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Psychological Factors and Vulnerability to Psychiatric Morbidity after Myocardial Infarction

Key Words
Myocardial infarction
Psychiatric morbidity
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Coping strategies

Abstract
A sample of 97 males suffering from myocardial infarction was studied in order to determine the influence of psychological variables and emotional states on psychopathology displayed by patients in the course of their cardiological recovery. Discriminant analysis revealed that depression in the coronary unit and nonuse of problem-solving strategies were the most sensitive variables to correctly classify psychiatric and nonpsychiatric cases (76.6% of the total sample). Multiple regression analysis of the psychological variables and emotional states showed that severity of psychopathology was directly related to early depressive reaction and use of avoidant strategies. The prevalence of psychiatric disorders was 55.5%, with depression (RDC) being the most frequent diagnosis (59.4%), followed by 'irritable dysphoria' (27%) and anxiety disorders (RDC; 21.6%).

Introduction

Myocardial infarction (MI) is a life-threatening event, in which patients must cope with the immediate traumatic situation, and deal with the long-term threat to their health and well-being after leaving hospital. Rehabilitation programs have demonstrated the importance of psychological factors in compliance and recovery [1] and there are retrospective and prospective epidemiological studies which underline the significant relations among initial emotional responses and cardiological and psychological outcome [2–4]. On the other hand, several authors have reported a psychiatric morbidity in the acute

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phase of MI ranging from 39 to 66% [2, 5] and there is evidence that this prevalence of psychopathology remains unchanged 1 year after leaving the coronary unit [2, 4]. Lloyd and Cawley [6] identified two groups of patients with psychiatric symptoms after MI: one with previous psychopathological disorders and high scores in neuroticism, in whom psychiatric disorders were persistent, and the other without previous psychopathology, who recover from their psychiatric symptoms within 1 year. In consequence, in the last decade, the role of psychological factors in determining the long-term adjustment of coronary patients has been a matter of considerable interest [7]. Among personality factors, neuroticism has been related to a poor emotional adjustment [8] and a higher risk of psychiatric disorders after MI [4], while psychoticism seemed to be a reliable indicator of good psychological adjustment [9]. Moreover, several studies have demonstrated that the use of denial mechanisms after MI is predictive of a good psychological and social outcome [10–12].

The present study attempts to determine the influence of coping strategies, personality variables and emotional states in the early phase of MI on later psychopathology displayed by patients. Among personality variables, two dimensions of the Gray [13] personality theory are studied, in order to relate results to a biologically based conceptual framework.

Methods

Sample Selection

A series of 110 consecutive males under 65 years suffering from a first MI and admitted to the coronary unit of the Clinic Hospital of Barcelona were interviewed for inclusion in the study; illiterate subjects and patients suffering from concomitant diseases were excluded. Patients selected were informed of the nature and conditions of the research program.

Instruments

Personality Variables

Susceptibility-to-Punishment Scale (SPS) [14]. This is a 36-item scale including situations and behavioral habits to identify subjects selectively responsive to anxiety and fear stimuli, according to the Gray [13] theory of anxiety. Subjects must answer each item with 'yes' or 'no' (e.g., 'Do you generally avoid giving your opinion about topics you know nothing about?', 'Are you a shy person?', 'Do you tend to keep in the background during fights?').

Susceptibility-to-Reward Scale (SRS). Developed by Muntaner and Torrubia [15], also from the Gray personality theory, this assesses the tendency to selectively respond to stimuli suggesting emotional well-being, reward and consummatory behavior (e.g., 'Whenever possible, do you tend to demonstrate your skills?' 'Do you like novelties?'). These two questionnaires (SPS and SRS) have been developed from several studies of their relationship with other well-known personality measures.

Eysenck Personality Questionnaire (EPQ) [16]. This was validated in Spain and derived from the Eysenck [17] personality theory, which identifies neuroticism (N), extroversion (E) and psychoticism (P) as independent, biologically based personality dimensions. The questionnaire also has a control scale (L) to evaluate sincerity in answering.

Bortner Questionnaire (BQ) [18]. Validated in Spain. This is a 14-item self-administered scale to assess type A behavior, which is considered as an independent coronary risk factor [19]. The subject must indicate on a horizontal line where he falls on the dimension on each item.

Ways-of-Coping Questionnaire (WCQ) [20]. This is derived from Lazarus' theory of stress and developed to identify thoughts and strategies used by subjects to cope with stressful events. The questionnaire contains eight subscales (confronting, distancing, self-control, seeking social support, accepting responsibility, escape-avoidance, problem solving and positive reappraisal).

Psychopathological Assessment

State-Trait Anxiety Inventory (STAI) [21]. Assesses anxiety states (STAI-S) and anxiety proneness (STAI-T).

Beck Depression Inventory (BDI) [22]. A self-report index of mood, derived from cognitive theories of depression.

Clinical Interview Schedule (CIS) [23]. This instrument records psychiatric symptoms and psychopathological states, which can be scored on a scale of severity

from 0 to 4. From the 22 items contained in the interview it is possible to derive an index of clinical severity. The interview was administered by two psychiatrists, who were specifically trained in the use of the instrument.

Research Diagnostic Criteria (RDC) [24]. This evaluates psychiatric morbidity in diagnostic terms.

Social-Functioning Schedule (SF) [25]. This is a structured interview to assess social functioning in nonpsychotic patients by exploring 12 different aspects of daily life. The interviewer must evaluate social difficulties through visual-analogue scales, and there is also a familial version to obtain additional information from relatives.

Procedure

All selected patients were interviewed by two psychiatrists in the coronary unit, 3–4 days after being hospitalized, and were informed of the nature of the study. During this first contact, when informed consent was obtained, all personality questionnaires – excluding the WCQ – were administered after recording medical and general data according to the protocol. Moreover, social functioning preceding the MI (SF1; patients and spouses) and emotional state in the coronary unit (STAI1, BDI1) were also evaluated.

One month later, patients were interviewed to determine social functioning (SF2), and two trained psychiatrists administered the CIS and established psychiatric diagnoses according to RDC. To evaluate the interrater reliability (separate interviews for each rater), a κ correlation analysis was calculated from 20 interviews to determine the degree of classificatory agreement ($\kappa = 0.86$). In addition, the psychometric instruments to evaluate emotional states (STAI2, BDI2) were also administered. Finally, the WCQ was administered, relating to the coping strategies used after leaving the hospital.

One year later, data related to cardiological and occupational evolution were recorded and patients were interviewed to assess the evolution of their mental state during this period. Patients were asked about their emotional state (type of mood, presence of anxiety or depression), their physical state (sleep pattern, degree of activity, level of energy), their mental state (attention, mental performance), their occupational activity and their need of psychopharmaceuticals or psychiatric consultation.

Table 1. Psychological traits and behavioral pattern of patients (n = 97)

	Mean	Normative values in Spanish population according to manuals
Personality variables		
EPQ-N	13.06 ± 5.31	11.64 ± 5.25
EPQ-E	11.55 ± 3.94	12.04 ± 4.04
EPQ-P	3.12 ± 3.93	2.37 ± 3.07
EPQ-L	9.36 ± 3.96	10.29 ± 4.93
SPS	21.04 ± 5.49	17.00 ± 6.84
SRS	17.14 ± 4.51	17.43 ± 4.51
STAI-T	21.09 ± 9.77	20.19 ± 8.89
Type A behavior		
BQ	176.82 ± 42.49	164.00 ± 26.25

Analysis of Data

Statistical analyses were computed using parametric and nonparametric measures (t of Student-Fischer, U of Mann-Whitney, χ^2 and Pearson coefficient, and discriminant analysis was performed according to the Wilks' λ method). Data were processed by an Apple Macintosh using the Statview 512 program and multivariate analysis was carried out in the Calculation Center of the University of Barcelona, using the BMDP program.

Results

From the 110 consecutively interviewed patients, 9 (8.1%) died, and 4 (3.6%) refused to be included in the study, so the final sample consisted of 97 patients (88.1% of the initial population), with a mean age of 50.21 ± 7.61 years. Seventy-six (69%) were married, 44 (40%) came from a rural environment, and 13 (11.8%) were retired or occupationally inactive. Psychological characteristics of patients are in table 1. The prevalence of type A behavior was 25.8%, and the main scores of emotional state in the coronary unit were 17.09 ± 12.16 (STAI1) and 8.47 ± 7.29 (BDI2).

Table 2. Psychiatric morbidity and emotional states of patients 1 month after suffering MI (n = 67)

	n	Mean	%
Psychiatric morbidity			
CIS (total)	67	19.51 ± 11.43	
CIS (psychiatric case)	37		55.2
CIS (noncase)	30		44.7
Mental disorders according to RDC			
Major depression	4		10.8
Minor depression	10		27
Anxiety disorders	8		21.6
Personality disorders	3		8.1
Other diagnoses	2		5.4
'Irritable dysphoria'	10		27
Emotional state			
STAI-S2		15.73 ± 12.16	
BDI2		7.71 ± 7.53	

Table 2 shows the psychiatric morbidity and emotional states of patients 1 month after suffering from the MI. This sample was composed of 69% of the patients included in the first evaluation, and constitutes 60% of the initially interviewed total population. Patients who did not attend this second evaluation said they lived too far from the hospital (60%) or had no time or opportunity to attend (10%). Eight patients (26.6%) were out of reach and one (3.3%) died 10 days after being discharged from the hospital. The diagnosis of 'irritable dysphoria', not included in the RDC, describes a group of patients characterized by presenting chronic irritability, which interferes with their occupational activity and complicates their social and familial relations. This state of irritability, already present before the MI, was a salient feature of these patients who, on the other hand, showed neither clinical manifestations of anxiety nor met all RDC requirements for minor depression (patients did not show depressive mood, as criterion A states).

In table 3, relations among psychological variables and psychiatric morbidity are presented. With respect to the last evaluation, 1 year following MI (n = 63), 14 (22.2%) patients had suffered from mental disorders, and 9 (14.2%) had sought psychiatric attention. These latter patients scored significantly higher in SPS ($p = 0.05$), STAI-S1 and STAI-S2 ($p = 0.05$), BDI1 ($p = 0.01$) and BDI2 ($p = 0.05$), and psychopathology (CIS scores; $p = 0.01$), and significantly lower in EPQ-E ($p = 0.05$).

In order to identify the variables that determine the appearance of psychiatric disorders, discriminant analysis among the two groups (psychiatric cases and noncases) was performed, using the most significant variables of bivariant analysis EPQ-N, STAIT-T1, BQ, escape-avoidance, problem solving, STAI-S1, STAI-S2, BDI1, BDI2, and SF1), showing that depression in the coronary unit (BDI1; $\chi^2 = 12.30$; d.f. = 1.58; $p = 0.01$) and nonuse of problem-solving strategies ($\chi^2 = 5.07$; d.f. = 2.57; $p = 0.01$) correctly classified 76.8% of patients. On the other hand, multiple step-wise regression analysis of the psychological variables and emotional states (STAI-T1, STAI-S1, BDI, BQ, EPQ-N, SPS, SRS, positive reappraisal, problem solving, escape-avoidance, distancing and SF1) showed that severity of psychopathology was related to the use of avoidant strategies (RC = 0.82; R = 0.38; Inc. R = 0.26; F = 4.51) and to early depressive reaction (BDI1; RC = 0.61; R = 0.20; Inc. R = 0.37; F = 9.20).

Discussion

MI patients included in the study were characterized by high scores in neuroticism and showed a tendency to respond strongly to

Table 3. Relationships among psychological variables and psychiatric morbidity (n = 67)

	Psychiatric cases (n = 37)	Noncases (n = 30)	Mann-Whitney U
Personality variables			
EPQ-N	14.32 ± 5.26	11.72 ± 5.32	0.05
EPQ-E	11.29 ± 3.86	11.27 ± 3.42	NS
EPQ-P	3.44 ± 3.43	2.87 ± 5.36	NS
EPQ-L	9.82 ± 3.42	8.82 ± 3.87	NS
SPS	22.00 ± 5.29	20.00 ± 5.11	NS
SRS	17.09 ± 4.69	15.85 ± 4.42	NS
STAI-T	24.63 ± 9.98	17.69 ± 6.93	0.01
Type A behavior			
BQ	189.86 ± 40.24	163.27 ± 40.38	0.01
Coping strategies (WCQ)			
Confronting	10.84 ± 4.65	11.69 ± 6.04	NS
Distancing	15.30 ± 9.13	16.60 ± 9.82	NS
Self-control	12.42 ± 5.11	10.02 ± 5.14	0.05
Seeking social support	18.72 ± 7.64	14.88 ± 7.23	0.05
Accepting responsibility	11.77 ± 7.16	12.70 ± 9.84	NS
Escape-avoidance	7.62 ± 4.33	4.67 ± 3.84	0.01
Problem solving	12.51 ± 3.88	15.44 ± 5.25	0.01
Positive reappraisal	10.78 ± 6.66	13.96 ± 6.93	0.05
Emotional states			
STAI-S1	20.83 ± 12.17	12.89 ± 6.89	0.01
STAI-S2	21.80 ± 11.27	9.27 ± 4.36	0.001
BDI1	11.37 ± 7.70	5.06 ± 4.25	0.001
BDI2	11.11 ± 7.93	3.62 ± 2.94	0.001
Social functioning			
SF1 (patient)	18.27 ± 11.62	12.80 ± 11.81	0.01
SF1 (spouse)	24.16 ± 18.17	9.11 ± 7.37	0.001
SF2 (patient)	22.27 ± 16.66	14.04 ± 9.43	0.01
Previous occupational stress	6.73 ± 4.65	4.60 ± 3.98	0.05
Psychiatric history			
With previous psychiatric history	19 (28.35%)	6 (8.95%)	0.05
Without previous psychiatric history	18 (27.27%)	24 (35.82%)	

Values are mean ± SD.

fearful stimuli, as Gray postulated for neurotic subjects [13]. Moreover, MI patients scored high in trait anxiety, although not reaching the level found in other coronary samples, and particularly in the study of Sykes et al. [7], in which STAI-T scores were notably higher (36.09 ± 9.45). Nevertheless, emotional hyperreactivity was the common finding obtained by the different psychometric tools to assess personality variables. Type A scores were similar to those found in other American [26] and Spanish studies on coronary patients [27, 28] using the BQ and, as would be expected, type A prevalence was noticeably higher than that obtained in the general population (25.8 versus 14.4%).

MI patients showed a much higher prevalence of psychopathology than found in other Spanish studies of the general population (19%) [29] and of patients suffering from bronchial asthma (18%) [30], systemic lupus (34%) [31], neoplastic diseases (35%) [32] and coronary heart disease (44%) [5] using the same instrument (CIS). Depression and anxiety were the most frequent disorders (59.4% of the total), as in other previous studies [2, 3], but the rate in the two diagnoses was quite different (depression appeared to be twice as frequent as anxiety). Such an epidemiological discrepancy may be explained by at least three factors. First, we used RDC to establish psychiatric categories, and minor depression may be overrepresented by being the recommended diagnosis when depressive and anxiety symptoms are interlinked. Second, studies on psychiatric morbidity tend to use psychometric tools to assess psychopathological states rather than using diagnostic criteria to establish independent psychiatric categories. In the studies in which RDC were used, the prevalence of depressive disorders was very similar to that found in our sample [33]. Third, 27% of patients were classified as suffering from 'irritable dysphoria', which is not a RDC psychiatry category, but a conventional diagnosis to describe a chronic emotional state tending to easy irritability, potentially included among anxiety disorders. Although these reasons may account for the relatively higher prevalence of depression in our coronary patients, the fact is that their STAI-S scores in the coronary unit were markedly lower than reported by Sykes et al. [7] in a similar sample (34.39 ± 10.73). On the other hand, there were more psychiatric antecedents in coronary patients diagnosed as psychiatric cases, but the relevant percentage of patients with psychiatric symptoms without past psychiatric history (27.2%) outlines the convenience of searching for other indicators of psychiatric vulnerability.

MI patients presenting psychiatric disorders 1 month following the MI were more anxious and neurotic than noncases, and scored significantly higher in type A behavior. The sensitivity of this type A scale for discriminating among psychiatric cases and noncases probably depends on the fact that BQ is an assessment tool which also records neurotic manifestations of personality [9]. With respect to the coping styles, the most significant differences among the two groups were represented by the escape-avoidance strategy (more prevalent among psychiatric cases) and the problem-solving strategy (predominant among noncases), therefore confirming the general statement that coping effectiveness in patients suffering from life-threatening illnesses appears to be negatively linked to frequent use of avoidance [34]. These findings do not confirm previous studies reporting the protective role of denial mechanisms in coronary patients [10, 12], which may be considered as a coping strategy conceptually close to avoidance and distancing. On the other hand, coronary patients who asked for psychiatric attention during the year following the MI were significantly more fearful, anxious, neu-

rotic and introverted, which is in agreement with the predictions of the Eysenck [17] and Gray [13] personality theories on psychiatric vulnerability. In fact, these patients were significantly more anxious and depressed both in the coronary unit and at home, and showed poorer social functioning before the MI and 1 month later. Since mood state has not been evaluated before MI, we do not know if the poorer social functioning of coronary patients classified as psychiatric cases can be attributed to the presence of previous affective disorders but, in any case, it would be related to the significantly higher occupational stress reported by these patients (who also scored significantly higher in type A behavior).

The finding that a depressive reaction in the coronary unit and the nonuse of problem-solving strategies are the two psychological variables most useful to discriminate psychiatric vulnerability corroborates the generalized observation that an early emotional reaction after MI predicts long-term psychopathological evolution [2, 3, 11], and that depressive symptoms and emotional distress are positively related to the use of avoidant strategies and negatively related to the use of problem-solving strategies [35]. These results are important for anticipating the cardiological and psychopathological outcome, since there is evidence that depressive disorders are the best predictor of cardiac events during the year following catheterization [36], and that high BDI scores constitute a significant risk factor for death or cardiac arrest in MI patients [26]. Moreover, among MI patients there is a subgroup with high scores in trait anxiety and poor prognosis, for whom early discharge would be contraindicated [37] and, in agreement with our results, there is also proof that between one-half and two-thirds of these psychiatric patients remain distressed at 1 year follow-up, if they do not receive specific psychiatric treatment [38]. Therefore, our results may contribute to the early identification of patients at high psychopathological risk by means of the two discriminant variables (depression in the coronary unit and nonuse of problem-solving strategies), so that specific treatments can be prescribed to prevent the chronic evolution of psychiatric disorders and their negative effect on cardiological recovery.

References

1 Lamm G, Dorossiev DL: World Health Organization collaborative study on rehabilitation and comprehensive secondary prevention of patients after acute myocardial infarction. Adv Cardiol 1978;24:179–186.

2 Trelawny-Ross C, Russell O: Social and psychological responses to myocardial infarction: Multiple determinants of outcome six months. J Psychosom Res 1987;31:125–130.

3 Guiry E, Conroy B, Hickey SG: Psychological response to an acute coronary event and its effect on subsequent rehabilitation and life style change. Clin Cardiol 1987;10:256–260.

4 Philip AE: Psychological predictors of outcome after myocardial infarction; in Elbert T, Langosh W, Steptoe A, Vaitl D (eds): Behavioural Medicine in Cardiovascular Disorders. New York, Wiley, 1988.

5 Vazquez Barquero M, Padierna JA, Ochoteco A, Diez JF: Mental illness and ischaemic heart disease: Analysis of psychiatric morbidity. Gen Hosp Psychiatry 1985;7:15–20.

6 Lloyd GG, Cawley RH: Distress or illness? A study of psychological symptoms after myocardial infarction. Br J Psychiatry 1983;142:120–125.

7 Sykes DH, Evans AE, Boyle D, Palesky J: The impact of denial and repressive style on information gain and rehabilitation outcome in myocardial infarction patients. Psychosom Med 1985;47:262–272.

8 Byrne DG, Whyte HM: State and trait anxiety correlates of illness behavior in survivors of myocardial infarction. Int J Psychol Med 1984; 13:1–9.

9 Bass CH, Akhras F: Physical and psychological correlates of severe heart disease in men. Psychol Med 1987;17:695–703.

10 Hackett TP, Cassem NH, Wishnie HA: The coronary-care unit: An appraisal of its psychological hazards. N Engl J Med 1968;25:1365–1370.
11 Stern MJ, Pascale L, McLoone JB: Psychological adaptation following an acute myocardial infarction. J Chronic Dis 1976;29:513–526.
12 García Esteve LL, Valdés M, Riesco N, Jodar I, de Flores T: Denial mechanisms after myocardial infarction: Their relations with psychological variables and short-term outcome. J Psychosom Res 1992;36: 491–496.
13 Gray JA: The neuropsychology of anxiety: An enquiry into function of the septo-hippocampal system. Oxford, Oxford University Press, 1982.
14 Torrubia R, Tobeña A: A scale for the assessment of susceptibility to punishment as a measure of anxiety: Preliminary results. Person Individ Diff 1984;4:371–375.
15 Muntaner C, Torrubia R: Experimental unpublished version of Susceptibility to Reward Scale. Barcelona, Barcelona University Press, 1992.
16 Eysenck HJ, Eysenck SB: Manual of Eysenck Personality Questionnaire. London, Hodder and Stroughton, 1975.
17 Eysenck HJ: A Model for Personality. New York, Springer, 1981.
18 Bortner RW: A short rating scale as a potential measure of pattern A behavior. J Chronic Dis 1969;22:87–91.
19 Review Panel on Coronary-Prone Behavior and CHD (several authors): Coronary-prone behavior and coronary heart disease: A critical review. Circulation 1981;63: 1199–1215.
20 Folkman S, Lazarus R: Manual of Ways of Coping Questionnaire. Palo Alto, Consulting Psychologists, 1988.
21 Spielberger CD, Grosuch RL, Lushene RE: Manual of the State-Trait Anxiety Inventory. Palo Alto, Consulting Psychologists, 1970.
22 Beck AT, Ward CH, Mendelson M, Mock J, Erbaugh J: An inventory for measurement of depression. Arch Gen Psychiatry 1961;4:561–571.
23 Goldberg DP, Cooper B, Eastwood MR, Kedward HB, Shepherd M: A standardized interview suitable for use in community surveys. Br J Prev Soc Med 1970;24:18–23.
24 Spitzer RL, Endicott J, Robins E: Research Diagnostic Criteria: Rationale and reliability. Arch Gen Psychiatry 1978;35:773–782.
25 Remington M, Tyrer P: The social functioning schedule: A brief semi-structured interview. Soc Psychiatry 1979;14:151–157.
26 Ahren DK, Gorkin L, Anderson JL, Tierney C, Hallstrom A, Ewart C, Capone RJ, Schron E, Kornfeld D, Herd JA, Richardson DW, Follick MJ: Biobehavioral variables and mortality or cardiac arrest in the Cardiac Arrhythmia Pilot Study (CAPS). Am J Cardiol 1990;66:59–62.
27 Bernardo M, de Flores T, Valdés M, Mestre L, Fernandez L: Coronary heart disease and psychological variables: Is type A enough to increase the risk? Person Individ Diff 1987; 8:733–736.
28 Valdés M, de Flores T: Type A behavior and vulnerability to diseases: A Spanish retrospective study. Stress Med 1987;3:135–140.
29 Vazquez Barquero JL, Wilkinson G, Diez JF: Psychiatric morbidity and physical illness in health centers. Acta Psychiatr Scand 1990;81:335–339.
30 de Pablo J: Psychological Aspects of Bronchial Asthma: doctoral thesis University of Barcelona, 1990.
31 Seguí J: Psychopathological disorders in systemic lupus: doctoral thesis University of Barcelona, 1990.
32 Salvador L: Psychiatric morbidity in neoplastic patients: doctoral thesis University of Barcelona, 1987.
33 Schleifer SJ, Macari-Hinson MM, Coyle DA, Slater WR, Kahn M, Gorlin R, Zucker HD: The nature and course of depression following myocardial infarction. Arch Intern Med 1989;149:1785–1789.
34 Feifel H, Strack S, Nagy TV: Degree of life-threat and differential use of coping modes. J Psychosom Res 1987;31:91–99.
35 Vitaliano PP, Maiuro RD, Russo J, Becker J: Raw versus relative scores in the assessment of coping strategies. J Behav Med 1987;10:1–18.
36 Carney RM, Rich MR, Freedland KE, Saini J, Te Velde A, Simeone C, Clark K: Major depressive disorder predicts cardiac events in patients with coronary artery disease. Psychosom Med 1988;50:627–633.
37 Stern MJ, Pascale L, Ackerman A: Life adjustment postmyocardial infarction: Determination of predictive variables. Arch Intern Med 1977;137:1680–1685.
38 Levenson JL, Friedel RO: Major depression in patients with cardiac disease: Diagnosis and somatic treatment. Psychosomatics 1985;26:91–102.