Occupational Therapy with Cardiothoracic Patients: An Evaluative Study

by

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A research project was carried out at St George's Hospital to look at the role and effectiveness of occupational therapy with cardiothoracic patients. It was found that, once the service was in operation, a high demand existed and appropriate referrals were seen. The results indicate that treatment was effective.

INTRODUCTION

Few studies have been completed which look at the role of the occupational therapist or the effectiveness of occupational therapy with the cardiothoracic patient. However, a number of related studies have been carried out on aspects of patient care and return to normal life.

Wilke and Sheldahl,[1] in their study, show the occupational therapist's contribution of indicating the patient's work potential and safety in returning to work. Mickus,[2] in a study of women who had had myocardial infarction (MI), examined change in the frequency and level of performance of activities of daily living (ADL) function. Decreased levels of activity were found post-MI, although contributing factors were not clearly identified. In a description of the rehabilitation of the cardiac patient, Utz and Grass[3] describe several treatment areas which, in the UK, would traditionally rest within the role of the occupational therapist. These areas include assessment of function, relaxation training, home management advice, stress management and home visits to prepare for discharge.

The effective use of exercise programmes can have benefit for the patient's psychological outlook according to Ward et al[4] and Laslett et al.[5] Winefield and Cormack,[6] in a study of the use of home management, ADL, and social and leisure activities as indicators of patients' subjective health status, found that the greater the level of social activities, the fewer were the mental and physical symptoms reported. Hackett et al,[7] in a discussion of the factors affecting the patient's successful return to work following MI or coronary bypass surgery, comment that the muscular effort at work and during leisure time activities differs from those during exercise tests. They state that, along with conventional testing, there was a need for vocational and avocational counselling and more standardised testing of physiological responses in the rehabilitation of these patients.

Fitt and Howe[8] advocate that occupational therapy should concentrate on life-style modification programmes, which incorporate the improvement of stress and time-management skills. Hutelmyer[9] states that the occupational therapist plays an important role in educating the patient and the nursing and medical staff, and is involved in planning activities and exercise in the hospital and home, with particular responsibility for energy conservation. Foderaro[10] reports that the occupational therapist is primarily responsible for encouraging the patient's ability to achieve a safe yet maximal level of independent self-care. Feinberg[11] describes the occupational therapist encouraging the patient's return to optimal physiological, psychological, social and emotional status by creating a therapeutic environment. King[12] and King and Nixon[13] discuss the SABRES concept, a biopsychosocial approach which consists of the elements of sleep, arousal, breathing, rest, effort and self-esteem.

Trombly[14] indicates a programme of progressive activity and control measures followed by the occupational therapist in the care of the patient recovering from MI. Helm and Ellson[15] describe the initiation of an occupational therapy programme for cardiac outpatients and its progress.

Little evidence of the effectiveness of occupational therapy is available and all reports conclude that further research is required.

BACKGROUND

In February 1986, a cardiac rehabilitation programme (CRP) was started at the Regional Cardiothoracic Unit, St George's Hospital, in conjunction with a nurse counsellor and superintendent physiotherapist, for outpatient MI patients. The aims of the CRP were:

1. To indicate a balance between exercise and relaxation
2. To improve physical ability and tolerance to exercise
3. To offer advice and guidance to patients on cardiac conditions and their management
4. To improve patients' psychological well-being.

Six months later, this programme was expanded to include outpatient cardiac surgery patients.

During this time, inpatient cardiothoracic referrals were seen by the occupational therapist covering the general medical wards. It was found that the total time involved was 18 hours per week. As the staff complement had not been increased to accommodate the CRP and inpatient cardiothoracic service, a successful bid for funds was made. With funds from district occupational therapy research monies, a full-time post was created. In June 1987, a one-year pilot study was set up to evaluate and quantify the need for an occupational therapy cardiothoracic service.

The study looked at three areas of service provision: inpatient service, CRP and other units.

The occupational therapy inpatient service was evaluated in several ways:

1. The quantity of requests for occupational therapy provision. This included:
   (a) The number of referrals (new and carried over)
   (b) The number and length of attendances.
2. A description of the reasons for referral and patients seen.
3. The fulfilment of referrals:
   (a) Speed of service
   (b) Types of assessment
   (c) Types of treatment method used
   (d) Discharge location.
4. Effectiveness of occupational therapy:
   (a) Patients' level of functional ability
   (b) Patients' level of confidence
   (c) Patients' rating of effectiveness of occupational therapy in improving daily living function, confidence and awareness of capabilities

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The CRP was evaluated through an examination of criteria 1 and 2 above. A descriptive study of the occupational therapist's role was included.

The study of other units looked at several types of information:

1. Type of unit
2. Staffing
3. Age and diagnosis of patients seen
4. Occupational therapy programmes carried out
5. Involvements of other professions.

METHODS

Inpatients

1. The quantity of requests for occupational therapy provision was measured by using monthly duration attendances in the Körner format.
2. Information was recorded to describe the type of referral, that is, diagnosis, sex, age and reason for referral.
3. Information was recorded to describe the fulfilment of referrals, that is, date of admission, date of discharge, date first seen by occupational therapist and type of assessment used. The type of treatment method and the discharge location were also recorded.
4. A patient self-rated questionnaire was designed and distributed to 50 patients, to look at the effectiveness of occupational therapy and the patients' own opinion of their ability in daily living tasks (Appendix 1).

CRP (outpatients)

1. Monthly duration attendances were retained to indicate the amount of actual time spent in group sessions and the number of referrals.
2. Information was recorded to describe the type of patient seen, that is, age, diagnosis and sex.

Study of other units

1. A questionnaire was designed and distributed to 67 occupational therapy departments in the UK to determine the involvement of other departments in cardiac rehabilitation.

RESULTS

Inpatients

Quantity of requests

Seventy-three referrals were received by the occupational therapist from 1 June to 31 December 1987.

The number of patients seen (Fig. 1) increased during the study, with a drop in new referrals in August and an excess increase in December due to discharge plans prior to Christmas. For an average month, 20 patients were seen in the time available. The patients were a combination of new referrals and patients carried over from the previous month.

The patients were seen in three locations: the ward, the occupational therapy department and the patient's home. The individual outpatients were treated in the department only. During the study there was a steady increase in face-to-face contacts, with the eventual level of attendances being the maximum possible for the time available during working hours. The drop in attendances in July related to the number of staff days worked and no home visits being carried out in that month. A seasonal drop in outpatient attendances occurred in December (Fig. 2).

When clinical time involved in seeing patients was calculated, the College of Occupational Therapists'[16] minimum staff ratios were used, which indicate that 50% of time is spent in direct patient contact (face to face) and 50% of time in other patient and professional duties. Over the 7-month period of data collection, the clinical time was an average of 28.6 hours per week. In the latter 3 months, the average time spent was 31.4 hours per week, indicating that, as the referrals increased, the time required to fulfil these referrals also increased.

Fig.1. Number of patients seen per month: new referrals and carried over

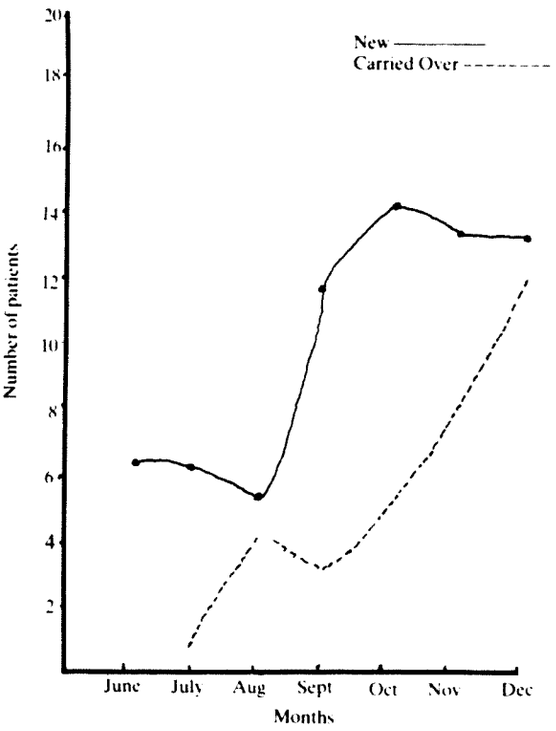
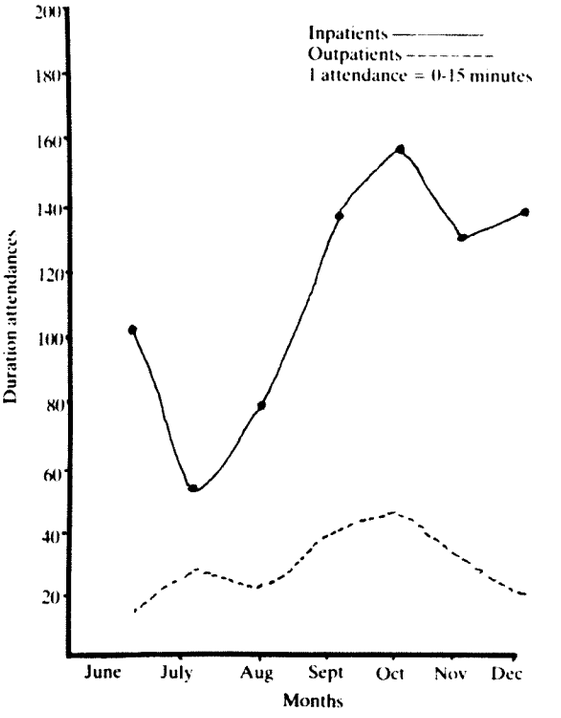


Fig.2. Individual duration attendances: face-to-face contacts per month



Description of reasons for referrals and patients seen

The patients were predominantly referred for assessment of activities of daily living (n=39). Twenty patients were referred for home assessments, 10 for assessment of cognitive ability, 2 for assessment of ADL in relation to visual problems and 2 for wheelchair assessment and splinting respectively. Although only 39 were referred specifically for an ADL assessment, all patients were assessed in ADL ability as a baseline measure before a treatment programme was developed.

The patients had a variety of diagnoses with a predominance of surgical conditions. Initially in June, patients with a combination diagnosis of a cardiosurgical condition and stroke were seen, primarily with cognitive or visual deficits rather than hemiplegia. From July to December, only one or two referrals per month had neurological deficits combined with cardiac problems.

The referrals were mainly male, with a 5:2 ratio to females. The age range of the patients was 16 years to 85 years, with the majority of patients being within the 65-74 age band.

The length of inpatient stay varied widely, although a higher incidence was seen in the 16-20 day band for both cardiology and cardiac surgery patients.

Fulfilment of referrals

The majority of patients (n=55) were seen on the day of referral and 14 of the patients were seen within 2-3 days of referral.

All patients had an ADL assessment prior to a treatment programme being developed, in both personal care and domestic skills. Cognitive tests (COTNAB) were administered as a baseline measure for patients with cognitive/visual problems. Wheelchair assessments were required on two occasions and 12 home assessments were carried out with local patients.

Once patients had been assessed, a range of treatment methods was incorporated into a programme, with emphasis being placed on the balance between rest and effort to assist in healing the damaged myocardium and/or sternum.[10,12,13]

Domestic activities and remedial games were graded progressively to increase stamina and tolerance to activity and to promote home management and independence in ADL. The microcomputer was incorporated into the treatment programme for those patients with a combination of cardiac and stroke problems. This was to improve concentration span, decision making, speed reaction and scanning ability. The treatment principles of Rood[18] and Bobath[19] were used, if required, in stroke management and improvement.

Forty-five patients returned to their home on discharge and 19 to their local or referring hospital. The latter were referred to the occupational therapy department at the hospital to continue with treatment (Table 1).

Table 1. Discharge location

Admission from	Discharge to	Number of patients
Home	Home	40
Referring hospital	Home	5
Referring hospital	Referring hospital	12
Home	Local hospital	7
Deceased		8
Not discharged by 31.12.87		1

Effectiveness of intervention

The 50 patients had an age range of 37 to 85 years. There were 16 females and 34 males; 36 had been seen by the occupational therapist and 14 had not.

Patients' level of functional ability: The 50 patients were asked to indicate, on the questionnaire, their ability in a number of tasks. A four-point scale was used, scoring from Independence (1) to Inability to Manage (4). In Tables 2 and 3, the tasks have been ordered according to the mean scores, from the least difficult task to the most difficult task. (Rank order analyses were not completed.) They have been divided into basic mobility tasks and more complex higher order tasks.

When the tasks were correlated, standing was excluded due to the small sample size (n=33). Within the basic mobility tasks, bath, chair and toilet correlate significantly at the 0.01 level.

Table 2. Basic mobility tasks

Activity	Average score	Standard deviation	n
In/out bed	1.5000	0.97	50
Walking	1.5625	0.98	48
On/off toilet	1.5800	0.88	50
On/off chair	1.6400	0.69	50
Standing	1.9697	1.23	33
In/out bath	2.0417	1.16	48
Stairs	2.4565	1.20	46

Table 3. Higher order functions

Activity	Average score	Standard deviation	n
Feeding	1.0800	0.34	50
Washing	1.4000	0.78	50
Leisure	2.5172	1.40	29
Housework	2.5476	1.32	42
Laundry	2.6000	1.33	40
Shopping	2.6905	1.31	42

A significant level of correlation ($p<0.01$) was seen between the tasks of housework, shopping, laundry and leisure, which are traditionally thought of as more complex tasks than those in Table 2. Housework, shopping and laundry correlated significantly at the 0.01 level with all the basic mobility tasks apart from getting on/off the chair. Washing correlated significantly ($p<0.01$) with all the basic mobility tasks apart from managing the stairs.

The diagnoses of aortic valve replacement (AVR), mitral valve replacement (MVR), coronary artery bypass graft (CABG), MI, stroke and coronary artery disease (CAD) were analysed against the results of the questionnaire. There was no significant difference in the patients' ability. This could possibly have been due to the small sample size of each diagnosis. The patients with AVR were shown to be significantly older ($p<0.01$), while patients with CABG stayed longer in hospital ($p=0.01$).

Patients' level of confidence: The patients were asked to indicate on a 1 to 10 scale, from always confident to never confident, their confidence in managing at home, daily living tasks and return to work.

Confidence in managing at home had a negative correlation with the tasks of bath, bed and stairs ($p=0.05$) and with walking and standing ($p<-0.01$). Confidence in daily living had a negative correlation with all basic mobility tasks ($p=0.05$) apart from washing.

The negative correlation found may indicate that, despite good mobility and ability in ADL tasks, confidence would appear to have the greater impact on the patient's ability to manage at home, particularly when the scores shown in Tables 2 and 3 are nearer the independence level than inability to manage. Confidence in return to work had a negative correlation with all ADL tasks ($p<-0.04$). A negative correlation was found with age and confidence in ability ($p<-0.1$).

Patients' rating of effectiveness of occupational therapy in improving daily living function, confidence and awareness of capabilities: The patients seen by the occupational therapist were less able on basic mobility tasks ($p=0.06$) than the patients not seen by the occupational therapist. This significance may have increased with a larger sample. It may also indicate that referrals received were appropriate.

Occupational therapy was shown to be significantly more helpful to the patients in managing at home ($p<0.001$), awareness of limitations and abilities ($p<0.003$), improving physical stamina ($p<0.003$), independence in activities of daily living ($p<0.01$) and motivation to recover from condition

($p<0.04$), and in the supply of necessary equipment to assist in independence ($p<0.05$). Occupational therapy was shown to have no significant effect on: aspects of work ($p>0.1$), which would be expected as most patients were over retirement age; confidence in abilities ($p>0.1$), which may further indicate that, despite the increase in their functional abilities, confidence was still reduced in these patients; and discussion of cardiac conditions with spouse ($p>0.8$), which may have been affected by anxiety about the patients' pending return home.

To substantiate the findings further, it would have been useful to have carried out an ADL assessment on all patients to indicate the level of ability of the patients seen and not seen by the occupational therapist and to compare this with the questionnaire results.

CRP (outpatients)

Quantity of requests

Thirty-five new referrals were received, with an average time per month spent in the group of 12.5 hours. Sessions were held twice a week for a duration of 2 hours.

Description of reasons for referral and patients seen

The patients were referred to increase stamina and tolerance to activity, and for advice on limitations and capabilities for home and return to work.

The patients seen in the CRP had mainly surgical conditions. The predominant age band was 16-54 years (the maximum age for admission to the programme was 70 years). The referrals were mostly male, with an 11:1 ratio to females.

Description of the role of the occupational therapist

It was difficult to separate the occupational therapist's role within the CRP, because the physiotherapist, nurse counsellor and occupational therapist worked closely with each other. The occupational therapist specifically taught deep muscle relaxation and visual imagery, and worked as a co-therapist with the nurse counsellor in the educational discussion. She also assisted the physiotherapist in the graded gym circuits.

Study of other units

There was a 59% response rate to the 67 questionnaires. The majority of replies were returned from the four Thames regional areas. Nineteen units had no occupational therapy input, although they acknowledged that they felt that occupational therapy could provide a valuable service to cardiac patients. The reasons given for no service were: no cardiology specialty within the hospital, lack of support from consultant staff, or no funding and low establishment. Two hospitals were in the process of setting up a service.

Type of unit

District general hospitals were predominantly involved with cardiac patients, followed closely by regional specialty units.

Staffing

The grade of staff involved varied from basic grade to head II. The number of staff involved also varied, from 1 to 3, with whole-time equivalents of 0.2 to 3.

Age and diagnosis of patients seen

The majority of hospitals saw patients (n=19) with MI and/or CABG. Only one hospital saw cardiac transplant patients.

The patient age range was 55-64 years, although 14 hospitals saw patients in the 16-54 age range.

Occupational therapy programmes carried out

The general format included four main areas:

1. Activities of daily living
2. Graded light and heavy workshop activities
3. Relaxation training
4. Educational session on related cardiac topic.

Table 4 shows the types of service offered with inpatient and outpatient programmes in the 19 units involved with cardiac patients.

Table 4. Types of occupational therapy programme

Aspects of occupational therapy	Inpatients: number of hospitals	Outpatients: number of hospitals
Activities of daily living	8	1
Graded activities	5	8
Discussion/education	7	9
Diaphragmatic breathing	3	4
Counselling	6	3
Home visits	4	2
Booklets/questionnaires	1	0
Relaxation training	6	10
Cardiac rehabilitation programme	0	10
Spouses group	0	4

Involvements of other professionals

In the majority of units, occupational therapists worked with a combination of professionals, that is, physiotherapists, doctors, nurses, dieticians, social workers, psychologists and counsellors.

DISCUSSION

The work undertaken examined a wide aspect of occupational therapy for cardiothoracic patients at St George's Hospital and briefly at other units. On reflection, it is felt that this was too large a project. However, many points for discussion can be drawn from the findings.

The results show that the occupational therapist was involved in inpatient and outpatient care. The quantity and types of referral indicate that the occupational therapist responded quickly to requests and was shown to assist in the improvement of functional ability and in maximising the patient's potential to return home. The patient referrals were appropriate, requiring assessment of functional and cognitive ability.

Initially, when occupational therapy was introduced to the unit, patients with the more complex multiple diagnoses, who are slow to mobilise, were referred (cardiac condition combined with stroke). Once the wards were more aware of the service and the capabilities of the occupational therapist, single-diagnosis patients, requiring rehabilitation to improve tolerance to activity, were referred. The change in the type of patient was also seen in the CRP. When the service was set up, only MI patients were admitted; after 6 months, surgery patients were introduced and, one year later, transplant patients. At the end of the study, there were more surgery patients than MI patients. In both areas, male patients were seen predominantly. The inpatient and CRP referrals increased over the period of the study, indicating the need for an occupational therapy service for cardiac patients.

The length of the stay was shown to be longer than expected in the average length-of-stay assumption[17] of 8.54 days for cardiac surgery and 5.62 for cardiology; the patients seen had lengths of stay of 24.6 days for cardiac surgery and 28.8 for cardiology. The majority of patients were in the 16-20 day length-of-stay band. This may have been related to the type of referral, the patients referred requiring more assistance and advice to manage post-cardiac incident. It may also reflect the willingness of the consultants to increase the length of stay to enable patients to have rehabilitation.

As an acute unit for a regional health authority, only home visits in the locality could be carried out. Patients living out of the local area had to be transferred to the local hospital and a request made for the occupational therapists on site to carry out the required home visit.

In the effectiveness study, the patients found the higher order tasks more difficult to complete than the basic mobility tasks, possibly due to the more complex nature of these tasks and the greater energy expenditure required. The results indicated that, despite mobility and ability in ADL tasks, confidence in these abilities is of the utmost importance to enable a patient to manage at home. It is often a neglected factor in patients' treatment, especially in the acute setting where priority can be placed on the demand for beds and waiting lists. The patients seen by the occupational therapist were less able than those not seen, but the occupational therapist was shown to have a significant effect on patients' functional ability and awareness, ability to manage at home, motivation to recover from condition and improving physical stamina. The question related to work had a poor response, but this could just be a reflection of the age of the sample because the average age was 65 years.

Although the data shown do not conclusively prove the statement made above on confidence, it is felt that, with a larger sample of cardiac patients of all diagnoses, this could be shown. A baseline ADL assessment of all patients would have been useful to use as an objective comparison of the questionnaire results.

CONCLUSION

The study shows the areas of involvement in cardiothoracic patients that an occupational therapy service may cover. The results indicate that the occupational therapist should:

(a) Assess functional ability
(b) Initiate treatment programmes to improve functional ability, physical stamina and awareness of ability
(c) Advise and demonstrate, through activity, on the balance between rest and effort
(d) Assess for ability to manage at home, and for equipment where necessary.

The increased referrals of appropriate patients, based on the results, show that the patients benefited from occupational therapy and indicate a need for an occupational therapy service for cardiothoracic patients.

This information can be used as a baseline for further research to evaluate specific aspects of the work. In particular, 'the confidence factor' needs to be researched in more detail. The author would recommend that, initially, patients with a single cardiac diagnosis are looked at, to evaluate the premise that, apart from mobility and ability to complete functional tasks, confidence in ability is a major factor in enabling a person to manage at home.

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Further reading

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Appendix 1. St George's Hospital: Occupational Therapy — Patient Questionnaire

Name: ..... Ward: .....

Date of Birth: ..... Male/Female

What is occupational therapy? 'Occupational therapy is the treatment of the whole person, through specifically selected activities, for a person to achieve his/her maximum level of ability and independence in all aspects of daily life.'

This questionnaire is designed to look at the role of the occupational therapist for people with cardiac and chest problems. Many questions are about daily life. Please try and answer each question; there are no right or wrong answers and all completed questionnaires will remain confidential.

(Please tick one box)

1. Do you live in a

House ☐
Flat ☐
Which floor/level, please state .....
Bungalow ☐
Nursing home ☐
Sheltered/warden-controlled accommodation ☐
Other, please state .....

2. Do you live

Alone ☐
With husband/wife ☐
With other relatives ☐
Other, please specify ☐
.....