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Abstract HTA

HTA-Report | Abstract

Evaluation of medical and health economic effectiveness of non-pharmacological secondary prevention of coronary heart disease

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Background
Coronary heart disease (CHD) is a common and potentially fatal malady with a lifetime prevalence of over 20%. For Germany, the mortality attributable to chronic ischemic heart disease or acute myocardial infarction is estimated at 140,000 deaths per year. An association between prognosis of CHD and lifestyle risk factors has been consistently shown. To positively influence lifestyle risk factors in patients with CHD, non-pharmaceutical secondary prevention strategies are frequently recommended and implemented.

Objectives
The aim of this HTA (HTA = Health Technology Assessment) is to summarise the current literature on strategies for non-pharmaceutical secondary prevention in patients with CHD and to evaluate their medical effectiveness/efficacy and cost-effectiveness as well as the ethical, social and legal implications. In addition, this report aims to compare the effectiveness and efficacy of different intervention components and to evaluate the generalisability with regard to the German context.

Methods
Relevant publications were identified by means of a structured search of databases accessed through the German Institute of Medical Documentation and Information (DIMDI). In addition, a manual search of identified reference lists was conducted. The present report includes German and English literature published between January 2003 and September 2008 targeting adults with CHD. The methodological quality of included studies was assessed according to pre-defined quality criteria, based on the criteria of evidence based medicine.

Results
Among 9,074 publications 43 medical publications met the inclusion criteria. Overall study quality is satisfactory, but only half the studies report overall mortality or cardiac mortality as an outcome, while the remaining studies report less reliable outcome parameters. The follow-up duration varies between twelve and 120 months. Although overall effectiveness of non-pharmaceutical secondary prevention programs shows considerable heterogeneity, there is evidence for the long-term effectiveness concerning mortality, recurrent cardiac events and quality of life. Interventions based on exercise and also multicomponent interventions report more conclusive evidence for reducing mortality, while interventions focusing on psycho-
social risk factors seem to be more effective in improving quality of life. Only two studies from Germany fulfil the methodological criteria and are included in this report.

Additionally, 25 economic publications met the inclusion criteria. Both, quantity and quality of publications dealing with combined interventions are higher compared with those investigating single component interventions. However, there are difficulties in transferring the international results into the German health care system, because of its specific structure of the rehabilitation system. While international literature mostly shows a positive cost-effectiveness ratio of combined programs, almost without exception, studies investigate out-of-hospital or home-based programs. The examination of publications evaluating the cost-effectiveness of single interventions merely shows a positive trend of exercise-based and smoking cessation programs. Due to a lack of appropriate studies, no conclusive evidence regarding psychosocial and dietary interventions is available. Altogether eleven publications concerned with ethical or social issues of non-pharmacological secondary prevention strategies are included. These studies are relatively confirm the assumption that patients with a lower socioeconomic background reflect a population at increased risk and therefore have specific needs to participate in rehabilitation programs. However, there currently remains uncertainty, whether these patients participate in rehabilitation more or less often. As barriers, which deter patients from attending, aspects like a lack of motivation, family commitments or the distance between home and rehabilitation centres are identified. Psychological factors like anxiety, depression and uncertainty as well as physical constraints are also pointed out.

Discussion

Non-pharmacological secondary preventive strategies are safe and effective in improving mortality, morbidity and quality of life in patients with CHD. Because of the small number of reliable studies with long term follow up over 60 months, sustainability of observed intervention effects has to be regarded with caution. Due to a lack of suitable studies, it was not possible to determine the effectiveness of interventions in important patient subgroups as well as the comparative effectiveness of different intervention strategies, conclusively. Future research should, amongst others, attempt to investigate these questions in methodologically rigorous studies. With regard to the cost-effectiveness of non-pharmacological interventions, overall, international studies show positive results. However, there are considerable limitations due to the qualitative and quantitative deficiencies of identified studies. The special characteristics of the German rehabilitation system with its primarily inpatient offers result in further difficulties, when trying to transfer international study results to the German health care system. Both, studies demonstrating the cost-effectiveness of inpatient programs and those investigating the cost-effectiveness of single interventions are currently not available. To examine the German rehabilitation programs concerning their efficiency and their potential for optimisation, there is a need for further research. Concerning social and ethical issues, a lack of studies addressing the structure of rehabilitation participants in Germany is striking. The same applies to studies examining the reasons for none participation in non-pharmacological secondary prevention programs. Evidence regarding these questions would provide an informative basis for optimising rehabilitation programs in Germany.
Conclusion

Non-pharmacological secondary prevention interventions are safe and able to reduce mortality from CHD and cardiac events, as well as to improve patient’s quality of life. Nevertheless, there is considerable need for research; especially the effectiveness of interventions for important subgroups of CHD patients has to be evaluated. In addition to intervention effectiveness, there is also some evidence that interventions generate an appropriate cost-effectiveness ratio. However, future research should investigate this further. The same applies to the sustainability of secondary prevention programs and patient’s reasons for not attending them.