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Coronary Prevention in Two European Areas with Different Risk Levels, Stockholm and Sicily: Doctors' Risk Judgments and Statin Utilization

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Abstract

Introduction

International guidelines on the primary prevention of cardiovascular disease recommend that preventive measures should be based on the doctors' quantitative total risk assessment of the patient. Treatment is recommended when the patient's risk is above a certain threshold. Risk scoring systems have been developed to assist clinicians with risk estimates. However, in clinical practice this estimation is usually made subjectively. This implies that factors unrelated to the true risk of the patients may influence the doctors' risk estimates and decisions about treatment.

Aim

We aimed to study coronary preventive care in two areas with different coronary risk levels, with special reference to doctors' attitudes in investigating risk factors, and their risk assessments and decisions about treatment. In accordance with the different levels of cardiovascular risk in the areas studied, we also aimed to test the hypothesis that the same set of risk factors may be perceived as indicating higher risk in a high-risk country, than in a low-risk country.

Methods

The studies were performed in two European areas, one with a high and the other with a low level of population cardiovascular risk, Stockholm county and Sicily, respectively. Questionnaires on doctors' clinical practice (Study I) and written patient cases (Studies II-IV) were presented to random samples of doctors in Stockholm and in Sicily. The cases were constructed according to the Framingham scoring system, ranging from very high- to very low-risk cases. Differences in the use of statins and coronary mortality in the populations (Study V) were studied by collecting official data from the health care systems in both areas.

Results and Discussion

There were differences in the management of hyperlipidaemia (Study I). More doctors in Stockholm investigated lipids in patients with other cardiovascular risk factors. The cholesterol level at which doctors started lipid-lowering treatment was higher in Stockholm than in Sicily. In Study II, General Practitioners (GPs) were asked to evaluate nine written patient cases. Their coronary risk estimates showed large variability, especially in high-risk cases, and in general the risk was underestimated compared to the risk calculated according to the Framingham equations. Contrary to the hypothesis, GPs in Stockholm made lower estimates and less often decided to start lipid-lowering treatment than was the case in Sicily. A possible reason for this is that a high background risk level of the population tends to suppress the risk estimate of an individual with a certain set of risk factors, and vice versa if the population risk is low. Support to such line of thinking was found comparing risk estimates and decisions about treatment between doctors who usually deal with coronary preventive care: GPs, cardiologists and internists (Study III). Compared to the other specialists, cardiologists, who usually deal with high-risk patients, showed lower risk estimates when assessing the same set of patient cases. In study IV we found that the task of risk rating and the task of making decisions about treatment did not mutually influence each other. Female GPs and GPs with shorter clinical experience were more likely to make correct decisions.

The differences in coronary risk ratings and decisions about treatment observed in the two areas with different population coronary risk levels may be related to the use of statins in the whole population of the respective area. Study V investigated the time trends in the relations between population coronary risk levels, expressed as coronary mortality, and use of statins, in the period 2001-2011. In both areas there was a reduction in coronary mortality and an increase in statin utilization. A larger reduction in coronary mortality was observed in Stockholm compared to Sicily, whereas the statin utilization increased more in Sicily than in Stockholm. Thus, the changes over time in statin utilization seem inversely associated with the changes in coronary mortality. However, the influence of other variables that are independent of the population coronary risk, such as cost containment policies, socioeconomic gradients in the use of statins, and drug discontinuation rate, must be taken into account.

Conclusions

There are several differences in primary coronary prevention between the two European areas with different population cardiovascular risk profiles. Doctors' quantitative risk estimates and decisions about treatment are influenced by factors not directly related to the actual risk of the patients, and seem tentatively to be inversely related to the background cardiovascular risk in the population. The differences in primary coronary prevention may contribute to an increase in statin utilization that is not justified by changes in population coronary risk. The results of the thesis may help in the development of decision tools and recommendations for primary coronary prevention.