Original Research Article

Assessment of anxiety and depression in hospitalized cardiac patients of Faisalabad Institute of Cardiology, Pakistan

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Abstract

Purpose: To assess the level of anxiety and depression in hospitalized cardiac patients in Faisalabad Institute of Cardiology, Faisalabad, Pakistan.
Methods: The study was conducted on hospitalized cardiac patients at Faisalabad Institute of Cardiology (FIC), Faisalabad. Aga Khan University Anxiety and Depression Scale (AKUADS) was applied to estimate the occurrence of depression and anxiety in selected participants. This study involved 400 diagnosed hospitalized cardiac patients and another 400 participants without cardiac disease as control group.
Results: The anxiety and depression level in hospitalized cardiac patient's was 79.5% (318), compared with 68.25 % (273) of the control group. Female patients were also more prone to depression than male patients. Psychological suffering was 1.80 times more in the hospitalized cardiac patients (OR = 1.804, 95 %CI = 1.308 - 2.488, p = 0.0001). The results showed that gender was the leading factor in the occurrence of co-morbidities such as depression and anxiety.
Conclusion: Depression symptoms are more common among hospitalized patients than in those without cardiac disease. Close monitoring is required and patients with psychiatric illness should be referred for appropriate treatment to overcome this risk.

Keywords: Hypertension, Anxiety, Depression, Gender, Cardiac patients

INTRODUCTION

Cardiovascular diseases (CVDs) are one of the prime contributors of global burden of disease (BOD). In 2008, it was reported that due to CVDs 17.3 million people died. One of the leading contributor of this disease is depression, which represent four of the 10 leading causes of disability worldwide and make up 12 % of the global burden of disease [1]. Depression and anxiety are very common among patients having cardiac problems, and in a study involving patients above 30,000, it was reported that 9.3 % ambulatory cardiac patients showed depression while control showed 4.8 % [2,3,4]. It is important to detect and treat depression in Coronary Artery Disease (CAD) and post-MI patients, as the risk of a cardiac event doubles within 1 to 2 years after an MI [5,6].

In heart failure patients, certain symptoms such as exhaustion, loss of hunger, feeling of

tiredness and sleeplessness are common [7,8]. One study indicates that hospitalized elderly patients show 41 % depressive symptoms with heart failure, and it is comparable to another study which reported 14 - 77 % [9]. In a few North American general hospitals, up to 5 % of all admissions are referred to a psychiatrist [10]. Research had been conducted on patients' depression levels but there are still substantial gaps in the literature on this subject. Moreover, there is a dearth of literature on psychological illness in hospitalized cardiac patients.

The main focus of the present study was to determine the incidence of anxiety and depression among hospitalized cardiac patients using a dependable and valid instrument.

METHODS

Study design

Ethical approval for the study was obtained from Ethics Review Committee of Fasilabad Institute of Cardiology (FIC), Fasilabad, Pakistan (approval reference no. CIIT 2011/FIC 2011-28-MS 13). Ethical principles for medical research involving human subjects were adopted for this study in accordance with the Declaration of Helsinki [11].

The study was a cross-sectional study conducted in Faisalabad Institute of Cardiology (FIC), a 202-bed hospital serving cardiac patients in the region of Faisalabad. Patients were included from surgery ward, cardiac ward, ICU unit I and unit II, angiography ward and emergency department, to find out the incidence of anxiety and depression in hospitalized patient. Patients visiting the cardiac department clinic, were also included in the study. However, patients who had appointment with a psychiatrist and/or were medically unstable, suffering from illnesses other than cardiac disease, or psychiatric illnesses such as hallucinations and dementia, were excluded from the study. Age range for this study was 20 to 80 years. Patients showing willingness to complete the questionnaire and had given their consent were included in this research. Those in the control group were arbitrarily selected from the community the hospital located in. Every one in three persons visiting the hospital was enrolled in this study after confirming willingness to participate.

The study instrument was a valid questionnaire which was completed by the participants after a detailed interview. The data obtained include the demographical characteristics of the participants, including education, monthly salary and residence. Type of disease and other surgical related information were collected from patient medical records. Medical history of cardiovascular diagnosis which included congestive cardiac failure (CCF), acute myocardial infarction (AMI), left ventricular failure (LVF), coronary artery disease (CAD) and rheumatic heart disease (RHD) were obtained from the medical records of each patient.

To determine the relationship of anxiety and depression with life style, information on smoking history and physical activity detail were also obtained. Nervousness and depression among hospitalized cardiac patients were measured by a valid scale, Aga Khan University Anxiety and Depression Scale (AKUADS). It contains 25 items and is basically used to measure the occurrence of anxiety and depression among admitted patients. It is a reliable and valid instrument to measure the level of psychological distress in hospitalized patients and commonly used in Urdu. It reveals a sensitivity of 66 % and a specificity of about 79 %; it indicates a positive value of 83, and 60 shows a negative value at a cut-off score of 20 [12] . It shows a high level quality of reliability and a final conclusion explained item-item correlation ≥ 0.75. After a cut-off point, the data obtained were entered categorically from the questionnaire.

Data analysis

The data were computed and analyzed using Statistical Package for Social Sciences (version 15). Descriptive analysis was carried out as applicable, and each item in the questionnaire reported as percentage and frequencies Logistic regression analysis was done with regard to clinical, behavioral and demographical factors. Statistical significance was set at $p < 0.05$.

RESULTS

Out of the initial 500 hospitalized cardiac patients earmarked for this study, 400 were selected because 100 patients were not eligible for this survey as 20 of them were on psychiatric treatment, 30 showed serious medical illness, 10 incomplete medical records, 15 language problems, and 25 were unable to respond. At majority of the hospitalized patients were in the age range of 40-60 years (53.2 %), male (53.0 %), from urban residency (69.0%), illiterate (47.5 %), married (95.2 %), house wife (42.8 %), monthly income 5000 (51.2 %). Maximum number of patients were non-smoker (67.0 %) and showing exercise time less than 20 min

Table 1: Demographics of study groups

Variable	Cardiac patients, N (%)	Control, N (%)
Age		
20-40 years	102(25.5)	230(57.5)
40-60 years	213(53.2)	158(39.5)
<60 years	85(21.2)	12(3.0)
Gender		
Male	212(53.0)	207(51.8)
Female	188(47.0)	193(48.2)
Marital status		
Unmarried	19(4.8)	58(14.5)
Married	381(95.2)	342(85.5)
Locality		
Urban	276(69.0)	288(72.0)
Semi-urban	49(12.2)	13(3.2)
Rural	75(18.8)	99(24.8)
Education		
Illiterate	190(47.5)	266(66.5)
Primary	66(16.5)	99(24.8)
Matriculation	116(29.0)	26(6.5)
Intermediate	8(2.0)	3(0.8)
Graduation	9(2.2)	3(0.8)
Master	11(2.8)	3(0.8)
Occupational status		
Private service	81(20.2)	143(35.8)
Govt. service	31(7.8)	54(13.5)
House wife	171(42.8)	162(40.5)
Jobless	105(26.2)	13(3.2)
student	12(3.0)	28(7.0)
Income		
5000	205(51.2)	315(78.8)
5,000-10,000	179(44.8)	75(18.8)
10,000-20,000	16(4.0)	10(2.5)
Physical exercise		
>20min	208(52.0)	18(4.5)
20-40min	156(39.0)	173(43.2)
40-60min	24(6.0)	167(41.8)
<60min	12(3.0)	42(10.5)
Smoking		
Yes	15(3.8)	22(5.5)
Current	3(0.8)	41(10.2)
Ex-smoker	114(28.5)	122(30.5)
no	268(67.0)	215(53.8)
Heart attack	151(37.8)	
Add salt to food		
Never	40(10.0)	
Occasionally	355(88.8)	
Always	5(1.2)	
Dietary habit		
Red meat	3(0.8)	
White meat	177(44.2)	
Vegetables	220(55.0)	
Heart disease		
CHF	151(37.8)	
AMI	99(24.8)	
LVF	80(20.0)	
CAD	46(11.5)	
RHD	24(6.0)	

CHF, congestive heart failure; AMI, acute myocardial infarction; LVF, Left ventricular failure; CAD, coronary artery disease; RHD, rheumatic heart disease

(52.0 %). congestive cardiac failure (37.8 %), acute myocardial infarction (24.8 %), left ventricular failure (20.0 %), coronary artery disease (11.5 %) and rheumatic heart disease (6.0 %) were the leading diagnosis among the hospitalized cardiac patients. 400 individuals were prefer for this study from a collection of 460 individuals selected as a control group for this research, with a response rate of 86.95 %. Table 1, explains the demographical details of control group and also with the clinical data and demographics features of hospitalized cardiac patients was accomplished.

By using cut-off score of 20 on AKUADS, on the whole 79.5 % (318) admitted cardiac patients were commonly noticed depression and fretfulness as compare to the control group showing 68.25 % (273) anxiety and nervousness. *P*-value show a significant level < 0.001, and the difference among the incidence rate was observed statistically. Hospitalized patients shows 1.80 times more psychological distress (95 % CI= 1.308 - 2.488). Congestive cardiac failure, acute myocardial infarction, left ventricular failure, coronary artery disease and rheumatic heart disease show high incidence of anxiety and depression.

Logistic regression analysis results were described in Table 2 (a) and Table 2 (b) which reveals the outcomes of depression and anxiety in hospitalized patients related their clinical, behavioral and demographical features. Discussion about result analysis shows that females drastically increase the risk of depression and anxiety among hospitalized patients as compared to males. It has been observed that there is no significant relation among psychological distress and demographical features like, age, occupation, marital status, education, residence, and socioeconomic status. Probability of having fretfulness and anxiety in not significantly persuade by cardiovascular diseases. Overall physical exertion and habit of smoking did not affect the occurrence of depression and anxiety.

DISCUSSION

Presence of high occurrence of depression and anxiety in hospitalized cardiac patients as contrast with control group is one of the major finding of this research. Admitted cardiac patients had fretfulness and depression which is much higher result as compared to previous studies showing 60 % depression [13] and some studies reported 48 % fretfulness among hospitalized heart failure patients. Studies where small

Table 2: Logistic regression analysis data for psychological illness in hospitalized cardiac patients

Variable	OR	95%CI	*P*-value
Age			0.2916
20-40 years	1.868		0.028
40-60 years	2.824		0.000
<60 years	1.135	1.064-3.280	0.847
Gender			0.0295
Male	1.517		0.058
Female	2.253	0.985-1.567	0.001
Marital status			0.369
Unmarried	0.825		0.738
Married	2.254	0.268-2.544	0.000
Locality			0.404
Urban	2.215		0.000
Semi-Urban	1.007		0.991
Rural	1.504	1.483-3.306	0.222
Education			0.445
Illiterate	2.239		0.000
Primary	1.237		0.564
Matriculation	0.785		0.655
Intermediate	14.000		0.72
Graduation	1.750		0.7000
Master	20.000	1.414-3.548	0.031
Occupational status			0.4104
Private sector	1.747		0.092
Govt/public sector	1.029		0.954
Housewife	2.636		0.000
Jobless	2.476		0.121
Student	1.111	0.909-3.358	0.885
Income			0.066
<5000	1.589		0.023
5,000-10,000	1.786		0.070
10,000-20,000	4.667	1.030-2.370	0.105
Physical exercise			0.176
<20min	4.659		0.001
20-40min	2.378		0.001
40-60min	1.282		0.619
>60min	0.320	1.736-12.507	0.083
Smoking			0.304
Yes	0.952		0.942
Current	0.232		0.218
Ex-smoker	1.790		0.054
No	1.889	0.445-2.123	0.003
Dietary habit			0.330
Red meat	0.923		0.952
White meat	2.261		0.001
Vegetables	1.601	0.069-12.280	0.039
Cardiac disease			0.127
Congestive cardiac failure			0.049
Acute myocardial infarction	1.542		0.008
Left ventricular failure			0.020
Coronary artery disease	2.093		0.003
Rheumatic heart disease	2.016	1.000-2.376	0.558
	3.815		
	0.775		

number of patients were taken, reported depression rate between 13 and 42 % [14].

Psychiatric distress, mental illness and problems like depression and anxiety are there in every field of medicine [15]. Particularly in Pakistan recent survey reported that incidence of depression in our general population come in the range from 25 to 66 % among females, which is more than in males (10 to 25 %) [16].

In this present study, it comes to know that females (OR = 2.253) were more prone towards depression and nervousness as compared to males (OR = 1.517). Same results were presented in some other studies that concluded the same fact that females (64 %) were observed

of having more odds of suffering from depression than males (44 %).previous studies also observed that women were diagnosed twice time more depressed in contrast with males among hospitalized cardiac patients. Another study also concluded that female gender were 1.68 times more prone to have psychological distress (OR = 1.68, 95 % CI = 1.14-2.48).

It is very important to identify after such type of researches that why depression prevails among majority of the admitted cardiac patients in hospitals. Some researchers found that cardiac patients were suffering from depression because of high readmission rate in hospital. Rate of mortality is higher in patient having cardiac disease as well as depression as compared to those individuals suffering from only heart diseases.

Number of reasons accounts the association of cardiac disease with fretfulness and depression. Mentally distress individuals showing awkward behaviors like; smoking, having alcohol, taking unhygienic and unhealthy food. Other features which may include personality disorder like aggression may be related with cardiovascular diseases and depression. Many life time events also correlate the link of cardiac arrest and depression. Having low socioeconomic background may enhances the symptoms of depression. State of mental strain develop when individual remain in long term stressful environment which escort to mental fatigue. Reactivity of Cortisol is observed during unfavorable and offensive circumstances. Depression can also causes other physiological and biochemical changes like bradycardia, myocardial ischemia and ventricular instability.

Question arises from this research that why prevalence of anxiety and psychological illness rate is higher among hospitalized patients and non-cardiac individuals? The reason may be because Presence of mental stress among cardiac patients in developed countries was studied more as compared to the developing countries. In this study, a majority of the participants belongs to low socioeconomic status, illiterate, and unemployed. Current condition of Pakistan puts them at high level of threat as we are still suffering from economic crisis, unemployment and socio-political instability. Through the amendment of previous studies on the same topic, we had carried out study on hospitalized cardiac patients and patient having no cardiac disease and analyzed the effect of anxiety and depression on cardiac diseases by using an instrument which is valid and reliable. This study observed a dominant

linkage associated with gender and anxiety. Females were more inclined towards depression as compared to males.

Statistically no significant relation was observed between anxiety, depression and demographic features that were involved in this study. Education, monthly income, marital status, present occupation and locality did not show any prominent influence on mental illness in our research. Our research is strengthened by having standardized measures, estimation of various variables that may influence the incidence of anxiety and fretfulness with a good rate of response from participants, and above all having a control group of non-cardiac individuals to compare with hospitalized cardiac patients. A range of admitted cardiac cases and control cases were carried out with having no differences in their socioeconomic status and result was analyzed through same instrument.

For the management of mental illness and psychological distress, it is important to focus on the recognition of symptoms and increase awareness about the occurrence of psychological morbidity. Complete screening and reliable psychological test of hospitalized cardiac patient must be done as a part of standard care. Cardiologist must refer the patients, on the basis of their psychological test results.

Limitations of the study

The results reported in this study were subjected to some limitations, like there was no facilitation for diagnosis of control group. The study was conducted in only one hospital of Faisalabad so data cannot be generalized to other cardiac hospitals.

CONCLUSION

The incidence of generalized anxiety and depressive disorder was estimated as 79.5 % among hospitalized cardiac patients in Faisalabad. The findings of this study also indicate that symptoms of depression are more common among hospitalized cardiac patients than in persons without cardiac disease, and that female cardiac patients are more like to suffer depression than male cardiac patients. Close monitoring is required to ensure that patients with symptoms of depression are referred for appropriate treatment. Greater efforts are needed to identify and treat anxiety in outpatients attending cardiology clinics.

DECLARATIONS

Conflict of Interest

No conflict of interest associated with this work.

Contribution of Authors

The authors declare that this work was done by the authors named in this article and all liabilities pertaining to claims relating to the content of this article will be borne by them.

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