FREQUENCY OF DEPRESSION AMONG PATIENTS OF ACUTE CORONARY SYNDROME

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Author's Contribution

SY:Conducted the study and wrote the article. KZ:Helped in review the article. SK:Re-arranged data and corrected article.KS:Tables and figures. MABM and KUC were corrections and did the proof reading.

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ABSTRACT
Depression is a threat that predisposes the individuals to development of cardiovascular diseases. Acute coronary syndrome (ACS) is a vast term that comprises of unstable angina, non-ST elevation myocardial infarction. The objective of this study was to determine the frequency of depression among patients presenting with acute coronary syndrome.
MATERIAL / METHODS AND RESULTS:
The cross sectional observational study was done in emergency department of Punjab Institute of Cardiology, Lahore over a period of three months from Nov-2018 to Jan-2019 in patients admitted with the diagnosis of acute coronary syndrome meeting the inclusion criteria and were subjected to interview conducted for depression by applying PHQ-9 questionnaire and 100 patients were included. The mean age of the patients was 57 ± 2 years and ranged from 34-80 years. The males were 78 and there were 22 female. PHQ-9 questionnaire was completed after informed consent and depression was graded from mild to severe according to score calculated from questionnaire which ranged from 1-27. 35% patients were suffering from depression out of which 12% patients had severe depression, 8% had moderately severe depression, 6% had moderate depression and 9% were having mild depression. The derived results PHQ-9 were cross-tabbed with age ($p=0.33$), gender ($p=0.67$), marital status ($p=0.06$), living status, smoking ($p= 0.73$), hypertension ($p=0.56$), and diabetes ($p=0.18$).
CONCLUSION:
The results of the research revealed that majority of ACS patients who were hospitalized were suffering from major depression and subsequently had cardiovascular event.
Keywords: acute coronary syndrome, depression, complication, myocardial infarction, MI, smoking.

INTRODUCTION

20 - 30% patients with ACS are known to have depressive symptoms at admission and it is three folds greater than normal individuals.[1,2] Depression itself is a major contribution in the development of major adverse coronary events (MACE). [3-5] A systemic review done in 2004 showed strong association of major depressive illness and consequent ischemic heart disease.[5] Many mechanisms for the development of cardiovascular disease in patients with depressive symptoms have been suggested which includes presence of increased sympathetic drive, abnormal eating and sleeping habits, lack of exercise, smoking or addiction and poor compliance.[6-7]

In patients presenting in cardiac emergency usually have symptoms of depressive illness. Regarding the assessment of psychological stress, it can be assested by using different scales or scoring systems but are not applied due to time constraints and an important risk factor for coronary artery disease is overlooked.[8,9]

American heart association (AHA) and British guide lines have included screening for depressive symptoms in their screening programs but the feasibility and cost regarding the evaluation of depressive illness is unclear.[10,11,12] Patient Health Questionnaire-2 (PHQ-2) has been used previously by AHA to assess depressive ailment in ACS patients.[13]

The research done by NHIS (National Health Interview Survey) included approximately 30,000 patients and severe depression was reported in 9.3% patients with cardiac disease.[14]

The evaluation of depression in patients with ACS can be assessed by different available scoring systems like Beck Depression Inventory-II (BDI-II), PHQ-2, PHQ-9, Hospital Anxiety and Depression Scale and Cardiac Depression Scale etc. These scoring systems are based on simple questionnaires and can easily be applied without the issue of cost. The purpose of this study was to calculate the frequency of depression in cardiac patients presenting in emergency department thereby highlighting the importance of this risk factor.

MATERIAL AND METHOD:

This was an observational, cross sectional study conducted at Punjab Institute of Cardiology, Lahore. The time period for this study was three months from November 2018 to January 2019. The sample size for the study was 100 and the survey was conducted by taking a 95 percent confidence interval using the Open Epi data version

3.03 (Emory University, Rollins School of Public Health, Atlanta, Georgia)[15]. All patients presenting in cardiac emergency with ACS were included regardless of age and gender. The patients who had history of previous mental illness, physical disability, hypothyroidism and history of anti-depressant drugs intake were excluded.

The survey form was designed and divided in three sections which included demographics, medical history, drug and family history and depression screening scale of patient. The questions in demographic section included age, gender, marital status, education and living style (independent or joint). In section of history the participants were supposed to ask about their drug routine and also were identified with hypertension and diabetes and family background of diseases. In the third section of depression screening, the patient health questionnaire-9 (PHQ-9) scale was used. The patients with a PHQ-9 score of 0-4 was considered to be negative for the depression where as those patients whose score was ranging from 5-9, 10-14, 15-19 and 20-27 were considered to be suffering from depression in the category of mild, moderate, moderate to severe and severe depression

PHQ-9 Questionnaire and scoring.

No.	Question
1	Little interest or pleasure in doing things?
2	Feeling down, depressed, or hopeless?
3	Trouble falling or staying asleep, or sleeping too much?
4	Feeling tired or having little energy?
5	Poor appetite or overeating?
6	Feeling bad about yourself — or that you are a failure or have let yourself or your family down?
7	Trouble concentrating on things, such as reading the newspaper or watching television?
8	Moving or speaking so slowly that other people could have noticed? Or so fidgety or restless that you have been moving a lot more than usual?
9	Thoughts that you would be better off dead, or thoughts of hurting yourself in some way?

Score	Depression severity	Comments
0-4	Minimal or none	Monitor; may not require treatment
5-9	Mild	Use clinical judgment (symptom duration, functional impairment) to determine necessity of treatment
10-14	Moderate	
15-19	Moderately severe	Warrants active treatment with psychotherapy, medications, or combination
20-27	Severe	

respectively. (Figure 1).

After collection of facts the categorical data was presented as frequency and percentages while the continuous data was presented as mean and standard deviations. The chi square test was applied to find out the correlation between categorical variables.

RESULTS:

There were total 100 participants -and males were 78 while females were 22. Out of 22 females 8 (36%) were having depression. Whereas out of

Tabel-1: Demographic and Clinical Characteristics of Patients Hospitalized for Acute Coronary Syndrome

Demographic & Clinical Variables	Total (n=100)
Age at Consent	
M (year) ± SD	57±2
Range	34-80
Gender	
Male	78
Female	22

Baseline Depressive Symptom Data Obtained from Patients Hospitalized for Acute Coronary Syndrome

Depressive Symptom Data	Total (n=100)
PHQ-9 scoring (0-27)	
Mild depression	09%
Moderate depression	06%
Moderate to severe depression	08%
Severe depression	12%
No depression	65%
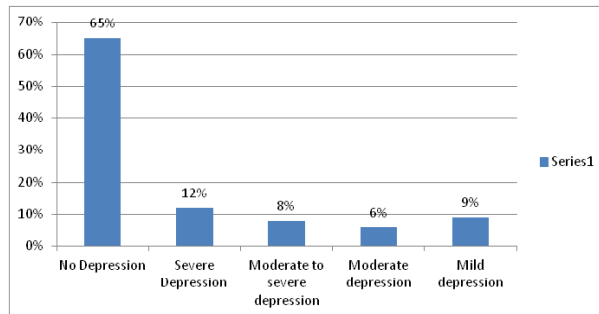
78 males 25 (32.05%) had symptoms of depression. The majority of participants were uneducated i.e., 62.7%.

35% of total participants were having depression according to PHQ-9 scoring system. 12% were having severe depression, 8% were with moderately severe depression, 6% with moderate depression and mild depression was present in 9%. 65% patients were without symptoms of depression. The derived results PHQ-9 were cross-tabbed with age (p=0.33), gender (p=0.67), marital status (p=0.06), living status, smoking (p= 0.73), hypertension (p=0.56), and diabetes (p=0.18) which shows important co-relation between different variables.

DISCUSSION:

Stress and psychological problems are quite common in the daily life. It has been observed that stress can lead to development of cardiovascular diseases out of which acute coronary syndrome is most common. Patients presenting with ACS can have depression and anxiety as an underlying cause of acute event. In previous studies, different parameters and scoring systems have been used to evaluate the severity of depression in patients who presented in cardiac emergency. These scoring systems include the Hospital Anxiety and Depression Scale, Cardiac Depression Visual Analogue Scale, Beck Depression Inventory, Cardiac Depression Scale, Hamilton Depression Scale, Patient Health Questionnaire-2, Patient Health Questionnaire-9 etc. In the previous studies approximately 20% patients who were admitted for MI and consulted "the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM)" were having depression. In this regard large percentage of patients had subclinical level of depression.[15] Comparatively in this research about 35 percent of participants were suffering from depression.

There is close connection between depression and functional impairment among patients of coronary heart disease[16] and it proposes that depression may intensify the physically inactivity and lack of self-care.[17]

Feinstein et al observed in his study that most of the cardiologists working in emergency departments and coronary care units are unaware of the presence of psychiatric problems as an underlying etiology for acute cardiac event. He suggested that it may be due to lack of time while working and attending acute emergencies. Simple depression score scales are now available which can be easily applied to assess such depressive illness.

In our study PHQ-9 questionnaire was applied to assess the level of depression. It is a simple scoring system which includes nine questions and score was calculated from 0-27 to grade depression from no to severe depression. American Heart Association Advisory Board has used Patient Health Questionnaire-2 (PHQ-2) as an initial minimum screening instrument followed by the PHQ-9, if a positive PHQ-2 response is detected.[11] Recent meta-analysis regarding scoring system for depression evaluation has recommended these systems as an easy clinical tool which can be applied over patients presenting with ACS without much wastage of time.[18] Previous attempts to use these clinical scores in cardiac emergencies were not successful due to lack of time and the staff was not well aware of its importance.

It is notified that the depressive period that progress and leads to ACS may have a greater risk. It was also noticed in another research that a subcategory of masses who were diagnosed with depression before MI were at a greater chance of cardiac death. [20-21] That is why, it is very important to monitor every ACS patient for depression to

escape from any negligence in identification and cure of a modifiable risk factor. [22]

CONCLUSION:

Severe depression can lead to unfortunate medical consequences and increased risk of developing acute cardiac emergencies, so it may be recommended to evaluate the severity of depression in patients presenting with acute coronary syndrome. It can be performed by using simple clinical depression scores which are not time consuming.

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