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CORONARY DISEASE

Management of the post-myocardial infarction patient: rehabilitation and cardiac neurosis

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Myocardial infarction (MI) is a major cause of mortality and morbidity in the western world. As MI is a life threatening event it is hardly surprising that it often causes distress and impairment of quality of life for patients and their relatives, especially partners. For a substantial minority of families such consequences are profound.

Psychological factors

Most patients are clinically anxious on admission to hospital. This anxiety generally remits over the next couple of days but rises again just before discharge, when many patients may again become clinically anxious. This distress is often deliberately hidden from the staff and other patients. Once home, a reduction in mood—"home coming depression"—is almost universal and patients and partners should be warned that it is likely to happen, otherwise they may worry that their "mind" has been damaged as well as their heart. Patients should be assured that this reaction is not unique to surviving an MI but is common in survivors of any natural disaster. In the majority of patients, unless there are further acute events, anxiety and depression slowly remit over the following weeks. However, about a quarter of patients may remain distressed at one year. It takes only minutes to screen patients using the Hospital Anxiety and Depression Scale, and as many patients come back for an exercise test at 6–12 weeks postdischarge, this may be a good time to identify those likely to have long term adjustment problems and to refer them for appropriate counselling/treatment.

In the first few months of recovery many patients report a fear of resuming sex and, unless this is dealt with, some will never resume it. Partners share the same worries and their fear is often the major factor in reduced sexual activity and enjoyment. There is no evidence that sex is in anyway dangerous, and patients and their partners should be told so in an unequivocal fashion. The exercise involved may even be protective as regular moderate exercise has a very significant protective effect in post-MI patients.

Some patients interpret the normal or explicable feelings of fatigue or minor symptoms of the anxiety they are suffering as relating to the condition of their heart. This often leads to a reduction in social and physical activity (in an effort to protect the heart) and further preoccupation with symptoms. Reduced activity leads to physical deconditioning, often producing more fatigue, more time to dwell on any symptoms or bodily sensations, and therefore generates further anxiety. Other patients become trapped in a downward spiral of increasing disability, and a very small number will succumb to a restricted and fearful lifestyle that has been labelled in many different ways over the years—for example "cardiac neurosis", "neurocirculatory asthenia" or "effort syndrome". These patients are currently described as demonstrating "undue illness behaviour". They demonstrate high levels of anxiety, physical deconditioning, a dependent attitude towards medical care, and often an almost obsessional preoccupation with the details of their medical history.

Health beliefs

Patients' beliefs and perceptions of their illness are critically important in the recovery phase of MI. Patients' beliefs about whether their MI was caused by stress or poor health habits act as a clear starting point for them when deciding to make changes in their personal health behaviours.

MI patients who hold negative models of their illness are less likely to return to work and to have lower levels of functioning regardless of the severity of the MI.

The patients' view of their MI is an important factor in both rehabilitation attendance and in how quickly they return to work.[1] The attributions that patients make for the cause of their MI may also have a major bearing on their recovery. Surveys have shown that the majority of patients blame the MI on "stress", "worry" or "overwork". If a patient believes that his job nearly killed him he may be very reluctant to return. These faulty attributions are often compounded by poor medical communication. Many patients view the heart as "worn out" and fear and avoid activity, thinking that this will further deplete their energy reserves. These damaging beliefs are often reinforced by the media, friends, and family and sometimes by lifestyle advice received from health care professionals.

Practical advice on managing psychological factors

It is important to attend to psychological factors because there is increasing evidence that psychological distress following MI is an independent risk factor for early mortality.[2] There is also more limited evidence that initial distress predicts outcome for return to work and for some other aspects of quality of life outcome,[3] lifestyle changes,[4] and compliance with medical care.[5]

Structured advice and discussion of the factors known to affect recovery is important. Whenever possible it is important to elicit from

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patients what they think the main cause of the heart attack was. Particular care should be taken to avoid unintentionally reinforcing the common cardiac misconceptions, especially about stress and the value of rest, that many patients have. Advice should be realistic, practical, and concrete (that is, specifying exactly what should be done—for example, "eat five portions of fresh fruit or vegetables every day" instead of "try and eat more fruit"). Advice should take account of social and cultural needs. Every patient should be helped to develop an individualised and concrete plan for recovery to be carried out in the weeks following the MI. The resumption of small amounts of activity should be encouraged from the first full day home. Vague advice such as "listen to your body" or "do what you can manage" is unhelpful. Patients and their families should be warned about the common physical and psychological sequelae. The primary physical problems are unexpected weakness caused by deconditioning, breathlessness on exercise, and angina. Patients are often particularly fearful of exercising to breathlessness and should be advised that this is an important concomitant of increasing cardiovascular fitness.

Common psychological reactions that should be mentioned are:

- low mood;
- tearfulness;
- sleep disturbance;
- irritability;
- anxiety;
- acute awareness of minor somatic sensations or pains;
- poor concentration and memory.

It should be explained that these symptoms are normal, that they are universal, and are part of the natural course of recovery following *any* potentially life threatening event. Partners should be advised to alter the family routines as little as possible except for lifestyle changes, such as smoking or diet, which should begin immediately. They must be tactfully advised against overprotecting the patient or, in a few cases, usually with female patients, from expecting the patient to resume doing all of the housework immediately. The patient's and partner's understanding of the advice should be checked during the course and at the end of each session, by asking them to summarise the advice imparted.

As half of the advice in a five minute consultation is forgotten within a further five minutes, it is helpful if written or tape recorded advice (the interview itself can be taped) is provided. Written information should be produced following the empirically determined guidelines for maximising comprehension and compliance.

Cardiac rehabilitation

Early cardiac rehabilitation programmes centred upon physical restitution of middle aged men who could be returned to work after prolonged bed rest. Modern cardiac rehabilitation is an activity requiring a range of health skills to bring together medical treatment, education, counselling, exercise training, risk factor modification and secondary prevention, in order to limit the harmful physical and psychological effects of heart disease, reduce the risk of death or recurrence of the cardiac event, and enhance the psychosocial and vocational state of patients.[6]

Cardiac rehabilitation: general points

- For the majority of patients the best predictors of rehabilitation outcome are psychosocial not physiological.
- Psychological findings about adjustment to MI and lifestyle change must be integrated with routine care.
- Family members, especially the partner, should be included in the rehabilitation process.
- The greater part of any verbal interaction is quickly forgotten, and should be backed up with carefully constructed and empirically evaluated written and taped material.

Cardiac rehabilitation has been defined by the World Health Organization as: " . . .the sum of activities required to influence favourably the underlying cause of the disease, as well as to ensure that patients' best possible physical, mental and social conditions so that they may, by their own efforts, preserve, or resume when lost, as normal a place as possible in the life of the community."[7] The WHO definition is, of course, all embracing but is endorsed by countries in Europe and beyond. In essence, cardiac rehabilitation services are comprehensive programmes involving education, exercise, risk factor modification and counselling, designed to limit the physiological and psychological effects of heart disease, reduce the risk of death or recurrence of the cardiac event, and enhance the psychosocial and vocational state of patients. Thus, cardiac rehabilitation is a multidisciplinary and multifaceted intervention that aims to restore wellbeing and retard disease progression in patients with heart disease.

It has been recommended that every district hospital which treats patients with heart disease should provide a cardiac rehabilitation service, and that individual programmes should evaluate their outcome, and a standard format of audit could be agreed nationally to allow comparison.[6] However, the provision of cardiac rehabilitation is still a neglected topic in some centres and it is likely that there is considerable potential to improve the quality of care and to reduce undesirable variations in service provision. The new National Service Framework for coronary heart disease,[8] developed to improve the quality and consistency of services in terms of prevention and treatment, should be helpful in implementing change.

Early phase of rehabilitation

- Immediately after diagnosis of MI, or as soon as is practical, patients should have their beliefs and knowledge about the MI and their lifestyle assessed and, where necessary, receive counselling.
- Patients should be assessed for psychological problems using validated instruments, such as the Hospital Anxiety and Depression Scale, and if necessary have access to appropriate counselling/treatment and to follow up assessment.
- Counselling should be concrete, with clearly defined and measurable goals, and must take into account the patient's own beliefs about what has happened and what should be done.
- Patients should be prepared for the common physical and emotional sequelae which often only become problematic after discharge from hospital.

Effectiveness

Although there is some scepticism regarding the effectiveness of cardiac rehabilitation, there is strong evidence attesting to its benefits. Most of the evidence pertains to patients who have suffered an MI. Meta-analyses have suggested a significant reduction in total and cardiac mortality of at least 20%. These benefits are likely to be greater for people with more severe disease, and are only seen in trials using a comprehensive individualised approach to lifestyle modification with education and psychological input as well as exercise.

Systematic reviews[9 10] have concluded that there is sufficient evidence available to show substantial benefits, including improvements in exercise tolerance, symptoms, and blood lipid concentrations, psychosocial wellbeing, and reductions in stress and cigarette smoking. Cardiac rehabilitation can promote recovery, enable patients to achieve and maintain better health, and reduce risk of death in people who have heart disease. A combination of exercise, psychological interventions, and education appears to be the most effective form of cardiac rehabilitation. However, important questions remain to be answered as to the optimal mix of components.

Cost and cost-effectiveness

There is an urgent need to assemble information on the cost and cost-effectiveness of cardiac rehabilitation. At present, little is known about the economic aspects of these services.

To date, there has been only one full cost-effectiveness study of cardiac rehabilitation, in the USA.[11] When extrapolated to the UK situation the results suggest a cost per quality adjusted life year (QALY) of £6900, and a cost per life year gained at three years of £15 700.[12] Costs have not been calculated for more than three years but it is likely that cardiac rehabilitation would be even more cost-effective over longer periods of time. In addition, two trials (one in Sweden and one in the USA) examining the medium to long term implications of cardiac rehabilitation have shown a significant reduction in the costs of readmission to hospital and treatment coupled with savings accruing from an earlier return to work.[12]

Clearly cardiac rehabilitation is not a homogeneous service and there is a range of factors that influence the costs and cost-effectiveness of the process, including the scale of the programme, location, components, intensity of the process, the patient population, and compliance.

Organisation of services

There is a paucity of research regarding the optimal frequency, duration, and mode of delivery of cardiac rehabilitation programmes. Most programmes are organised on an outpatient, hospital basis, usually of 6-12 weeks duration and commencing six weeks after discharge from hospital.

A six week, home based rehabilitation programme, the *Heart Manual*, delivered by a specially trained nurse has been found to be effective in reducing anxiety and depression, visits to the general practitioner and hospital readmissions up to six months after an MI.[13] Other forms of home and community based rehabilitation may be as effective and as safe as hospital based programmes, but more research is needed.

Cardiac rehabilitation involves long term maintenance of changed behaviour. This will take place in the community and patients need access to cardiac support groups and to appropriate cardiac review and follow up.

Access and uptake of services

Only a small proportion of patients with MI is offered or takes up cardiac rehabilitation.[14] Although the overall number of programmes and level have increased notably over the past 15 years, there is wide variation in practice and in the organisation and management of services, and many patients who might benefit do not receive cardiac rehabilitation. Current service provision fails to meet the standard set in national guidelines.[15 16] Most centres tend to restrict access to young, male, white patients who have suffered a (usually first, uncomplicated) MI. Indeed, the majority of cardiac rehabilitation research has been conducted on MI or coronary artery bypass surgery patients. Little is known about the needs and experiences of women, elderly people, and ethnic minorities, who are rarely offered rehabilitation or, when they are, frequently fail to take up services. In addition, very few patients with heart failure or angina are offered rehabilitation, even though they are likely to have a large potential for health gain. More research is required to identify reasons for, and strategies to improve, the current low levels of uptake in these groups.

Process of rehabilitation

National guidelines aim for cardiac rehabilitation to be comprehensive, provide early help for everyone likely to benefit, based on individual assessment of need, and followed by a later menu of options.[15] It should be accompanied by audit and individual monitoring of patient progress.

Ideally, the cardiac rehabilitation process should start at, or even before, the time of hospital admission, continue throughout hospital stay, and hand over seamlessly to the community.

The time course of cardiac rehabilitation can be divided into four phases: in-hospital; early postdischarge; later postdischarge; and long term follow up. Spanning these phases are three essential elements, which are inter-linked and may be overlapping:

- the process of explanation and understanding;
- specific rehabilitation interventions—including where appropriate secondary prevention, exercise training, and psychological support—tailored to the needs of the individual patient;
- the long term process of re-adaptation and re-eduation.

A flexible approach to the later stages of rehabilitation is essential, with the outcomes (particularly physical activity, smoking cessation, dietary change) being more important than rigid adherence to set procedures.

Involvement of family

Evidence is accumulating that the success of rehabilitation may depend to a large extent upon the involvement of the patient's family, particularly the partner. Arguments for including the partner in the rehabilitation process are both practical and therapeutic. The partner can be incorporated in the programme with little additional effort or cost. It is likely that the partner's attitudes to the patient's MI can affect recovery through, for example, being over concerned and protective. Perhaps as important as the potential health gains for patients are those for partners. As one might expect, partners are often distressed after an MI. Indeed, they often report levels of anxiety and depression that are at least as comparable to, and often higher than, those of patients. Therefore, they may well benefit from the support, information and enhanced feeling of control that they are likely to experience by being included in rehabilitation.

The presence of the partner in rehabilitation can improve confidence and morale in the patient. It is frequently the partner that has the major role in the patient's readjustment during convalescence, and his or her behaviour is an important determinant of the rate and extent of the patient's recovery. Recent studies examining the impact on patients and partners of in-hospital and extended rehabilitation have resulted in less anxiety and depression and more knowledge and satisfaction with care in both patients and partners, with effects enduring up to one year.[17]

Cardiac rehabilitation: early postdischarge

- Support should be continued and need only consist of brief meetings or even telephone calls to go through the goals, reinforce progress, and help the patient solve any practical difficulties that may have arisen.
- Care should be taken to ensure that congruent advice is given by primary care staff.
- Patients should be formally assessed at 6–12 weeks post-MI to ascertain their success in making lifestyle changes and psychological adjustment.

Partners are a valuable resource during the rehabilitation process. They can support patients during the adjustment phase and assist and encourage them in making changes to their lifestyle and promoting healthy behaviours. The routine inclusion of partners in rehabilitation programmes seems warranted.

It is worth acknowledging that the majority of studies on rehabilitation have focused on male patients and female partners and there may be sex related factors that influence partner involvement.

Methodological issues

Some of the methodological problems in trials of rehabilitation have been reviewed.[18] In contrast to the "ideal" placebo controlled evaluation of a single drug or procedure in a homogeneous study group, cardiac rehabilitation research is concerned with the effects of multiple interventions on several outcomes in, by definition, a heterogeneous population. It is important that research on robust and valid ways of evaluating both the totality and components of rehabilitation should continue.

Summary

All MI patients should be offered access to cardiac rehabilitation. This will involve the systematic identification, assessment, treatment, monitoring and evaluation of patients. In order to facilitate this, organisations, facilities and equipment for a comprehensive service need to be developed. This will involve inter-agency collaboration, including hospital, community, voluntary and transport services.

As alluded to in an editorial in *Heart*,[19] the keys to improving cardiac rehabilitation are individual assessment, careful formulation of treatment, effective delivery, and systematic evaluation.

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