

# Aspects of psychological and social morbidity in patients awaiting coronary artery bypass grafting

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## Abstract

**Objectives**—To assess anxiety, depression, and social adjustment in patients awaiting coronary artery bypass surgery.

**Design**—Patient completed questionnaire study.

**Setting**—Regional cardiothoracic centre.

**Patients**—109 questionnaires were sent to patients on the waiting list of two cardiothoracic surgeons. Sixty eight (62%) were returned and 15 (22%) of the respondents were women. There was no difference in the response rates for men (53/84) 63% and women (15/25) 60%.

**Main outcome measures**—Anxiety and depression were assessed by the hospital anxiety and depression (HAD) scale. Social functioning was assessed by several nine point rating scales on which patients indicated how their work, family relationships, social activities, private leisure activities, and home management were impaired. Patients also indicated the severity of their cardiac symptoms on a questionnaire based on the New York Heart Association classification for the assessment of the functional state of patients with heart disease.

**Results**—On the HAD scale 19 (28%) patients scored in the clinically significant range for anxiety. Time spent on the waiting list was positively and significantly related to anxiety ( $p=0.05$ ). Thirty two (47%) patients scored in the clinically significant range for depression. Time spent on the waiting list was positively and significantly related to depression ( $p=0.005$ ). Positive and significant relations were found between time spent on the waiting list and impairment of work ( $p<0.0001$ ), family relationships ( $p<0.0001$ ), private leisure activities ( $p<0.0001$ ), and social activities ( $p=0.004$ ). No correlation was found between any of the above variables and the indicated level of clinical symptoms.

**Conclusions**—This study documents previously unreported associations between the time patients wait for coronary artery surgery and levels of anxiety, depression, and social functioning. Conclusions regarding the causes of these symptoms cannot be made from this small population of patients but these

results do suggest that these associations should be studied further.

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Coronary artery bypass grafting has been shown to be an effective treatment for the relief of angina. It has also been shown to improve long-term survival in patients with left main stem disease and triple vessel disease particularly when left ventricular function is already impaired.<sup>1</sup> Over 200 000 patients undergo coronary bypass grafting in the United States each year. In the United Kingdom, 9616 operations were performed in 1985, rising to 11 521 by 1988 (the United Kingdom cardiac surgical register 1988). The current national target is roughly 18 000 operations by 1991 (300 operations/million population/year). Unfortunately this figure relates to the medical knowledge of the 1980s rather than the 1990s and it has become clear that a figure of 450-600 operations/million population/year (27 000-36 000 operations) is a more realistic reflection of modern cardiological practice.<sup>2</sup> This sudden increase in demand and associated decline in the mortality of the procedure<sup>3</sup> will mean pressure on the waiting lists for both coronary arteriography and coronary artery surgery. Waiting for surgery has been reported as one of the main sources of stress for this group of patients and a period of intense psychological adjustment.<sup>4</sup> Our study was designed to assess aspects of anxiety, depression, and social functioning in these patients.

## Patients and methods

Patients awaiting routine coronary artery bypass grafting under the care of two consultants were sent a series of questionnaires designed to assess anxiety, depression, impairment of social functioning, and severity of cardiac symptoms.

There were 109 patients on the lists and 68 (62%) returned the questionnaires. Among these respondents 15 (22%) were women compared with eight (19%) of the non-respondents. The average age of the respondents was 61 years and that of the non-respondents 62 years. The time each patient had been waiting for surgery was taken from the time they had been accepted for surgery and placed on the waiting list until the day the questionnaires were posted. The average time on the waiting list was 6.4 (range 1.5-22.2) months for the respondents and 5.8 (range 2.1-20.2) months for the non-respondents.

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Anxiety and depression were assessed by the hospital anxiety and depression scale (HAD Scale).<sup>5</sup> This 14 item self report questionnaire has two subscales, one indicating the likelihood of anxiety, the other depression. It is specifically designed to screen physically ill patients and does not require the presence of somatic symptoms to determine the likely presence of psychiatric disorder. Threshold scores of 8–10 on either subscale indicate that patients are more likely to be anxious or depressed and merit more rigorous assessment.

Social functioning was assessed by means of several nine point rating scales on which the patients were asked to indicate the extent to which their work, family relationships, social activities, private leisure activities, and home management were impaired: (0 = not at all, 2 = slightly, 4 = definitely, 6 = markedly, 8 = very severely).

The patients were also asked to indicate their present severity of clinical symptoms in a questionnaire based on the New York Heart Association (NYHA) classification for the assessment of the functional state of patients with heart disease.<sup>6</sup> (Class I, no limitation of physical activity; class II, breathlessness or angina after ordinary physical activity, for example, walking; class III, considerable limitation of physical activity—that is, breathlessness or angina while walking on the flat; class IV, breathlessness or angina experienced at rest.)

#### STATISTICAL ANALYSIS OF RESULTS

The complex  $\chi^2$  test was used to determine the significance of the relation between NYHA class and levels of anxiety and depression. The directions and degrees of association between time on the waiting list and levels of anxiety, depression, and social functioning were determined by means of Spearman's  $\rho$  measure of correlation.

### Results

#### ANXIETY

On the HAD scale 19 (28%) of patients scored in the clinically significant range for anxiety, 28 (41%) were in the borderline range and 21 (31%) had non-significant scores. Time on the waiting list was positively and significantly related to anxiety ( $\rho = 0.200$ ,  $n = 68$ ,  $p = 0.05$ ). Because only one patient was in each of the NYHA classes I and IV it was not possible to relate these classes to anxiety levels but in patients in classes II or III, NYHA class was not related to anxiety ( $\chi^2 = 1.747$ ,  $df = 2$ ,  $n = 66$ ,  $p = 0.417$ ).

#### DEPRESSION

On the HAD scale 32 (47%) of patients scored in the clinically significant range for depression, 18 (26%) were in the borderline range, and 18 (26%) were at non-significant levels. Time on the waiting list was positively and significantly related to depression ( $\rho = 0.313$ ,  $n = 68$ ,  $p = 0.005$ ). For the reason previously stated it was possible only to ascertain the relation

between NYHA classes II and III and depression. This relation was non-significant ( $\chi^2 = 1.736$ ,  $df = 2$ ,  $n = 66$ ,  $p = 0.420$ ).

#### SOCIAL FUNCTIONING

The proportion of patients reporting definite, considerable, or very severe impairment on the rating scales for work was 83%, for social activities 75%, for private leisure activities 75%, for home management 65%, and for family relationships 63%.

Positive and significant relations were found between time on the waiting list and impairment of work ( $\rho = 0.576$ ,  $n = 64$ ,  $p \leq 0.0001$ ), family relationships ( $\rho = 0.486$ ,  $n = 68$ ,  $p \leq 0.001$ ), private leisure activities ( $\rho = 0.414$ ,  $n = 68$ ,  $p \leq 0.001$ ), and social activities ( $\rho = 0.323$ ,  $n = 68$ ,  $p = 0.004$ ). Time on the waiting list was not significantly related to the impairment of home management ( $\rho = 0.122$ ,  $n = 68$ ,  $p = 0.161$ ).

#### NYHA GRADING

The number and proportion of the respondents in each of the described classes was: IV = 1 (1%), III = 18 (26%), II = 48 (70%), I = 1 (1%). No relation was found between the indicated level of clinical symptoms and time spent on the waiting list.

### Discussion

The experience of undergoing any form of surgery can be profoundly disturbing. The anticipation may dominate the mental functioning of patients, some reacting both before and after the operation with serious psychiatric disorders unrelated to the severity of illness or the extent of surgery.<sup>7,8</sup> The implications of coronary artery surgery are especially provocative since this procedure involves the manipulation of an organ that is still generally perceived as being the essence of life itself.<sup>9</sup> Indeed, this attitude is one that has also affected the medical profession; thus Bilroth's much quoted statement that "any surgeon who would attempt an operation on the heart should lose the respect of his colleagues" was upheld by the profession for many years.<sup>10</sup> The postoperative psychological effects of open heart surgery have been well documented<sup>11–13</sup> but little work has been done to assess the effect on patients of the long waiting lists that exist in this country at present. Our study documents some of these features.

A large percentage of our patients (47%) scored significantly high levels for depression on the HAD scale. This scale is widely accepted as a means of differentiating those patients who are unhappy and demoralised on account of their illness or for some other reason, and those patients who are depressed in terms of a biogenic mood disturbance. The levels recorded in our study population were shown to be statistically related to the time patients had spent on the waiting list for surgery and scores such as these indicate that this group of patients certainly warrant further assessment and may benefit from antidepressant treatment.<sup>14</sup> The incidence of depressive symptoms documented

here is certainly far greater than that previously reported in medically sick patients who were attending outpatient departments with a wide variety of illness and complaints.<sup>5</sup> Fewer patients in our study group scored in the clinically significant range for anxiety but again we found that time spent on the waiting list correlated positively with anxiety levels. One of the main sources of anxiety in patients awaiting coronary artery surgery has been reported as the fear that their condition may deteriorate to the extent that they may suffer a heart attack before surgery.<sup>15</sup> Patients have also previously indicated that other sources of anxiety include a fear of the surgical procedure and anxiety related to the uncertainty surrounding the actual date of the operation.<sup>15</sup> Preoperative anxiety may also be related to the high expectation patients have of the outcome after surgery in terms of the operation solving all the problems they are experiencing both physically and socially. The effect of having to wait for this cure leads to frustration and anxiety. These worries along with those of adjusting to the setting back of operation dates and visiting hospital for tests are sources of anxiety that may possibly be alleviated by better counselling and communication between medical staff and patients during the preoperative period. This suggests that medical staff should counsel patients realistically about expected risks and outcome after surgery and that this should be done on an individual basis. It would also seem ideal to offer patients a proposed date for operation at the time of their outpatient assessment, but because this is not possible in the current climate, patients should be given realistic estimates of the time they will have to wait for surgery. These simple measures would help allay anxiety in areas patients have indicated as being most distressing to them.

Our results also highlight the effects that awaiting surgery has upon the social functioning of patients. All the aspects of social functioning that we assessed were shown to be impaired. Home management was the only social facet we found to be unrelated to the time patients had spent awaiting surgery. Previous research into this has cited that spouses, immediate family, extended family, friends, and general practitioners or other doctors are used as sources of social support by patients in the preoperative period, but that for both husbands and wives knowing somebody who had already had the operation was a unique source of information and reassurance.<sup>15</sup> The high incidence of impaired social functioning and its relation to time spent on the waiting list emphasises the importance of having adequate social support facilities available during the preoperative period and perhaps the need for support groups comprising patients who have had surgery themselves. In our unit patients are seen at their first surgical outpatient appointment by members of a charity organisation Link Up; a group comprising people who have undergone successful open heart surgery

and this meeting gives new patients the opportunity to discuss some of their initial fears and anxieties regarding the operation with people who can appreciate such emotions and who can answer questions relating to the impending operation with authority. The part played by these groups may need to be extended to help patients cope with the potentially detrimental effects that prolonged periods awaiting surgery can have. The medical profession can also play an important part in minimising the psychological and social consequences of awaiting operation, both in the hospital by greater communication with families as well as patients and also in the community by way of the general practitioner. The role of the general practitioner in the management of these patients is important and by regular contact he or she may not only be able to pick up levels of anxiety and depression but also mobilise resources to help patients cope with the enforced social consequences of awaiting an operation.

In this article we have reported new data on associations between awaiting coronary artery bypass surgery and levels of anxiety, depression, and social functioning. We accept that strong conclusions cannot be drawn from such a small sample of patients particularly in the absence of a control cohort but the associations we have shown raise important issues that merit consideration, and we would suggest that further study into this problem is required to assess the potential benefits of early surgery. Until this is achieved and more substantial information is acquired confirming our impressions, the management of these patients should not focus solely upon the disease process but should also consider the patient in a more holistic way while they await surgery.

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