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Review Article

Never enough recommended. Beyond the AHA/ACC guideline on lifestyle and behavior for cardiovascular prevention

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"An apple a day keeps the doctor away". But the saying seems true even once the doctor already did his job. The recent AHA/ACC guidelins on the primary prevention of cardiovascular diseases [1] and convincing new clinical studies on mortality reduction with physical activity in patients with and without cardiovascular disease (CVD) [2] are imposing a view conferring to lifestyle and behavior interventions the dignity of a measure not inferior to the pharmacological one and free of any harm. Yet even in western countries the optimal use of these resources is far away due to barriers being largely of a cultural nature. The Euroaspire III [3] and V studies [4] have dramatically demonstrated in subjects still free from cardiovascular disease that physical activity is practiced by no more than 20%; 17% currently smoke and 35% are obese but also the majority of coronary patients do not achieve the guideline standards for secondary prevention with high prevalences of persistent smoking, unhealthy diets, physical inactivity. Poor patient awareness of the benefits of a healthy lifestyle but also insufficient action from doctors for their patients in following the right approach are still important barriers [5,6]. And this is all the more serious the more clearly the benefit of healthy living habits emerges with the guidelines that are defining better and better how to adopt them.

What is the size of the benefit of healthy lifestyles apart from the proven benefits in terms of survival? To give an example, although the effect of antihypertensive drugs is greater than that of exercise, it has been shown that in hypertensive subjects each of the two approaches, exercise or drugs, produce similar results in blood pressure lowering [7]. It has been shown that exercise habit and diet can reduce the use of antihypertensive drugs [8]. Similar considerations also apply to diabetes [9]. There is no reason not to hypothesize, even if there is no solid evidence on this, that physical exercise and diet can achieve pressure and metabolic targets in treated hypertensives or diabetics with a saving of drug use (number of drugs/dosage).

This first part of the new AHA/ACC guideline dedicated to diet, exercise and overweight, responds to the inertia of the population and doctors with additional considerations that increasingly bring this intervention closer to what is done with drugs. As, for example, those related to the addition to the prescription of diet modifications, on the assessment of body size perception, of potential barriers to adhering to a heart-healthy diet as well as social and cultural influences.

What emerges from new guidelines is the definition with ever more details of algorithms for the management of vascular risk conditions such as arterial hypertension, diabetes and lipid abnormalities. In these algorithms the thresholds for starting with the pharmacological treatment are precisely defined. Before such thresholds there are large number of subjects who must receive only dietary and physical measures. They have not to be less detailed and administered with less attention paid to adherence compared to drug treatment. Similarly to what is proposed in the 2016 European guidelines, the AHA / ACC guidelines also detail these interventions.

Yet there are also changes with respect to the past deserving comments. For decades, nutritional guidelines have focused on reducing total food fat and saturated fatty acids, assuming that replacing the latter with carbohydrates and unsaturated fats would reduce the risk of cardiovascular events. Recent studies [10] indicate it could be not necessary to reduce the amount of fat in the diet. Now, given the controversies over the issue, the AHA/ACC guidelines preferred to address the recommendation on the need of changing the quality of fats in the

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diet to achieve better results in preventing CVD and this is why, in parallel with the European guidelines [11], they emphasize the composition of dietary fats with the recommendation to eliminate trans fatty acids and replace saturated fat with monounsaturated and polyunsaturated fats.

Nevertheless, if it is true - as it is correctly emphasized in the AHA / ACC guidelines - that controversial issues may still exist on nutritional recommendations, given the observational nature of the studies that generate them, very few doubts can exist on the advice concerning physical exercise.

Even in the field of physical exercise, even more than in that of dietary habits, the new guidelines bring us closer to the concept of *precision* medicine which is gaining a leading role. An example? In the previous AHA recommendations on sedentary and cardiovascular morbidity and mortality it was read that rather than recommend quantitative measures, it is appropriate to promote the advisory, “Sit less, move more.”[12] Similarly to what recommended by the European guidelines, the *dosage* of physical activity is now specified, consisting of 150 min per week of accumulated moderate-intensity physical activity or 75 min per week of vigorous-intensity physical activity. With moderate activity reduction for those unable to practice the vigorous one.

In dealing with the issue, one cannot avoid to mention a recent study by Jeong et al. [2] which assessed the impact of physical activity in a very large population encompassing subjects with and without history of CVD. Studies carried out to date have always focused on the advantages, in terms of reduced mortality, of physical activity in healthy individuals. Yet no data have ever been produced distinguishing between subjects still free or already suffering from CVD. What emerges from the study is that physical activity offers advantages in terms of survival both in primary and secondary prevention. And yet, in spite of individuals with pre-existing CVD being less likely to be physically active, their benefit from physical activity was greater than that of individuals without CVD. Moreover, the advantage of physical activity in secondary prevention in subjects with previous cardiovascular disease was not limited to the medium-low weekly thresholds of activity (as in healthy subjects) but was increasing with the increase in the threshold.

This data should make us reflect on the dignity and the role of lifestyle. Doctors have so far devoted little to substantial and sustained interventions to improve life habits of their patients. When a patient fulfils the indications for the start of drugs the doctor's focus on lifestyle attenuates and this happens even more after the patient has suffered from a vascular event and is a candidate for complex secondary prevention with drugs.

Finally, a crucial part of the new guidelines must be emphasized: the one related to who should promote a healthier lifestyle in the population. Is he the general practictioner? No more (if he ever was the only owner of this issue). Now it is recommended a multidisciplinary team of health professionals to deal with a topic becoming increasingly articulated and somewhat complex. This is a drastically different approach from the one currently in use, and its application will have to face barriers arising from the lack of resources (the economic one in the first place). Yet we need to globally reconsider the issue of prevention through physical and dietary measures, an approach that will be never enough recommended.

Declaration of Competing Interest

Claudio Cimminiello has received consultancy payments from sanofi, Bayer, Daiichi Sankyo, and Bristol-Myers-Squibb. The author report no conflict in this work.

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