



The importance of continuing surveillance of risk factors for prevention of cardiovascular diseases

Gaetano A. Lanza

Istituto di Cardiologia, Università Cattolica del Sacro Cuore, Roma, Italy

Correspondence to: Dr. Gaetano A. Lanza, Istituto di Cardiologia, Università Cattolica del Sacro Cuore, Largo A. Gemelli, 8, 00168 Roma, Italy. Tel +39 0630154187, Fax +39 063055535 E-mail g.a.lanza@rm.unicatt.it

After peaking in the 1960s', cardiovascular diseases (CVDs) have shown a consistent decline in western countries in recent decades [1]. Despite this, CVDs remain the major cause of mortality and morbidity in industrialized populations, with relevant associated socio-economical issues, while their incidence is increasing in developing countries.

Several factors have likely contributed to the reduced incidence of CVDs in industrialized societies, including an increase in education and attention to health issues, lifestyle changes and improvement in diagnostic facilities and therapeutic tools.

Epidemiologic studies have played an outstanding role in the decline of CVDs. Indeed, they have allowed for the identification of habits and conditions which expose healthy subjects to an increased risk of development of atherosclerosis and its complications. They have also led to the implementation of appropriate programs and campaigns aimed at fighting the identified risk factors by means of changes in diet and lifestyle and the use of specific drug treatments. In particular, tight control and prevention of hypertension, smoking and hypercholesterolemia has largely contributed to the reduction of CVDs, accounting for more than 50% of the reduction of mortality from the 1960s' to the 1990s' [2]. This approach was also crucial in improving the clinical outcomes of secondary prevention for CVDs.

In recent years, however, the decline in CVDs seems to be less pronounced [3]. Although this may be related to several factors, including suboptimal diagnosis and treatment of CVD risk factors, one of the likely causes seems to be the increase in sedentary lifestyle and body mass index [4,5], which facilitates not only some of the classical risk factors of CVDs (e.g., hypertension, glucose intolerance, dyslipidemia), but also some of the more recently recognised risk factors, such as inflammatory markers (e.g., C-reactive protein).

Thus, epidemiological surveys remain a crucial tool in order to closely follow the trend of classical cardiovascular risk factors over time, identify possible new risk factors, and assess the tendencies of CVDs in relation to these changes, which are of fundamental importance to the planning of adequate healthy programs to fight CVDs.

Interestingly, some differences in the profile of CVD risk factors may exist among different populations of different countries, as well as among different groups of people in a same country, which may suggest the implementation of differentiated programs to achieve optimal clinical results.

Most of these classical and new aspects of epidemiologic studies on CVDs and their application in clinical practice are examined in the series of articles published in the monothematic part of this issue of the Journal.

Thus, the importance to screen specific groups of subjects in order to better address efforts of programs to control for CVDs risk factors is highlighted by *Baker et al.*, who show that people in the UK who are not screened for risk factors are 3.6-4.6 fold more likely to die from CVDs compared to screened populations. Importantly, the worst outcome was in unscreened deprived

people, suggesting that particular attention should be paid in implementing programmes to control for CVD risk factors in deprived areas.

By reporting data from the CUORE Project, which assesses CVD risk factors in middle-aged Italian people, *Giampaoli et al.* underscore the importance of identifying CVD risk factors specific for each population and then derive and apply risk charts and risk scores to the population from which they are derived, also stressing the importance of their use by general practitioners, which would facilitate the control of the risk in the territory.

The crucial role of general health physicians for CVD prevention is also highlighted by *Mazzaglia et al.*, who focus, in particular, on the need for an appropriate risk stratification for cerebrovascular disease, observing that data from surveys clearly indicate an overall under-monitoring for the most relevant risk factors for stroke in clinical practice.

Laatikainen et al., on the other hand, presenting data from the community North Karelia project in Finland, show how a program based on lifestyle modification aimed at reducing three major CVD risk factors (i.e., smoking, hypertension and hypercholesterolemia) is associated with a significant reduction of CVD risk factors, which parallels the reduction in mortality and in chronic disease rates of CVDs in the population.

Accordingly, *Ricco et al.* show, from a systematic review of published studies, that the Mediterranean diet, which is notoriously scarce in components favouring the development of cardiovascular risk factors, is associated with a significant reduction of adverse cardiovascular events, both in primary and secondary prevention.

Finally, *Iacoviello et al.* discuss the role of genetic determinants in the risk of CVDs and their interaction with environmental factors, important points that they are assessing in a prospective study in a Southern Italian population (the Moli-sani project), and that it is hoped that the study will provide a more effective definition of cardiovascular risk in individual patients. Interestingly, early epidemiologic findings from this population confirm the increasing prevalence of obesity, hypertension and metabolic syndrome, as well as the under-diagnosis and under-treatment of CVD risk factors in Mediterranean people, further highlighting for the need of continuing surveillance for the appropriate prevention of CVDs.

1. Rosamond W, Flegal K, Friday G, et al. Heart disease and stroke statistics - 2007 update: a report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. *Circulation* 2007;115:e69-e171.
2. Ford ES, Ajani UA, Croft JB, et al. Explaining the Decrease in U.S. Deaths from Coronary Disease, 1980-2000. *nejm* 2007;356:2388-98.
3. Cooper R, Cutler J, Desvigne-Nickens P, et al. Trends and disparities in coronary heart disease, stroke and other cardiovascular diseases in the United States: findings of the national conference on cardiovascular disease prevention. *Circulation* 2006;102:3137-47.
4. Harris MI, Flegal KM, Cowie CC, et al. Prevalence of diabetes, impaired fasting glucose, and impaired glucose tolerance in U.S. adults: the Third National Health and Nutrition Examination Survey, 1988-1994. *Diabetes Care* 1998;21:518-24.
5. Hedley AA, Ogden CL, Johnson CL, Carroll MD, Curtin LR, Flegal KM. Prevalence of overweight and obesity among US children, adolescents, and adults, 1999-2002. *JAMA* 2004;291:2847-50.