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EDITORIAL

CARDIOVASCULAR RISK FACTORS: A PREVENTABLE EPIDEMIC?

FACTORES DE RIESGO CARDIOVASCULAR, UNA EPIDEMIA ¿PREVENIBLE?

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Professionals dedicated to treating cardiovascular diseases are reasonably aware of the responsibility to perform the secondary prevention tasks required during follow-up of cardiac patients. However, data show that this does not always translate into appropriate therapeutic control[1-5]. Recent results from the EUROASPIRE-III registry[1] indicate that European patients with ischemic heart disease not only have a high prevalence of coronary risk factors (RFs), but that the control of these factors is very poor. Although treatment of patients with this disease is getting increasingly closer to the evidence-based recommendations of scientific societies, it is still far from being optimal[2-5]. Some data suggest that the correct control of RFs after an acute myocardial infarction, improves long-term clinical outcome[6], and that many of these patients may benefit from cardiac rehabilitation programs which, in general, are rarely used[7].

However, if all the emphasis is only placed on the relevance of controlling risk factors in secondary prevention, then the fact of *always arriving too late* is implicitly accepted. In fact, and perhaps paradoxically, our involvement in the area of primary prevention is even less.

It is important to highlight some aspects related to the implementation of preventive measures in the general population[8-10]. Due to its enormous impact, it is reasonable to focus our efforts on preventing the onset of atherosclerotic disease in general, with manifestations in several vascular beds, and of ischemic heart disease in particular. It is unquestionable that prevention is a high-priority strategy. However, the actual health care often calls into question the real efficacy of measures aimed at guaranteeing the application of the available knowledge to clinical practice[8-10].

ATHEROSCLEROSIS AND CARDIOVASCULAR RISK FACTORS

Prevention strategies are primarily based on the concept that atherosclerotic disease develops silently, is slowly progressive from very early ages, and its first manifestation may be the sudden onset of an irreversible event: death or myocardial infarct[8]. From this moment on, any therapeutic effort will be, at best, palliative. The RFs are not only key elements in the

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entire atherosclerotic process, but they are also generally "modifiable" and its proper control dramatically decreases the onset of adverse cardiovascular events[8].

The crucial role played by RFs in the development of ischemic heart disease was demonstrated six decades ago in the Framingham studies[11]. Recently, the INTERHEART study[12], in a population of 15,152 patients and 14,820 control subjects from 52 countries, analyzed what were the "modifiable" risk factors of having a myocardial infarction. Tobacco use, dyslipidemia, diabetes, high blood pressure (hypertension) and obesity were predictors of this complication, whereas fruit and vegetable intake, physical activity and alcohol consumption had a protective effect[12].

These factors not only explained more than 90 % of the risk of myocardial infarction, but also have a clear cumulative effect. On the other hand, despite their enormous physiopathological relevance, many analytical or genetic parameters associated with inflammation, or vascular thrombogenicity have not demonstrated their usefulness in improving the predictive capacity offered by studying the classic risk factors[13]. Something similar occurs with the so-called emerging RFs.

We can say in a rough, but very graphic way, that less than half of individuals presenting some RF know their diagnosis, that less than half of them receive a specific treatment and, in turn, less than half of the ones treated, fulfill the therapeutic aims recommended by clinical practice guidelines[8-10,14-16]. In this sense, it is clear that we still have a long way to go.

Recent research in children and adolescents, highlight the high prevalence of RFs, such as hypercholesterolemia, sedentary lifestyle and obesity[17-21]. Some longitudinal studies conducted in university postgraduates also show the worsening of many of these factors as they reach adulthood[22-26]. Data from large studies in the working population are not very encouraging either[27,28].

Finally, age distribution is being significantly affected by the demographic changes and should be considered in future predictions, since the prevalence of sedentary lifestyle, obesity, hypertension, hypercholesterolemia and diabetes, increases significantly with age[8-10,25]. Although there has been an obvious reduction in blood pressure and cholesterol figures in developed countries, the prevalence of obesity and diabetes continues to increase[8-10,25].

RISK FACTORS: CURRENT SITUATION

It is worth recalling that any increase in blood pressure figures, even within the range considered as normal, is associated with increased morbidity and mortality[8,9]. In a cohort of university graduates, the incidence of hypertension was relatively high, and the cumulative probability of receiving a medical diagnosis of hypertension at the age of 65 was 50 % in women and 70 % in men[26]. This is compounded by poor blood pressure control, usually in clinical practice[14-16]. At this point, the therapeutic aim depends mainly on the severity of hypertension and the degree of target organ involvement[8,9].

The importance of controlling cholesterol levels both in primary and secondary prevention is also well known. Once again, studies have shown that in clinical practice many patients do not fulfill the recommended lipid levels[8,14-16]. This is especially striking since now we have, within our therapeutic arsenal, powerful, safe, and effective hypolipidemic agents with proven evidence, as is the case of the beneficial effects of statins, both in patients with hyperlipidemias, and in those with coronary heart disease[8]. One of the recently demonstrated and most dramatic therapeutic effects, is the capacity of aggressive hypolipidemic treatment (high-dose statins) to stop the progression, and even reverse the atherosclerotic plaque volume in surprisingly short periods of time[29,30].

The harmful effects of tobacco use are unquestionable, and it has been clearly demonstrated that smoking cessation is the most beneficial measure after suffering a coronary heart event, with a mortality reduction of 38 % and 43 % of non-fatal coronary events compared to those who continue smoking[31,32]. However, smoking remains one of the least discussed RFs among health professionals. The results of EUROASPIRE III show that only 34.6 % of smokers get medical advice for the cessation of this habit, and referral to specialized units or drug treatment occurs in only 14.3 % of cases[33].

A sedentary lifestyle is one of the most relevant preventable causes of death and, in fact, an inverse linear relationship between the quantity of physical activity carried out and mortality from any cause has been demostrated[34]. Specifically, participation in regular physical activity reduces the risk of both cardiovascular disease and various risk factors[34]. During the last decade, important information about the benefit of sport in children, adolescents and the elderly has been published. Recent recommendations suggest that men should engage in at least moderate physical activity for at least 30 min daily and children should do the same for 1 h, preferably every day of the week[34]. The reality is far from the recommendations, with percentages of physically inactive adolescents of up to 41 %[17], even

higher for females, and a marked tendency towards a worsening of this situation[17,18]. It is important, therefore, to promote physical activity programs during childhood and adolescence, as well as avoiding obesogenic lifestyles[34]. The increasingly sedentary lifestyle of the population seems to be involved in the current obesity pandemic and in the increase of metabolic syndrome[34].

The increasing prevalence of overweight and obesity will lead to an increase in type 2 diabetes mellitus, with the known cardiovascular-associated complications[8,9]. The importance of abdominal obesity and therefore, of anthropometric measurements such as waist circumference, as well as body mass index, has been clearly demonstrated[35]. We know that cardiovascular risk is almost doubled in patients with metabolic syndrome, and some studies indicate that patients who accrue a greater number of metabolic RFs have a particularly adverse prognosis[36]. In turn, diabetes is also acquiring epidemic proportions. This affects us very closely, since two-thirds of diabetic patients die of cardiovascular disorders. A systematic review confirms that, particularly in women, type 2 diabetes has a cardiovascular risk similar to the presence of coronary heart disease[37]. All the emphasis made in the importance of obtaining a strict control of RFs in diabetic patients, especially women, will never be enough[9]. The duration of diabetes progression and the presence or absence of microalbuminuria should also be considered[8,9,33].

CONCLUSIONS

Cardiovascular diseases are the leading cause of death worldwide. From the 1950's, large cohort studies found the most important factors in the development of atherosclerotic disease. At the same time, public health interventions were carried out to reduce cardiovascular complications by reducing these factors in the general population, demonstrating the crucial role of cardiovascular prevention. Half a century later, not only the prevalence of individual RFs increases, but also those that occur simultaneously (e.g. metabolic syndrome). Once that practically ideal prescription levels have been fulfilled, and although there are still promising pharmacological strategies against obesity, diabetes and smoking, it is clear that the emphasis should focus on multifactorial interventions that instill heart-healthy lifestyles and implement non-pharmacological measures from an early age of life[8-10].

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