Cholesterol lowering in coronary disease: a step in the right direction

See page 1725 for the article to which this Editorial refers

Cardiovascular disease remains the leading cause of death in the western world. Myocardial infarction plays a central role. Firstly because the pre- and in-hospital mortality rate is extraordinarily high (>50%)\[^1\]\, and secondly because it often represents the first manifestation of coronary heart disease, which in the majority of those affected progresses to death.

The role of risk factors (smoking, elevated cholesterol levels, hypertension, overweight, lack of exercise, psychosocial stress) in the genesis of coronary heart disease has been clearly demonstrated. The role of correcting individual risk factors in the primary prevention of myocardial infarction is still somewhat controversial. However, a minimum low density lipoprotein-cholesterol level is necessary for an atherosclerotic plaque to develop. Patients with a low density lipoprotein-cholesterol level of 240 mg. dl\(^{-1}\) have a ten times greater risk of suffering a myocardial infarction than those with a level of 120 mg. dl\(^{-1}\)\[^3\].

The role played by hypercholesterolaemia once the initial manifestation has occurred is uncontested. From this point on the mortality rate increases linearly with the cholesterol level\[^3\]. Low density lipoprotein-cholesterol is a key factor in progression\[^7\].

Angiographic studies have shown a direct correlation between a reduction in cholesterol level, particularly low density lipoprotein-cholesterol, and a reduction in the progression of existing coronary lesions (MARS, CCAIT, MAAS)\[^4-6\]; the latest of these is the Coronary Intervention Study (CIS)\[^7\]. The question regarding clinical efficacy has been definitively answered in the 4S Study (Scandinavian Simvastatin Survival Study)\[^8\] of which the paper by Strandberg et al.\[^9\] in this issue represents a follow-up of the Finnish patients. Speaking in clinical terms, the results of the 4S Study can be summarized in the following manner.

If one treats 100 patients for 6 years, one prevents:

- of nine otherwise occurring coronary deaths 3
- of 20 otherwise occurring myocardial infarctions 7
- of 19 otherwise necessary CABG operations 6

Patients in whom cholesterol levels could be lowered by ≥45% had an event rate of 11%, those with a lowering of ≤35% a rate of 18%\[^8\]. In CIS, the lessening of progression correlated directly with the lowering of low density lipoprotein-levels (\(P<0.003\))\[^6\]. In CARE, myocardial infarction or the necessity of PTCA or ACVB decreased by 25% in the treatment group (\(P<0.05\))\[^10\].

Consensus statements therefore recommend lowering low density lipoprotein-cholesterol to less than 100 mg. dl\(^{-1}\) or alternatively decreasing total cholesterol below 200 mg. dl\(^{-1}\).\[^11\]. Although in the patients followed by Strandberg and colleagues, 38% did not meet the in-trial treatment goal of serum cholesterol (≤200 mg. dl\(^{-1}\)), this figure is substantially better than the one presented by Wood, on behalf of the EUROASPIRE-STUDY\[^12\]. In this survey of risk factor evaluation post-coronary event in 4863 patients from nine European countries, 53% had total cholesterol levels above the recommended 200 mg. dl\(^{-1}\), among them 10-2% >250 mg. dl\(^{-1}\) and 2-1% >300 mg. dl\(^{-1}\). Although the results of
Strandberg et al. are not sufficient in terms of reaching the desired goal in secondary prevention via lipid lowering in all patients, success in 62% is clearly above the European average. One can only speculate why; the most likely explanation is the improved physician–patient relationship achieved during the study period of the 4S trial that was responsible for the more favourable results. From there, the direction for future efforts becomes clearer: detailed information for patients and physicians alike, a clear definition of the results to be achieved, and a closer follow-up are the necessary steps.

Decreasing the number of events via cholesterol lowering in patients following the first manifestation of coronary disease is now an established method of treatment. The worrying feature is that the desired goal of cholesterol lowering is not met in the majority of European patients. Compliance regarding the adherence to nutritional advice as well as adequate medication is now the central problem. In this respect, the patients described by Strandberg et al. in their follow-up of the 4S trial do substantially better than the average European patient.

P. MATHES
Klinik Höhenried,
für Herz-und Kreislaufkrankheiten
Bernried, Germany

References


