Letters to the Editor

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Principles of prevention of cardiovascular disease

Dear Sir

The International Atherosclerosis Society (IAS) recently released harmonized guidelines for prevention of atherosclerotic disease through clinical management.1 These guidelines integrate and harmonize existing guidelines for this purpose. Thanks to a large number of clinical trials, it is now possible to provide strong evidence-based guidelines for risk factor modification to prevent both recurrent atherosclerotic events (secondary prevention) and new onset events (primary prevention). Most guidelines in the cardiovascular field are in agreement that intensive risk-factor intervention is both efficacious and cost effective for secondary prevention. Moreover, recent guidelines have extended the concept of secondary prevention to include high-risk patients having several types of cardiovascular disease (CVD) including established coronary heart disease (CHD), peripheral arterial disease, and stroke. In addition, many patients with diabetes have been shown to be at high risk, as are some persons with multiple risk factors. Both of these latter groups are candidates for intensive risk reduction as well. In the United States, a category of moderately high risk has further been identified as including patients with multiple risk factors who are not yet at high risk but who nonetheless will benefit from clinical risk intervention.

Although most guidelines are in agreement that patients with established CVD are strong candidates for aggressive risk-reduction therapy, a major challenge in the field of CVD prevention is the identification of patients without CVD who are at high enough risk to justify clinical intervention, especially with drug therapy. Risk assessment for this purpose generally has employed multiple-risk-factor algorithms. Two risk-assessment tools widely used are the Framingham algorithm and the PROCAM algorithm. These two approaches give similar although not identical results. Both algorithms assess 10-year risk for "hard CHD" (myocardial infarction + CHD death). A new algorithm, called SCORE, was recently published.2 This algorithm is designed to be used specifically in Europe, and it divides the European population into high-risk and low-risk regions. The same risk factors are used for both regions, but their relations to CVD are weighted differently. A critical feature of the SCORE algorithm is that it is based on prediction of total fatal CVD outcomes and not on total CVD events. The consequences for clinical management of this change in outcome for the risk algorithm must be examined. A critical question is whether the major purpose of primary prevention is to reduce the burden of atherosclerotic disease in society or to reduce CVD mortality. Use of the SCORE algorithm likely will shift the balance in public health policy more to secondary prevention and away from primary prevention. It employs the weaker association between risk factors and CVD mortality than between risk factors and CVD morbidity (CVD burden). Many persons at higher risk for new-onset CVD will not be identified. A particular deficit of the SCORE algorithm is its failure to identify older people at higher risk who have been shown to benefit from risk-reducing therapies.

The IAS views this shift in emphasis implied by SCORE risk assessment as being ill-advised. The need for intensive intervention for secondary prevention is well established. The future of CVD prevention lies in reducing CVD burden by preventing new-onset CVD. We view the major need in this area to be for improved algorithms to assess risk for total CVD events. Such would allow for application of more efficacious and cost-effective preventive therapies to deserving individuals without CVD. In the meantime, Framingham and PROCAM algorithms provide the best risk-assessment tools for primary prevention. Indeed, both algorithms are currently being adjusted to improve risk assessment in specific populations.

References


H. Greten
Department of Internal Medicine
University Hospital Eppendorf
Hamburg, Martinistr. 52
20246 Hamburg, Germany
Tel.: +49-4042-8033901
Fax: +49-4042-8039723
E-mail address: ias@uke.uni-hamburg.de

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Principles of prevention of cardiovascular disease: Reply

Dear Sir

We note the statement by Dr. Greten on behalf of the International Atherosclerosis Society regarding the Systematic Coronary Risk Evaluation (SCORE) Project1. It is important because it illustrates some fundamental misconceptions about both risk prediction and the practical prevention of cardiovascular diseases.

(1) The SCORE Project1 describes a simple method of predicting the risk of atherosclerotic cardiovascular diseases. It does not offer advice with regard to prevention of cardiovascular diseases. This is given in the guidelines of the Third Joint European Societies Task Force on Cardiovascular Disease Prevention in Clinical Practice2, which includes the European Atherosclerosis Society. It is not clear to us why the International Atherosclerosis Society chose not to refer to these agreed European Guidelines.

(2) The Joint European Task Force Recommendations2 use the SCORE risk algorithm to predict risk of atherosclerotic cardiovascular diseases, not just coronary heart disease. This acknowledges the importance of manifestations of atherosclerosis other than coronary heart disease, such as stroke and peripheral vascular disease.

(3) Dr. Greten and the International Atherosclerosis Society apparently fail to understand that a high risk of cardiovascular diseases mortality also denotes a high risk of morbidity. In no way will this approach “shift the balance in public health policy more to secondary prevention and away from primary prevention”. Further, it is scientifically incorrect to state that the association between risk factors and mortality is weaker than the association with morbidity.

(4) Dr. Greten and colleagues also fail to understand the statistical methods of elaboration of the cardiovascular risk algorithm. The relations of risk factors to CVD in high or low risk regions are not outcome of weighting but the result of what is naturally occurring in different populations of Europe.

(5) The SCORE Project Group is indeed addressing the issue of the prediction of morbid events, as well as cardiovascular diseases mortality. This issue requires rigorous scientific examination, and is not as simple as many would appear to believe, for several reasons: