Community related life style intervention reduces coronary risk in the population

See page 1591 for the article to which this Editorial refers

The population strategy of cardiovascular disease prevention requires changes in the risk behaviour of large numbers of people. The goal of these activities is to reduce the average levels of risk factors in the whole community. This concept of prevention was laid out by the late Geoffrey Rose[1]. The first generation community programmes were carried out in Finland[2], Minnesota[3], at Stanford, California[4] and elsewhere. In the early 1990s a community model of coronary prevention was introduced in the Czech Republic with the help of the San Francisco Group of Havel and Farquhar in the neighbouring community near Prague[5].

Community-based coronary heart disease prevention programmes are based on several assumptions:

• There is a definite causal relationship between risk factors levels and coronary risk.
• The benefits of intervention have already been demonstrated.
• Health promotion by population strategy is feasible and currently accepted by large groups of people.

In this issue, an article by Scheuermann et al.[6] from the University of Heidelberg reports on the results of the German Cardiovascular Prevention Study which was carried out in six regions of West Germany between 1986–1992. It aimed to reduce the prevalence of hypertension, smoking, hyperlipidaemia, obesity and to lower the global risk score. The population of two towns (Karlsruhe with 260,000 inhabitants and Bruchsal with 36,500 inhabitants) were intervened by a large group of general practitioners, internists and paediatricians in cooperation with interested lay people to introduce a healthier lifestyle. The intervention was done under the slogan ‘our community is on the move towards health’. The study was characterized by the extraordinary cooperation of lay citizens who voluntarily promoted the health propaganda in their spare time under the surveillance of local GPs. The results of this exceptionally well-organized programme were evaluated by repeated sentinel surveys of independent cross-sectional samples in the intervention communities. The National Survey Data derived from the ERICA study[7] served as controls. The population means of systolic and diastolic blood pressure, body mass index, total serum cholesterol, HDL-cholesterol, cholesterol/HDL ratio and the risk score calculated by multiple logistic function (from ERICA coefficients) were not different from the National Survey Data at the baseline. After 6 years of follow-up the coronary risk profile significantly improved in the intervention towns in terms of mean systolic and diastolic blood pressure, smoking prevalence, hypercholesterolaemia, low HDL cholesterol and mean multiple logistic function score. Minor changes were also observed in the National Health Survey. They were only significant for blood pressure and total cholesterol/HDL-cholesterol ratio but not for the multiple logistic function score. Moreover in the control group the prevalence of smoking remained unchanged and gross obesity (body mass index >30) increased by about 20%.

It has been proved by randomized multi-factorial intervention trials that the modification of coronary risk profiles in free-living populations by the activities of GPs were feasible; however, they have not always led to a reduction in coronary mortality and incidence of myocardial infarctions. The results of these trials

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were recently reviewed by Ebrahim and Davey Smith[9]. Several of nine reviewed trials had an impact on smoking and blood pressure reduction or on serum cholesterol levels. Their effectiveness in terms of total and coronary mortality was very small.

The most renowned community programmes for coronary heart disease prevention were the Stanford Five-City Project, the North Karelia Project and the Minnesota Heart Health Program. In the Stanford Five-City Project initiated in 1978, after 1 year of intervention, the prevalence of smoking and hypertension had decreased in both treatment and control cities and the prevalence of hypercholesterolaemia had also decreased, at least in men over 70 years. All three programmes clearly demonstrated the feasibility of changing risk factor levels in the community by addressing lifestyles. The intervention has taken the form of campaigns in schools, work sites, grocery stores, and restaurants and was also aimed to promote the use of healthier food for cooking. It has been demonstrated that risk factor levels in the intervention communities decreased somewhat more than in the general population, nevertheless the impact on the incidence of myocardial infarction and total and coronary mortality remained in doubt. As was demonstrated in the North Karelia Project, similar risk factor changes also occurred during the intervention period in both the intervention and reference area (Kuopio).

The Czech and German populations are known to have similar behavioural and cultural traditions. A similar population-wide community-oriented programme was introduced in 1992 in Dubec, a Czech town located just outside Prague. Richard Havel et al. from San Francisco and John Farquhar from Stanford initiated this study. The design of the study was very similar to the Stanford Five-City Study and the German study reported in this issue[6]. It also demonstrated the feasibility of addressing coronary risk-related behaviour through community-wide health education; however the changes were only evident in the high risk group with additional medical treatment[9]. Because the secular trends of risk factor changes in the Czech MONICA Study were investigated in different time-spans (1990–1992), whether the global risk profile was different from the Czech population data, as reported in the MONICA Study, could not be assessed[10].

Coronary heart disease will remain the principal cause of death in most countries despite the continuous decline in morbidity and mortality in the past 30 years, as observed in developed industrialized countries, at least. A significant decline in total and coronary mortality was also observed in the Czech population in the years 1992–1998[11]. The changes in lifestyle of the communities have led to the postponement of coronary heart disease to higher ages. The reasons for these trends are complex. Mortality is declining more than the incidence because better acute and chronic coronary heart disease treatment works in concert with risk factor reduction and lifestyle changes. The German study showed, in agreement with other European data, that the population approach described by Rose is feasible but must be applied in addition to individual intervention in patients and the high risk strategy. A small step to the left on the distribution curve of the risk of coronary heart disease has, without doubt, a beneficial effect on the promotion of health and quality of life of the population. It would be bad news for national economies if the global burden of cardiovascular disease were to increase in the new millennium.

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References