

Behavioural Interventions to Reduce Cardiovascular Risk: Where Do We Stand?

Gianluigi Savarese

Division of Cardiology, Department of Medicine, Karolinska Institutet, Stockholm, Sweden

Disclosure: The author has no conflicts of interest to declare.

Citation: *European Cardiology Review* 2019;14(3):139–40. DOI: <https://doi.org/10.15420/ecr.2019.14.3.GE3>

Correspondence: Gianluigi Savarese, Division of Cardiology, Department of Medicine, Karolinska Institutet, Norrbacka S1:02, SE 17176 Stockholm, Sweden.

E: gianluigi.savarese@ki.se

Open Access: This work is open access under the CC-BY-NC 4.0 License which allows users to copy, redistribute and make derivative works for non-commercial purposes, provided the original work is cited correctly.

Cardiovascular (CV) disease is the leading cause of death worldwide.¹ Age, sex and genetic factors have a major impact on CV risk. The importance of behavioural factors, such as tobacco and alcohol use, physical inactivity, unhealthy diet and obesity, is often neglected, although the implementation of lifestyle changes may be a cost-effective strategy for the prevention of CV diseases, also from a population-wide perspective.²

In this special issue of *European Cardiology Review*, we focus on epidemiology. D'Amario et al. discuss the current evidence on the use of e-cigarettes for smoking cessation.³ Smoking accounts for 11.5% of global deaths. The use of e-cigarettes has significantly contributed to a decline in classic cigarette smoking over the past decade and a recent randomised trial has shown that it is more effective for smoking cessation than nicotine-replacement therapy.⁴ E-cigarette use results in a significantly lower exposure to toxins and carcinogens than smoking traditional cigarettes. However, whether e-cigarette vapour, containing several substances which may be linked with CV toxicity, may increase CV risk is still under investigation. This is a particularly relevant issue, considering that the use of e-cigarettes is growing in young people and adolescents, where e-cigarettes may represent a path to start smoking rather than to quit.⁵ As D'Amario et al. state, more studies on the effects of e-cigarettes on CV but also general health are needed, but in the meantime, it is important to remember that 'no smoke' is better than 'electronic smoke'.³

Carro et al. address a different, yet similarly important, lifestyle issue that has a strong effect on CV health: nutrition.⁶ The authors explore the different dietary patterns recommended by worldwide scientific organisations, with particular focus on the Mediterranean diet and the Dietary Approaches to Stop Hypertension (DASH). There is strong evidence supporting the CV benefits linked with the Mediterranean diet. The beneficial effects can be attributed to anti-inflammatory mechanisms and improved control of blood pressure, lipid profile and glucose metabolism, but also arrhythmic risk and gut microbiome. Consequently,

risk of coronary heart disease, ischaemic stroke and other CV diseases has been shown to be reduced in people who adopt a Mediterranean diet. Studies suggest that the DASH diet, which emphasises the importance of low sodium and reduced intake of refined grains, may be beneficial in terms of CV risk reduction by anti-inflammatory and antioxidant mechanisms, and an improvement in glucose metabolism and lipid profile. The cardiovascular effects of alcohol and coffee consumption are often debated. Fermented alcoholic drinks, such as wine, beer and cider, and particularly red wine, may have cardioprotective effects, mainly by improving endothelial function. However, the relationship between alcohol intake and CV risk is U-shaped, with heavy drinkers at higher risk of AF, non-ischaemic dilated cardiomyopathy and obesity. Antioxidant and anti-inflammatory mechanisms may explain the beneficial CV effects of regular coffee consumption (3–5 cups per day). Meat consumption is also frequently a matter of debate. Carro et al. explain that the association between red meat consumption and risk of all-cause and CV mortality may be explained by the high levels of saturated fat, cholesterol and haem iron, which are involved in the atherosclerotic processes. Evidence on white meat is more limited.

Finally, Schnaubelt et al. present a systematic review that explores the association between meditation and the risk of CV disease.⁷ The authors provide evidence, although limited, that supports a role for meditation as a smoking cessation strategy. Data on the antihypertensive effects of meditation are heterogeneous and may reflect the different definition or style of meditation used, with it potentially reducing blood pressure by mechanisms mediated by the autonomic nervous system. A few studies may suggest a link between meditation, improved insulin resistance, atherosclerosis and endothelial function. As the authors state, data suggest a potential role for meditation on CV risk, but the current evidence is limited and mainly derived from observational studies where the risk of residual confounding is high. However, meditation may indirectly improve CV health, by facilitating behaviour changes, such as improved diet and smoking cessation, which may have a direct effect on CV risk. ■

1. Lozano R, Naghavi M, Foreman K, et al. Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet* 2012;380:2095–128. [https://doi.org/10.1016/S0140-6736\(12\)61728-0](https://doi.org/10.1016/S0140-6736(12)61728-0); PMID: 23245604.
2. Piepoli MF, Hoes AW, Agewall S, et al. 2016 European guidelines on cardiovascular disease prevention in clinical practice: the Sixth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical Practice (constituted by representatives of 10 societies and by invited experts). *Eur Heart J* 2016;37:2315–81. <https://doi.org/10.1093/eurheartj/ehw106>; PMID: 27222591.
3. D'Amario D, Migliaro S, Borovac JA, et al. Electronic cigarettes and cardiovascular risk: caution waiting for evidence. *Eur Cardiol* 2019;14(3):151–8. <https://doi.org/10.15420/ecr.2019.16.2>.
4. Hajek P, Phillips-Waller A, Przulj D, et al. A randomized trial of e-cigarettes versus nicotine-replacement therapy. *N Engl J Med* 2019;380:629–37. <https://doi.org/10.1056/NEJMoa1808779>; PMID: 30699054.
5. Orimoloye OA, Osei AD, Uddin SMI, et al. Electronic cigarettes and cardiovascular risk: science, policy and the cost of certainty. *Eur Cardiol* 2019;14(3):159–60. <https://doi.org/10.15420/ecr.2019.14.3.GE2>.
6. Carro A, Panisello JM. Deciphering the riddles in nutrition and cardiovascular disease. *Eur Cardiol* 2019;14(3):141–50. <https://doi.org/10.15420/ecr.2019.07.R1>.
7. Schnaubelt S, Hammer A, Koller L, et al. Mediation and cardiovascular health: what is the link? *Eur Cardiol* 2019;14(3):161–4. <https://doi.org/10.15420/ecr.2019.21.2>.