Cardiac rehabilitation in patients following myocardial infarction

A randomised controlled trial found no significant benefits of cardiac rehabilitation programmes for patients following myocardial infarction. However, the trial has important limitations, notably its lack of statistical power to detect a benefit. A large meta-analysis that includes more recent data supports the use of cardiac rehabilitation in these patients, as recommended in NICE guidance.

Overview: Cardiac rehabilitation is the sum of activity and interventions required to ensure the best physical, mental, and social conditions so that patients with chronic or post-acute cardiovascular disease may, by their own efforts, preserve or resume their proper place in society and lead an active life.

Current advice: NICE recommends that all patients following a myocardial infarction (MI), regardless of their age, should be given advice about and offered a cardiac rehabilitation programme with an exercise component. Cardiac rehabilitation programmes should provide a range of options, and patients should be encouraged to attend all those appropriate to their clinical needs. Patients should not be excluded from the entire programme if they choose not to attend certain components.

New evidence: A multicentre randomised controlled trial examined the effect of cardiac rehabilitation (including exercise, education and counselling) on mortality, morbidity and health-related quality of life in patients following MI (RAMIT trial: West et al. 2011). The trial, involving 1813 patients, was carried out across 14 centres in England and Wales between 1997 and 2000. Participants were randomised to cardiac rehabilitation programmes or discharged to ‘usual care’ (without referral to rehabilitation).

There was no statistically significant difference between rehabilitation and control groups for the primary outcome of all-cause mortality at 2 years: 82 vs 84 deaths, relative risk 0.98, 95% confidence interval 0.74 to 1.30. There was also no statistically significant difference between groups in the combined outcome of death, non-fatal MI, stroke or revascularisation, deaths at 1 year, deaths after 7–9 years, and measures of health-related quality of life, psychological well-being and lifestyle.

The authors conclude that the comprehensive cardiac rehabilitation programmes studied had no effect on mortality, and little evidence of any beneficial effect on cardiac or psychological morbidity, risk factors or patients’ appreciation of total aftercare. They claim that this finding is consistent with systematic reviews of all trials reported since 1983, and question the value of cardiac rehabilitation as currently practised in the UK, a view contested by others in this field (see accompanying editorial and commentary below).

The trial has a number of limitations (see commentary); it is important to note that the trial was stopped early after recruiting fewer than 2000 patients. However, the number of participants needed to be able to show any significant difference in the primary outcome between rehabilitation and control groups was estimated to be 8000 patients. In a study with insufficient statistical power, like this, ‘no significant difference’ may not necessarily indicate ‘no true difference’.

Commentary: “This trial evaluated an intervention that is atypically narrow compared to most of today’s services in terms of target population, multi-factorial elements and, more arguably, sophistication and theoretical basis.
“The findings, from these data gathered in the late 1990s, are at odds with those of recent meta-analyses, including an update to the Cochrane review of exercise-based cardiac rehabilitation (47 trials of >10,500 patients between 1975 and 2008) which showed that cardiac rehabilitation reduced total and cardiovascular mortality and hospital admissions (Heran et al. 2011). RAMIT does not report effects on cardiac deaths.

“The ability to judge the quality of the intervention is hampered by RAMIT not being reported in accordance with the modified CONSORT statement for non-pharmacological trials. RAMIT reported using the traditional CONSORT requirements: thus elements such as how standardisation and quality of the intervention was maintained across the different sites are not addressed. Details of actual interventions prescribed (and level of patient uptake) by the various centres in the study are needed to interpret and place the findings in the context of current national and international cardiac rehabilitation practice and the totality of evidence”. – David R Thompson, Professor of Nursing in the Cardiovascular Research Centre at the Australian Catholic University where he co-heads the Psychosocial Research program, and Alexander M Clark, Professor of Nursing, University of Alberta with research interests in cardiac rehabilitation programs, disease management and self-care.