Disability in the Elderly after Myocardial Infarction

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A large proportion of the patients admitted to hospital with myocardial infarction are over the age of 65. Most measurements of such hospital admissions in this age group have been based on mortality data (Pentecost and Mayne, 1968; Chaturvedi et al., 1972); little attention has been given to the amount of disability. We describe a three-stage incidence survey of disability and psychological impairment following discharge from geriatric wards after an acute myocardial infarction.

We have adopted the definitions of impairment, disability, and handicap devised by Wood (1975). In this classification ‘impairments’ are disturbances in body structure or functioning that may arise from birth accidents or disease and affect any part of the body. ‘Disabilities’ are limitations in the performance of functions customarily expected of the body and its parts, or restrictions in activity consequent upon impairment. ‘Handicaps’ are the disadvantages experienced by impaired or disabled persons who do not conform to the expectations of the social group to which they belong.

There are three methods by which disability can be identified and measured: clinical assessment of performance; standard tests of performance conducted by a trained observer; and detailed questioning of the person about his or her level of daily performance, using a self-administered or interview administered questionnaire. Because disability and psychological impairment are common among the elderly, a survey to identify and measure these as a consequence of admission to a geriatric ward after a myocardial infarction must compare the degree of disability and impairment after discharge with that prior to going into hospital. An assessment of the latter can be obtained only by questioning the patient about his or her previous level of performance. We therefore decided to use a questionnaire to identify and measure the increase in disability after discharge. Other workers have shown that a combination of questionnaire and interview is a reliable method of assessing disability (Bennett et al., 1970; Garrad and Bennett, 1971).

The survey was conducted in three stages. During the first stage the patients completed a self-administered postal questionnaire in their own homes. During the second stage the respondents were interviewed by a health visitor and the screening questionnaire was repeated. During the final stage the patients completed a self-administered follow-up questionnaire.

Patients and Methods

The questionnaire contained stem-questions designed to reveal changes in the important aspects of psychological well-being (degree of anxiety and frequency of depression about having had a coronary), ability to perform specified activities of daily living (namely mobility, ambulation, climbing stairs) and any limitation in doing household chores or social activities because of the myocardial infarction. There were several possible answers to each question, covering a range of disability or severity of psychological impairment. Patients were asked to tick the answers most appropriate to their feelings at that moment. Points were scored for each answer. Patients completed the questionnaire in their own homes at the end of the first and third month after discharge from hospital.

The reliability of the questionnaire was assessed in two ways. First, a sample of patients who had completed the first questionnaire did so again with an interviewer within two weeks, and the scores obtained with and without an interviewer were compared. The interviewer was a health visitor who had no previous knowledge of the patient and was unaware of the previous answers given by the patient. At the time of completing the first questionnaire, the patients themselves were unaware that they would be completing the questionnaire with a health visitor or that they were to be asked to complete a follow-up questionnaire two months later. Secondly, the patient’s assessment of his or her mobility, ambulation and ability to climb the stairs prior to the myocardial infarction in the first and follow-up questionnaire were compared.
After completing the questionnaire with the interviewer, the patient was invited to participate in a structured interview conducted by the health visitor to obtain further information about any unfavourable responses. One hundred consecutive patients who had been discharged from a geriatric medical ward of a Cardiff hospital after an acute myocardial infarction were studied. Diagnostic criteria were:

1. A characteristic history of acute substernal pain of more than 30 minutes' duration.
2. Electrocardiograph evidence using the criteria described by Schamroth (1976). Serial changes had to occur.
3. A rise in the serum creatinine phosphokinase level and/or a rise in the serum aspartate transaminase level in the absence of a disproportionate increase in the serum alanine transaminase.

The medical and nursing routines were similar for all patients. On the day of admission they were permitted to rest in bed in any position of comfort, to shave and feed themselves, and to use a bedside commode. Progressive systematic mobilisation was instituted over the following 2 to 14 days. All patients were aware of the diagnosis before discharge.

Results

Demographic Data

Sixty-seven of the patients were men and 33 were women. Fifty per cent were over 75 years old. All patients were discharged between two and three weeks after admission. Ten patients had had a previous proven myocardial infarction.

First Questionnaire Results

Eighty-two replies were received to the first mailing of the screening questionnaire. Among the 18 who failed to reply, 5 had died, 2 had had strokes, and 2 had been re-admitted to hospital. The number of replies represented a 90 per cent response from those able to reply and we did not repeat the mailing.

The frequency of the various responses to the questions are shown in Tables 1 to 3. A third of the patients had assessed their progress since discharge from hospital as 'poor' or only 'fair'. Over a half of the patients admitted to feelings of anxiety or depression about having had a myocardial infarction. The number of patients walking with difficulty had increased by 10 per cent and the number of patients unable to walk a hundred yards on the flat or climb to the top of their stairs had both increased by approximately 20 per cent following discharge from hospital. Less than a quarter of the patients were able to do the number of household chores or social activities they had done before their infarction. Seventy-six of the patients said that their determination to get better was at least 'good'.

| Table 1. Psychological impairment among patients 1 and 3 months after discharge |
|--------------------------------------------|
|                                            |
| **Degree of anxiety**                      | No. of patients |
|                                            | One month      | Three months |
| Very anxious                               | 12 (15%)       | 8 (12%)      |
| Anxious                                    | 10 (12%)       | 8 (12%)      |
| Fairly anxious                             | 29 (35%)       | 19 (27%)     |
| Not anxious                                | 31 (38%)       | 34 (49%)     |

| **Frequency of depression**                |
|--------------------------------------------|
|                                            |
| **Always**                                 | 1 (1%)         | 2 (3%)       |
| **Often**                                  | 9 (11%)        | 3 (4%)       |
| **Sometimes**                              | 36 (44%)       | 29 (42%)     |
| **Never**                                  | 36 (44%)       | 35 (51%)     |

| Table 2. Mobility of patients before admission and 1 month after discharge from first questionnaire |
|---------------------------------------------------------------------------------------------------|
| **Mobility**                                      | No. of patients |
|---------------------------------------------------|----------------|
| Confined to bed                                   | 0              | 0             |
| Confined to chair                                 | 0              | 0             |
| Walking with difficulty                           | 18 (22%)       | 28 (34%)     |
| Walking                                           | 64 (78%)       | 54 (66%)     |

| **Distance on flat**                             |
|---------------------------------------------------|
| **Less than 100 yards**                           | 22 (27%)       | 39 (48%)     |
| **More than 100 yards**                          | 60 (73%)       | 43 (52%)     |

| **Climbing stairs**                              |
|---------------------------------------------------|
| **Top**                                           | 60 (73%)       | 44 (54%)     |
| **Three-quarters way**                           | 9 (11%)        | 12 (15%)     |
| **Half way**                                     | 4 (5%)         | 9 (11%)      |
| **One-quarter way**                              | 2 (2%)         | 3 (3%)       |
| **Unable**                                       | 7 (9%)         | 14 (17%)     |

| Table 3. Proportion of previous household chores and social activities done 1 and 3 months after discharge |
|---------------------------------------------------------------------------------------------------------------|
| **Household chores**                                         | No. of patients |
|---------------------------------------------------------------|----------------|
| **All previous chores**                                      | 18 (22%)       | 25 (33%)     |
| **Three-quarters**                                           | 12 (15%)       | 12 (17%)     |
| **Half**                                                      | 17 (21%)       | 20 (29%)     |
| **One-quarter**                                               | 13 (16%)       | 8 (12%)      |
| **None**                                                      | 22 (27%)       | 6 (9%)       |

| **Social activities**                                        |
|--------------------------------------------------------------|
| **All previous social activities**                           | 19 (23%)       | 26 (38%)     |
| **Three-quarters**                                           | 4 (5%)         | 5 (7%)       |
| **Half**                                                      | 16 (20%)       | 11 (16%)     |
| **One-quarter**                                               | 10 (12%)       | 6 (9%)       |
| **None**                                                      | 33 (40%)       | 21 (30%)     |

There was no significant difference between the scores obtained by men and women or by the different age groups. The scores obtained by the 10 who had had a
previous proven myocardial infarction (mean score 19) were lower than those who had not had a previous myocardial infarction (mean score 25). The scores obtained by patients who were admitted to hospital between the months of November and January and therefore had to get themselves back into their pre-infarction way of life during the winter months was lower than at other times of the year. The scores obtained by patients living in the lowest socio-economic areas of Cardiff were comparable with the group as a whole.

**Questionnaire Reliability**

Seventy-one patients were visited by the health visitor but she was able to interview only 60 of them. Five had failed to complete the first questionnaire. Among the 55 patients who had completed the first questionnaire alone and with the interviewer, correlation between the total scores obtained with and without the interviewer was good ($r = 0.87$).

Sixty-five patients completed the first and follow-up questionnaires. There was no significant difference between the first questionnaire and the follow-up questionnaire in the proportion of patients who claimed that before their myocardial infarction they were unable to walk 100 yards on the flat (27 per cent and 30 per cent respectively) or climb to the top of their stairs (27 per cent and 25 per cent respectively).

**Interview Results**

During the structured interview conducted by the health visitor, 40 patients said the information they had received while in hospital was 'adequate', 8 said it was 'insufficient' and 12 said it was 'absent'. Only 17 patients had had no serious illness at the time of their myocardial infarction. The remaining 43 reported chronic chest disease (63 per cent), chronic joint disease (35 per cent), angina (32 per cent), and stroke (9 per cent).

Of the 46 patients who admitted to being anxious or depressed about their coronary thrombosis, 13 were unable to give a reason for their feelings. Table 4 lists the reasons cited by the remaining 33 patients, the commonest being fear of another coronary. The reasons given for being restricted in walking on the flat or climbing the stairs before or after the myocardial infarction respectively are shown in Table 5. There was a significant increase in the number complaining of breathlessness, chest pain, and fatigue.

The reasons cited by the 52 patients who were unable to do their previous household chores or social activities were fatigue (40 per cent), chest pain (15 per cent), dyspnoea (14 per cent), chronic joint disease (6 per cent) and stroke (4 per cent). Only 13 patients were aware of a family history of coronary thrombosis.

**Follow-up Questionnaire Results**

Sixty-five patients replied to the first mailing of the questionnaire sent three months after discharge from hospital. This represented an 80 per cent response from those who had received the first questionnaire, and the mailing was not repeated.

When the total scores obtained by the 65 patients in Table 5. Reasons given at interview for being unable to walk 100 yards on flat and/or climb 14 steps before admission and 1 month after discharge

| Reason                     | No. of patients | Before admission | 1 month after discharge |
|----------------------------|-----------------|-----------------|------------------------|
| Dyspnoea                   | 8 (44%)         | 21 (57%)        |
| Chest pain                 | 4 (22%)         | 8 (22%)         |
| Chronic joint disease      | 5 (28%)         | 5 (14%)         |
| Fatigue                    | 3 (17%)         | 9 (24%)         |
| Stroke                     | 2 (11%)         | 2 (5%)          |
| Total patients             | 18 (102%)       | 37 (102%)       |

*Exceeds 100% because of multiple reasons given by patients.

| Table 5. Reasons given at interview for anxiety and/or depression among patients 1 month after discharge

| Reason                               | No. of patients | 3 months after discharge |
|--------------------------------------|-----------------|--------------------------|
| Fear of another coronary             | 17 (51%)        |                          |
| Inability to do household chores     | 11 (35%)        |                          |
| Chest pain, dyspnoea or fatigue      | 10 (30%)        |                          |
| Inability to enjoy social activities | 9 (27%)         |                          |
| Fear of a fatal outcome              | 5 (15%)         |                          |
| Fear of becoming dependent on others | 4 (12%)         |                          |
| Total patients                       | 33 (168%)       |                          |

*Exceeds 100% because multiple reasons given by patients.

the first and second questionnaires were compared, 36 had improved (mean improvement 4.1 with a range of 1 to 13 points) and 18 had deteriorated further.

The frequency of the various responses to each of the

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Journal of the Royal College of Physicians of London Vol. 13 No. 3 July 1979
12 questions are shown in Tables 1, 3 and 6. As in the first questionnaire, about a third of the patients assessed their progress after discharge from hospital as ‘poor’ or only ‘fair’. Also half the patients admitted to being anxious or depressed about their myocardial infarction. There was no significant difference between the first and second questionnaires in the proportion of patients who claimed that after their myocardial infarction they were unable to walk 100 yards on the flat (48 per cent and 42 per cent respectively) or climb to the top of their stairs (46 per cent and 41 per cent respectively). About a third of the patients were able to do all the household chores or social activities they had done before their myocardial infarction, against less than 25 per cent in the first questionnaire. The number of patients describing their determination to get better as at least ‘good’ was unchanged.

Discussion

It is now more widely appreciated that efficient early medical and nursing care of the patient with myocardial infarction is seldom matched by adequate attention to psychological and social aspects of the illness, and the consequences for employment or physical and social activities, so that undue invalidism is the result (Royal College of Physicians Joint Working Party, 1975). Few hospitals provide a planned rehabilitation service (Semple et al., 1971). While the overall requirement for this form of management remains uncertain, some post-myocardial infarction patients require counselling and a planned activity programme. In the young and middle-aged, return to work is an easily measured index of successful rehabilitation. Studies in the United Kingdom (Sharland, 1964; Wincott and Caird, 1966; Groden, 1967) have shown that of those surviving infarction and leaving hospital apparently fit enough to resume work eventually, 80 per cent will have returned to their employment within 6 to 8 months without special rehabilitation procedures other than encouragement and advice. But in most cases 6 to 8 months is much too long for absence from work. At least two controlled trials have shown that an earlier return to work can be achieved with a planned rehabilitation programme (McThockloot et al., 1973; Schiller and Baker, 1976). No easily measured index of cardiac rehabilitation exists for elderly patients. This survey draws attention to the effects of hospital admission for an acute myocardial infarction on the psychological well-being and ability to perform certain essential activities of daily living among the elderly.

Despite the almost universally good determination to recover, one month after discharge about 20 per cent of patients had a reduced mobility, of which the cause seemed to be dyspnoea and fatigue consequent upon the infarction, and 75 per cent were unable to do the household chores or social activities that they had done before, the cause of which seemed to be fatigue. About 50 per cent of the patients had been anxious or depressed about their coronary. The majority had feared the future—another coronary thrombosis, a fatal outcome, or becoming dependent on others. Cardiac symptoms themselves often gave rise to anxiety or depression, but more frequently it was the inability to do household chores or social activities. After two months the proportion of patients with restricted ambulation or inability to climb stairs had not significantly decreased but there was a significant increase in the proportion able to do all the previous household chores or social activities. The proportion of patients admitting to anxiety or depression and being dissatisfied with their progress remained high, at about 50 per cent and 30 per cent respectively.

This study suggests that there is a need for an appraisal of the amount of psychological impairment and disability among elderly patients for several months after an acute myocardial infarction and that there may be need of a counselling and rehabilitation programme after discharge from hospital.

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