Viewpoint

Cardiac rehabilitation services: the need to develop guidelines

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Cardiac rehabilitation is the process through which patients with ischaemic heart disease are enabled to achieve their optimal physical, emotional, social, vocational, and economic state.¹ It is a multidisciplinary approach to improve short term recovery and to promote long term changes in lifestyle which correct adverse risk factors.²

Background

Myocardial infarction often causes distress and impairment of quality of life for patients and for their relatives, especially partners; for a substantial minority of families such consequences are profound.^{3–5}

Cardiac rehabilitation services should include exercise training, risk factor modification, education, and attention to the psychological sequelae of ischaemic heart disease for both the patient and his or her family, especially the partner. The principal justifications for rehabilitation are encouraging a return to expected levels of activities and reducing well documented problems during convalescence of lack of confidence, anxiety, depression, poor sleep, sexual problems, fatigue, and worry about non-specific physical symptoms, together with excessive caution about everyday activities.²

Pooled data from several studies suggest cardiac rehabilitation results in a reduction in overall mortality and cardiovascular mortality at around 25%.^{6–7} All the programmes reviewed included some degree of risk factor modification and at least six weeks' supervision of physical exercise and a follow up period of at least 24 months. Studies of risk factor intervention and psychological support alone^{8–9} produced less dramatic but still impressive effects, not only for the patient but also the partner.¹⁰ Numerous studies have shown that comprehensive rehabilitation programmes can produce worthwhile improvements in quality of life, and it has been recommended that they should be routinely offered to all patients with ischaemic heart disease.²

Cardiac rehabilitation today

Although the efficacy and importance of cardiac rehabilitation are now well recognised,^{2 11–17} the nature of existing services in the United Kingdom – in hospital or in the community – varies considerably at local, district, and regional level. Despite the large numbers of appropriate candidates, how many

are offered, or participate in, cardiac rehabilitation is not known. In the United States less than 15% of eligible patients undergo supervised cardiac rehabilitation, and the proportion is undoubtedly lower in the United Kingdom. The need to develop rehabilitation programmes which begin from the cardiac event itself and which emphasise that long term changes in lifestyle must be promoted, is well recognised. Although exercise and control of risk factors are undoubtedly essential components of a rehabilitation programme, the psychosocial aspects are often neglected,¹⁸ despite evidence that long term quality of life after myocardial infarction may depend as much on psychological reactions and how they are managed as on medical care.^{19–20} Several approaches merit further development and evaluation – for example, cognitive-behavioural techniques²¹ and self help packages.²² A home based self help rehabilitation programme reduced psychological distress by roughly half and led to fewer readmissions to hospital and visits to the general practitioner.²²

There is a need to assess objectively the physical, psychosocial, and economic benefits of these programmes and to develop and evaluate comprehensive, multidisciplinary programmes which include graded exercise, education and support, and secondary prevention measures. Certain client groups, such as elderly people,²³ women,²⁴ and ethnic minorities, warrant special attention.

Fewer than half the health districts in the United Kingdom have established cardiac rehabilitation programmes. The reasons for this are unclear, although probably some cardiologists and physicians have either not been convinced of the benefits of cardiac rehabilitation or not seen such services as a priority. The services provided vary considerably, and it is evident that many are inadequate, poorly coordinated with medical care, and excessively rigid and hospital based.² Few of the programmes that exist have been subjected to careful audit, and there is little information available, for example, about the type of service offered, the client group characteristics, the use and training needs of the health professionals involved, the resources and funds used, and the outcome measures used. This is despite a significant increase in investment and interest by purchasers about the effectiveness of cardiac rehabilitation services, an increase in the proportion of health

professionals' time spent on hospital and community cardiac rehabilitation, and an increase in expectations of the client population. Moreover, as achievement of the national targets for coronary heart disease and stroke will have the largest impact on the health of the population of any of the *Health of the Nation*²⁵ objectives, the NHS Management Executive issued *First Steps for the NHS*,²⁶ a report to help the NHS begin implementing the national strategy for health. Although this report set out a range of possible actions for cardiac rehabilitation for each tier of the service, it did not specify what was needed or how they would be accomplished.

The prevalence of ischaemic heart disease varies considerably across the United Kingdom, but for a district population of 200 000 it will usually mean that between 200 and 600 patients a year would be suitable for cardiac rehabilitation. These figures justify the maintenance of a viable programme.

The main emphasis of rehabilitation has been early programmes of hospital based exercise training, but the need for a wider and more flexible range of methods, greater individual prescription of care, and closer cooperation with ongoing medical care is now widely accepted. Exercise is popular with many patients and seems to be effective in the early stages in improving exercise capacity, reducing anxiety, and encouraging a rapid return to activities, but continuing advantages at one year are difficult to demonstrate.²⁷ Both light and heavy exercises were beneficial in improving physical conditioning,²⁸ and, although these can easily be provided in a hospital gym, they can just as successfully be provided in the community.²⁹ Impressive benefits in mood have been claimed for a self help behavioural programme (especially suitable for patients at low risk).²² It is estimated that up to 30% of subjects might benefit from individually planned extra help in later convalescence (even if they have attended early rehabilitation programmes).²²

It seems sensible that cardiac rehabilitation services should be coordinated with cardiac aftercare. In the long term, central hospital services should liaise with general practitioners and other community based resources, who would provide intervention close to patients' homes. Compliance is essential for optimum effectiveness, and interventions such as risk factor modification in a chronic disease such as coronary heart disease require long term, even lifelong, investment to be effective. It therefore seems reasonable to suggest that cardiac rehabilitation services should not only span the hospital and community but be extended into, and even based in, the community under the supervision of the general practitioner who has responsibility for providing and coordinating care.

Need for guidelines

In view of the wide variation in structure and content, organisation and coordination, and safety of cardiac rehabilitation services and the absence of adequate evaluation and audit

mechanisms, there seems to be a need to develop guidelines. Such guidelines can help providers and purchasers of health care assess current practices. The box shows guidelines for cardiac rehabilitation.

Although there has been considerable research of the nature of problems during rehabilitation and much clinical innovation, there remain uncertainties about how improved rehabilitation can be provided for the large numbers of patients with myocardial infarction. Successful rehabilitation will depend on:

- Much closer coordination between cardiac aftercare and rehabilitation services
- Maximum use of self help materials
- Maximum involvement of resources already available, especially in primary care
- Greater emphasis on the impact on families
- Continuing audit to ensure that appropriate rehabilitation has been made available to all those in need.

The availability of such programmes seems justified in terms of cost-effectiveness.³⁰⁻³² The running cost of a cardiac rehabilitation session is estimated to be only £4-15 per patient.² The *Heart Manual* programme²² costs £20 per patient (including staff training). The financial benefits gained in terms of productivity and maintaining an occupational income by returning to work are clear, and rehabilitation may result in lower readmission costs.³³

STRUCTURE AND CONTENT

Structure and content of the guidelines will depend upon the available resources, including personnel and equipment, number and type of patients, and number and type of sessions. The cardiac rehabilitation programme should offer a range of components with specific advice concerning activity, work, and changes in lifestyle.

ORGANISATION AND COORDINATION

Most patients are admitted to a coronary care unit, and this would be the sensible central

Guidelines for cardiac rehabilitation

Comprehensive district cardiac rehabilitation should provide the following.^{1 2}

- (1) Inexpensive early routine care (exercise, advice, self help materials) for all those suffering infarction, whatever their cardiac status
- (2) Monitoring during convalescence to identify those patients requiring extra, continuing help for cardiac, social, or psychological problems, whether or not they have attended a routine programme. There is consistent evidence that patients who may need such extra help cannot be reliably identified at hospital discharge,^{22 27} but that recognition during convalescence is feasible
- (3) Individually targeted extra help for a minority. To be cost effective a district service for large numbers of people with varying needs must make maximum use of currently available local medical and community services and self-help methods

point for coordinating exercise, risk factor modification, education, and counselling. An experienced coronary care nurse should ideally take responsibility for this activity.³⁴ Rapid ambulation and early discharge mean that formal exercise is rarely necessary at this stage. Patients' needs should be assessed and potential problems predicted before discharge. Contact should be established with other health and social support services where appropriate. Simple counselling in hospital by a coronary care nurse should be an integral part of routine care as this can have an appreciable impact on recovery for both the patient and partner, with effects being sustained up to six months after the heart attack.^{35 36}

A local, full time coordinator is essential to:

- Contact the patient and partner and identify problems
- Advise on activity
- Provide educational materials
- Offer psychological support and counselling
- Provide a point of contact for patients, families, staff, and community support services
- Coordinate exercise tests
- Ensure that high risk patients are identified
- Liaise with other health care professionals
- Monitor and audit activity in relation to nationally or locally agreed guidelines.

In addition, the following should be observed:

- The services of a dietitian, clinical psychologist, pharmacist, vocational counsellor, and social worker should be included, when appropriate
- Group sessions should be established and should include the partner
- Stress management and relaxation therapy should be available
- Supervision of exercise by a physiotherapist is essential both to advise on exercise levels and to avoid injury.

SAFETY

Although there is a very low incidence of adverse effects, it is recommended that

Outcome measures in cardiac rehabilitation

Risk factor reduction outcomes

Blood pressure, cholesterol concentration, smoking, weight, physical activity

Physical outcomes

Mortality, reinfarction, cardiac arrest, ventricular function, myocardial ischaemia, physical working capacity, symptom limitations, task and activity performance

Psychosocial outcomes

Wellbeing, quality of life, return to work

Other outcomes

Adverse events, non-compliance, readmission

patients be stratified into risk categories before entering a programme. The high risk patient can be identified by a coronary prognostic index, but exercise testing either before discharge or at four weeks may be more valuable. Staff should be fully trained in cardiopulmonary resuscitation and the use of relevant drugs, and a defibrillator must be at hand.

EVALUATION AND AUDIT

Locally or nationally agreed evaluation and audit mechanisms need to be developed for cardiac rehabilitation services. The box shows outcome measures in cardiac rehabilitation³⁷ that could be included in such evaluation.

Conclusion

Given current information, it is reasonable to conclude that cardiac rehabilitation is safe and effective and should be made available to all who would benefit. Cardiac rehabilitation requires considerable commitment and the effective use of local resources. With such support, the patient and family are likely to achieve an appreciably improved quality of life. It seems sensible for present cardiac rehabilitation services to progress from a relatively intensive service for patients and their families who live close to a hospital, who are self selected, or who have been referred for imprecise reasons, to a comprehensive service which makes the maximum use of self help and systematic assessment for more selective and effective treatments. Routine care should be accompanied by the means to identify and treat those who, at present, are not attending a rehabilitation programme or whose needs are not being met by what is currently available. Individual programmes should evaluate their patients' outcome, and a standard format of audit is necessary to allow comparison among programmes. Nationally agreed guidelines, similar to those produced in the United States,³⁸ are urgently needed.

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