The advisory brought to practice
Routine screening on depression (and anxiety) in coronary heart disease; consequences and implications

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1. Introduction

Depression and anxiety are highly common in patients with various cardiac conditions, such as acute coronary syndrome (ACS) [1,2], myocardial infarction (MI) [3,4], and heart failure (HF) [5–7]. Both depression and anxiety relate to negative health outcomes such as recurrent cardiac events, impaired well being and quality of life and increased health care costs in these patient populations [8–12]. Early identification and accurate treatment are considered important in view of the patient’s health and well being and from the perspective of cost-effectiveness. Following the evidence, the American Heart Association recently published a Science Advisory with the recommendation that patients with Coronary Heart Disease...
should be screened for depressive symptoms and depression [13]. Also the Heart Failure Guidelines [14,15] recommend routine screening for depressive symptoms. Screening for anxiety was not included in these recommendations, despite findings in literature suggesting that cardiac patients are at risk for highly levels of anxiety [16]. The aim of the current study is to calculate the implications of the recommendation to screen for depression in clinical practice. Given the evidence, however, we will not only focus on depression, but also include anxiety in our analyses.

To obtain a realistic estimation of the clinical implications of screening, several factors should be taken into account. First, data on the prevalence of depression and anxiety should be obtained from an unselected sample of patients visiting a cardiac outpatient clinic. Currently, however, prevalence data are mostly obtained from patient populations that are not representative for the patients that visit outpatient clinics in day to day practice. For instance, randomized clinical trials tend to include younger patients with a better cardiovascular risk profile compared to patients in everyday practice [17]. Also, many studies focus on specific cardiac patient populations (mostly patients after MI or patients with HF); while patients in everyday practice often cannot be classified in one of these categories. Patients develop heart failure after a myocardial infarction or heart failure patients are confronted with arrhythmic complications.

Second, realistic estimations of the practical implications can only be obtained when cardiac patients’ need for help is taken into account. Indeed, studies in cancer patients show that not all patients with elevated levels of anxiety or depression feel the desire for psychological support [18,19]. The perceived need for help was, for instance, lower among men, among older patients and among patients with a lower educational level, and higher among cancer patients treated with radiotherapy [17,18]. Thus, not every cardiac patient with elevated levels of distress might feel the need for additional psychosocial care.

Lastly, when hospitals are to adopt screening, appropriate referral and treatment should be available [20]. Yet, one type of intervention might not be effective for every patient. To illustrate, the reduction in mortality after psychological treatment that Linden et al. [21] found in their meta-analyses was found only in men, not in women. These findings indicate that female cardiac patients may benefit from a different type of intervention than male cardiac patients. So, for the development of appropriate interventions, it is relevant to have insight into the characteristics of the population of patients likely to be referred for additional psychosocial care.

In sum, the aim of the current study is to investigate prevalence of depression and anxiety in a day to day practice, outpatient population, as well as the perceived need for help in this population. Furthermore, we will explore which demographic and illness-related factors are associated with high levels of depression and anxiety.

2. Methods

2.1. Design and procedure

Data were collected in a cross-sectional study within a 2-months period (July and August, 2008). Questionnaires were handed out to all patients visiting the cardiac outpatient clinic of the University Medical Center of Groningen (UMCG) in The Netherlands during 3 days a week, covering all different cardiac patient populations. Patients were free to fill in the questionnaire during their visit at the outpatient clinic or at home (and send it back by mail in a pre-stamped envelope).

The study conforms with the principles outlined in the Declaration of Helsinki and was approved by the Committee for Ethics in Medical Investigations of the UMCG. All patients signed a written informed consent.

2.2. Measures

Depressive symptoms were measured with the Center of Epidemiologic Studies Depression Scale (CES-D) [22]. The CES-D is a 20-item self-report questionnaire measuring depressive symptoms in the general population and in the medically ill [22,23]. A total sum-score is used (0–60), with higher scores indicating more depressive symptoms. A cutoff point of 16 is generally used to define patients at risk for a clinical depression [24].

Anxiety was measured with the 6-item short form of the State Trait Anxiety Inventory (STAI). This short form version has been validated for the Dutch situation, and proved to be sufficient in terms of reliability and validity [25]. Items can be scored on a four-point scale, giving a total sum-score ranging from 20 to 80 with higher scores indicating higher levels of anxiety. A threshold value for the sum-score of 40 is suggested [26,27]. Above this score clinically significant anxiety should be suspected.

Perceived need for help was measured with a visual analogue scale (thermometer format) with an 11-point Likert scale ranging from 0 (can manage by myself) to 10 (desperately). This measure is derived from the Emotion Thermometers developed by Mitchell et al. [28] and adapted for use in the Dutch situation. (See also http://www.psychology.info/ET.htm).

Questionnaires contained a set of self-report questions regarding demographics, experienced life events and disease related variables. Demographic data were collected on age, gender, marital status and educational status. The prevalence of recent stressful life events was evaluated with a shortened, 7-item version of a questionnaire developed by Holmes [29]. The following disease related data were collected; type of cardiac diagnosis, duration of the heart disease and the presence of co-morbid diseases.
2.3 Statistical analyses

All data were entered into an SPSS database. Perceived need for help was recorded into ‘no need for help’ (0–3), ‘moderate need for help’ (4–6) and ‘high need for help’ (7–10). Marital status was dichotomized into patients that were married or living together as one category and patients living alone, either single, divorced or widowed, as the other category. Educational status was categorized as into low for patients having primary school or lower and middle secondary school or a lower vocational degree. Patients were categorized into a high educational status when having high secondary school, a higher vocational or university degree. Descriptive statistics were used to describe the study population. Student t-tests, Chi-square tests and one-way ANOVA tests were used to test associations between depression, anxiety and the demographic and illness-related variables.

3. Results

3.1 Response and study population

During the 2-month period of data collection 450 sets of questionnaires were handed out. In total 217 were completed and returned, a response of 48%.

Patients participating in the study had a mean age of 58.5 (SD 16) years and were mostly male (62%). Most often reported diagnoses were: arrhythmia’s (48%), myocardial infarction (24%), and heart failure (22%). Thirty-five percent of patients reported to have more than one diagnosis and 44% of the patients reported to have one or more co-morbidities, such as diabetes and COPD (Table 1).

3.2 Prevalence of depression and anxiety

Using the CES-D to assess depressive symptoms, a mean score of 11.5 (SD 9) was found for the total group. Elevated levels of depressive symptoms (≥ 16) were prevalent in 26% (n=53) of all patients. When using the STAI-6 to measure anxiety, patients had a mean score of 37.5 (SD 12). Forty-two percent of all patients (n=87) reported clinically elevated levels of anxiety (STAI6 ≥ 40). Forty-four patients (22% of all patients) scored above the cut off of both the CES-D and the STAI6. However, there were 37 patients (19%) who had scored above the cutoff of the STAI6, without having elevated scores on depressive symptoms. Only 6 patients with clinically elevated levels of depressive symptoms (CES-D ≥ 16) did not report significant levels of anxiety (STAI6 ≥ 40).

3.3 Perceived need for help in patients with elevated levels of depression and anxiety

Of the 53 patients with clinically elevated levels of depressive symptoms, 50% (n=26) reported feeling no or little need for help (score 0–3), 50% indicated moderate to high perceived need for help (score> 3). Of the 87 patients with elevated levels of anxiety, 65% (n=55) indicated to have little or no need for help and 35% (n=30) perceived a moderate to high need for help. No differences in demographics or illness-related variables were found between patients that felt a need for help and patients who did not.

3.4 Related factors

The prevalence of depression and anxiety was mainly associated with demographic variables such as gender and educational status, with females and patients with low educational levels indicating higher levels of depressive symptoms and anxiety. Elevated levels of depressive symptoms were also specifically present in patients who were living alone. The prevalence of stressful live events was significantly associated with both depression and anxiety. Disease related factors such as the duration of the heart disease, the number of cardiac diagnoses were not associated with depressive symptoms nor with anxiety (Table 2). The prevalence of co-morbidities was associated with anxiety, not with depressive symptoms.

Although not significant, it was remarkable to see that patients who did not know their cardiac diagnosis (yet) (n=14), had a higher anxiety score compared to patients who knew their cardiac diagnosis.
4. Discussion

In an unselected, day to day outpatient cardiac population, we found that 26% of the patients experienced depressive symptoms. Compared to a prevalence of 16% in a reference population of healthy elderly [30], these cardiac patients do worse. Furthermore, 42% of patients indicated elevated levels of anxiety. Of these patients, a substantial number scored high on anxiety without having depressive symptoms. These scores are higher compared to the 29% in the study of Jiang [31] and lower compared to the 45% in the study of Friedmann [10]. In a study on patients after coronary artery or valve surgery, Szekely [12] found that 42% of these patients presented clinically significant anxiety symptoms. These results stress the importance to screen for anxiety as well as for depression.

Our findings also indicate that the implementation of the guidelines’ recommendation to screen, refer and treat depression in patients with coronary heart disease [13] would have serious consequences for clinical practice. In about 26–42% of patients, elevated levels of depression or anxiety would be found and, as a consequence, should be discussed with patients. This is likely to cost extra time from the health care professional assigned to discuss the results. Furthermore, health care professionals probably need training to be able to accurately refer patients, as some patients might benefit from consultation with a psychiatrist or psychologist whereas others might benefit from rehabilitation in which physical training is combined with psychological care.

Screening also would have serious consequences in terms of the number of referrals and treatment capacity. Thirty-five to fifty percent of the patients with elevated levels of anxiety or depression might indicate to feel the need for additional psychosocial care. Within a population of 1000 cardiac patients, 100–200 (10–20%) patients would need a referral.
for further diagnostics. These percentages indicate that clinics should have or should set up an extensive psychosocial unit with psychologists and social workers to accommodate these patients with their needs.

Although most of the current guidelines in Cardiology recommend routine screening on depression in cardiac patients, one should realize the serious consequences for daily practice before starting up such a screening. First of all, the availability of sufficient psychological and psychiatric care should be guaranteed. Given the number of patients that will be in need for psychological or psychiatric care, it will be important to develop cost-effective and efficient ways of providing this care. In this respect one might consider following a stepped care model, in which one starts with low-intensity treatments (e.g., self-help such as bibliotherapy, or brief therapies), and only turn to high-intensity treatments (e.g., psychotherapy) when gain is not achieved with those simpler treatments [32]. The current developments in e-health may offer new and efficient ways of treatment as well. For instance, the study of Hill et al. [33] showed that a computer-based intervention was useful in providing support for socially isolated chronically ill women.

Based on our findings we suggest that several aspects should be taken into account when developing a program with interventions for cardiac patients. Firstly, there is a need for interventions that focus on both depression and anxiety. Anxious patients might need a different approach than depressed patients. Secondly, interventions should be especially appropriate for women, those with a low educational status, and those who lack social support (i.e., live alone), as these are the cardiac patients at high risk for a depressed or anxious mood.

The response rate of 48% may have caused bias limiting the representativeness of the study population. It might very well be that the prevalence of depressive symptoms in routine screening in daily practice is even higher than found in our study, as depressed patients are more likely not to have the energy or willingness to fill in a questionnaire. Furthermore, it should be noted that, although the questionnaires that we used are valid and highly sensitive in detecting patients at risk for depression and anxiety, sensitivity was not 100%, and thus the figures do not reflect the absolute prevalence of patients at risk for a clinical depression or of patients with an anxiety disorder. Therefore we are strong advocates of stepped screening, in which screening with questionnaires (step 1) is followed by further screening with diagnostic interviews (step 2) to determine their actual psychiatric diagnoses and the type of help that seems most appropriate given the diagnosis.

5. Conclusion

Once again this study indicated that depression and anxiety are highly present in cardiac patients. Given the proven association between depression and anxiety and for example recurrent cardiac events and impaired well being in patients, we acknowledge the importance of adequate diagnosis and treatment. However, when routine screening of depression and anxiety in patients with coronary heart disease is to be put into practice, the consequences should be well considered beforehand. It should be discussed how and by whom the results of screening are to be discussed. Moreover as an increased demand on psychosocial diagnostics and treatment can be expected, the availability of well trained professionals should be guaranteed in advance in order to ensure that patients will receive accurate treatment after being diagnosed.

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References


