphasis on healthy lifestyles in physician training. A recent survey of cardiology fellowship programs found that only 24% of programs met the Core Cardiovascular Training Symposium guidelines with a dedicated month rotation in preventive cardiology.16 Although 71% of programs included exposure to cardiac rehabilitation and 37% in lipid management, instruction in weight management (7%), cardiatic nutrition (6%), and smoking cessation (5%) were uncommon. Thus, greater incorporation of salutary lifestyle instruction into cardiology fellowship programs as well as in internal medicine, family practice, and other primary care residencies is needed to improve our relatively low rates of healthy behaviors.

Disclosures

None.

References


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