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[Intervention Review]

Exercise-based cardiac rehabilitation for coronary heart disease

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ABSTRACT

Background

The burden of coronary heart disease (CHD) worldwide is one of great concern to patients and healthcare agencies alike. Exercise-based cardiac rehabilitation aims to restore patients with heart disease to health.

Objectives

To determine the effectiveness of exercise-based cardiac rehabilitation (exercise training alone or in combination with psychosocial or educational interventions) on mortality, morbidity and health-related quality of life of patients with CHD.

Search methods

RCTs have been identified by searching CENTRAL, HTA, and DARE (using *The Cochrane Library* Issue 4, 2009), as well as MEDLINE (1950 to December 2009), EMBASE (1980 to December 2009), CINAHL (1982 to December 2009), and Science Citation Index Expanded (1900 to December 2009).

Selection criteria

Men and women of all ages who have had myocardial infarction (MI), coronary artery bypass graft (CABG) or percutaneous transluminal coronary angioplasty (PTCA), or who have angina pectoris or coronary artery disease defined by angiography.

Data collection and analysis

Studies were selected and data extracted independently by two reviewers. Authors were contacted where possible to obtain missing information.

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Main results

This systematic review has allowed analysis of 47 studies randomising 10,794 patients to exercise-based cardiac rehabilitation or usual care. In medium to longer term (i.e. 12 or more months follow-up) exercise-based cardiac rehabilitation reduced overall and cardiovascular mortality [RR 0.87 (95% CI 0.75, 0.99) and 0.74 (95% CI 0.63, 0.87), respectively], and hospital admissions [RR 0.69 (95% CI 0.51, 0.93)] in the shorter term (< 12 months follow-up) with no evidence of heterogeneity of effect across trials. Cardiac rehabilitation did not reduce the risk of total MI, CABG or PTCA. Given both the heterogeneity in outcome measures and methods of reporting findings, a meta-analysis was not undertaken for health-related quality of life. In seven out of 10 trials reporting health-related quality of life using validated measures there was evidence of a significantly higher level of quality of life with exercise-based cardiac rehabilitation than usual care.

Authors' conclusions

Exercise-based cardiac rehabilitation is effective in reducing total and cardiovascular mortality (in medium to longer term studies) and hospital admissions (in shorter term studies) but not total MI or revascularisation (CABG or PTCA). Despite inclusion of more recent trials, the population studied in this review is still predominantly male, middle aged and low risk. Therefore, well-designed, and adequately reported RCTs in groups of CHD patients more representative of usual clinical practice are still needed. These trials should include validated health-related quality of life outcome measures, need to explicitly report clinical events including hospital admission, and assess costs and cost-effectiveness.

PLAIN LANGUAGE SUMMARY

Regular exercise or exercise with education and psychological support can reduce the likelihood of dying from heart disease.

Coronary heart disease (CHD) is one of the most common forms of heart disease. It affects the heart by restricting or blocking the flow of blood around it. This can lead to a feeling of tightness in the chest (angina) or a heart attack. Exercise-based cardiac rehabilitation aims to restore people with CHD to health through either regular exercise alone or a combination of exercise with education and psychological support. The findings of this review indicate that exercise-based rehabilitation reduces the likelihood of dying from heart disease and there is moderate evidence of an improvement in quality of life in the predominantly middle aged, male patients included in these studies. More research is needed to assess the overall health impact of exercise-based rehabilitation in a broader range of patients.