A SECRET ENEMY OF PATIENTS WITH CORONARY ARTERY DISEASE: DEPRESSION

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ABSTRACT Background: The present study measures the incidence of depression and anxiety disorder, which may be overlooked but which can lead to serious problems, among electively treated patients with coronary artery disease. **Methods:** Beck Anxiety and Beck Depression scales were used to measure depression and anxiety levels among patients hospitalized due to coronary artery disease and who were electively treated. A Mann-Whitney U-test was used to analyze data related to gender, and Chi-Square and Kruskalis and Correlation tests were used to analyze age-related measures. **Results:** Of the total 362 patients (246 m, 116 f) included in the study, 50.2 percent, 63.3 percent and 21.5 percent were found to have mild to moderate depression, mild anxiety disorder and moderate anxiety disorder, respectively. Age-based assessments indicated that younger patients were more inclined to develop depression and anxiety disorders, while no significant difference was noted between genders regarding depression. **Conclusions:** Anxiety disorders and depression can be easily overlooked, particularly when the mental health of patients is not assessed. However, depression increases the rates of both mortality and morbidity among patients with coronary artery disease. This secret enemy of coronary artery disease, which prolongs treatment and decreases the quality of life of the patient, is quite common among patients with heart disease. Accordingly, we believe that due to the potentially critical consequences, depression and anxiety disorder should be evaluated as part of the routine screening of patients with heart disease.

KEYWORDS Coronary artery disease, Depression, Anxiety

Introduction

Several risk factors associated with cardiovascular health, such as smoking, diabetes, hypertension and hypercholesterolemia, in particular, have been investigated for many years, while the potential effects of mental health have been investigated only in more recent studies. It was 352 years ago that Sir William Harvey first suggested that depression could have negative effects on coronary artery disease (CAD), and his argument was supported by studies carried out in the 1930s [1]. Studies carried out around the world in recent years have shown that depression is both a predictor and cause of increased mortality and morbidity in patients with CAD [2,3,4]. Accordingly, interdisciplinary working groups have been established, and consensus has been arrived at underlining the importance of this rather overlooked topic, and efforts have been increased to raise awareness [5].

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Methods

Patients with CAD who were treated and discharged upon recovery in Dumlupinar University Evliya Celebi Training and Research Hospital Cardiology and Cardiovascular Surgery clinics between January 2015 and December 2017 included in the study. Patients who were referred from outpatient clinics with a preliminary diagnosis of atherosclerotic heart disease (ASCVD) and who underwent elective angiographies with stent placement or elective coronary artery bypass grafting (CABG) operations were the work theme. Patients treated under emergency conditions, patients with a history of, or who were actively receiving psychiatric treatment, and patients who experienced a complication after operation were excluded from the study.

Table 1 Test Statistics of gender vs anxiety-depression a. Grouping Variable: Gender

	Anxiety Score	Anxiety Level	Depression Score	Depression Level
Mann-Whitney U	13445.500	12714.500	13914.500	13801.500
Wilcoxon W	20231.500	19500.500	44295.500	20471.500
Z	-.888	-1.949	-.381	-.402
Asymp. Sig. (2-tailed)	.374	.051	.703	.687

The patients visited the outpatient clinics one week after discharge for the completion of their treatment, and their levels of anxiety and depression were measured using the Beck Anxiety and Beck Depression scales. The patients filled out the scales in a quite environment where they could be alone to minimize the effects of environmental factors. Afterwards, garnered the data was evaluated by using the IBM SPSS 21.0 program, and statistical analyses were made using Chi-Square, Mann-Whitney U and Correlations tests.

Results

Effect of age on anxiety and depression Test Statistics[b]

The Kruskal Wallis Test results indicated that the Anxiety Score (AS) (p=0.002), Anxiety Level (AL) (p .004), Depression Score (DS) (p .004) and Depression Level (DL) (p=0.016) varied significantly based on age, the Mann-Whitney U-test did not indicate any significant difference in AS, AL, DS and DL according to gender (Table I). The X2 value for the comparison of gender and AS was .095, being above the level of significance (p=0.05). This means that there was no significant relation between gender and AS. In total, 147 men and 82 women had mild AS. The statistical significance of the X2 values between gender and DS was .801; being above the limit of significance (p=0.05). This means that there was no relationship between gender and DS.

The statistical significance level of the X2 value between age and AS and DS was p=0.006 and p=0.025, respectively, is lower than the level of significance (p=0.05). AS and DS were found to be elevated, particularly in patients in their 40s (Figure 1, Figure 2).

DS was minimal in 119 men and 56 women (Figure 1, Figure 2). The correlation analysis indicated that a significant (p=0.015) negative mild (-.128) correlation existed between age and AS, AL, DS and DL. This indicates that older patients were more resistant to psychological disorders (Table II).

The Chi-Square value for the comparison of gender and AS (6.360) was .095, being above the level of significance (.050). This means that there was no significant relation between gender and AS. In total, 147 men and 82 women had mild AS (Table 3).

The statistical significance of the Chi-Square values between gender and DS (.999) was .801; being above the limit of significance (.050). This means that there was no relationship between gender and DS (Table 4). DS was minimal in 119 men and 56 women (Table 4).

The correlation analysis indicated that a significant (p .015) negative mild (-.128) correlation existed between age and AS,

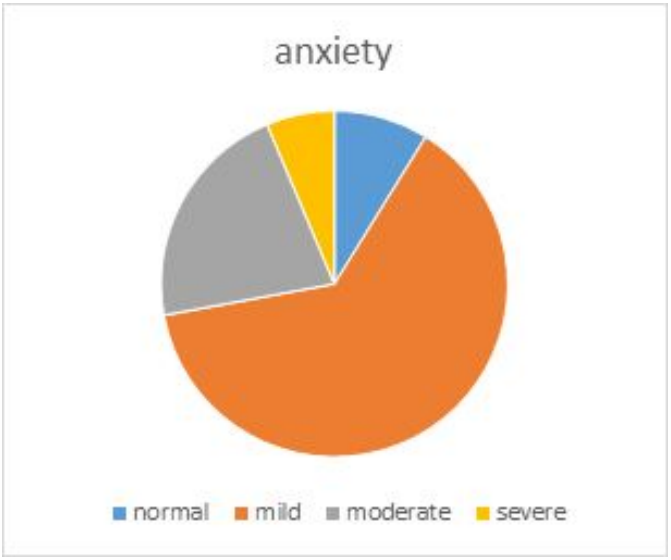

Fig.1. Anxiety distribution by number of patients.

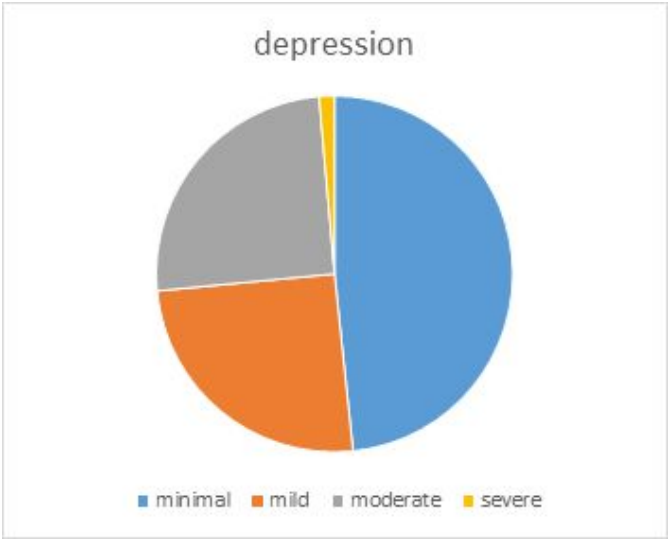

Fig.2. Deppression distribution by number of patients.

Table 2 Evaluation of anxiety an depression according to age and gender

	Anxiety Score	Anxiety Level	Depression Score	Depression Level
Age	**p=0.002**	**p=0.004**	**p=0.004**	**p=0.016**
Gender	p=0.374	p=0.051	p=0.703	p=0.687

Table 3 Chi-Square Tests: Gender and Anxiety.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.360[a]	3	.095
Likelihood Ratio	6.729	3	.081
Linear-by-Linear Association	2.816	1	.093
N of Valid Cases	362		

a. 0 cells (.0%) have an expected count less than 5.

The minimum expected count is 7.37.

Table 4 Chi-Square Tests: Gender and Depression.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.999[a]	3	.801
Likelihood Ratio	1.004	3	.800
Linear-by-Linear Association	.248	1	.618
N of Valid Cases	361		

a. 2 cells (25.0%) have expected count less than 5.

The minimum expected count is 1.27.

AL, DS and DL. This indicates that older patients were more resistant to psychological disorders (Table 2).

Discussion

Depression is the most common disease in the developing world, and the incidence of depression is quite high in patients with CAD, affecting mortality in this patient group [6]. Previous studies demonstrated that chronically depressed patients with heart disease have longer hospital stays and that over time, these patients experience coronary problems that require re-intervention [7,8,9]. In a study by Safaie et al. [10] investigating the influence of depression and anxiety disorders on acute heart diseases, it was observed that the balance between the sympathetic and parasympathetic nervous systems was impaired, cortisol levels were increased, and serotonin levels decreased in individuals with impaired mental health. This leads to the development of cardiac arrhythmia and ischemic symptoms [10]. Additionally, there have been studies suggesting that hyperventilation during the depression or an anxiety episode may cause coronary spasms and fatal ventricular arrhythmia [11].

CAD, on the other hand, is a chronic disease that limits functional capacity and decreases the quality of life of the patients, and accordingly, is itself a cause of depression and anxiety disorder [12]. While the incidence of depression in the normal population varies between 4.4 and 20 percent, this figure may be more than double in patients with CAD [11,13]. A previous study reported that within one year of myocardial infarction, almost 20 percent of patients experienced major depression and 27 percent were observed to have mild depressive symptoms [11]. In the present study, 63.3 percent of the patients had mild anxiety, 21.5 percent had moderate anxiety, and 50.2 percent had mild to moderate depression. These figures appear to be quite high.

Gottlieb et al. [14] reported that younger patients are more prone to depression, and similar results were found in the present study. Older patients were observed to be more resistant to anxiety and depressive disorders, which we believe may be attributable to the fear of dying among younger patients before experiencing life in full.

In a study by Gottlieb et al. [14] involving patients with heart disease, similar to the overall population, depressive symptoms were found to be more common among the female patients when compared to the male patients. Shah et al. [15] found that younger women are more likely to develop psychological disorders, but identified no difference between genders at older ages. Riedinger et al. [16] also observed that women were more prone to depression and anxiety. In the present study, the levels of anxiety/depression were not significantly different between genders, and this finding, which contradicts the findings of many previous studies, may be based on the low number of female patients included in the study.

Accordingly, we believe that more extensive studies including a higher proportion of female patients may be worthwhile.

Conclusion

Depression is a disease that should be kept in mind, as there may be adverse consequences to it being overlooked. Its treatment and the achievement of remission may take time. Accordingly, to reduce morbidity and mortality among patients with CAD, psychiatric evaluations should become a part of routine controls, and psychiatric treatment should be initiated if needed.

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