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Frequency Of Psychiatric Morbidity (Depression And Anxiety) In Patients Of Acute Coronary Syndrome

Sharma D

Sharma R. C

Kumar R

Asotra S

Sharma A

Abstract:

Background: A major focus of research for more than past 20 years has been the cardiovascular effect of various antidepressants as well as research into the direct effects of depression in the causation of heart disease. Not until recent times has focus shifted to acute coronary events and their relation to depressive disorders and anxiety disorders.

Objectives: To assess the association of psychiatric comorbidity (primarily depression and anxiety) in patients of acute coronary events and to study the association of psychiatric co-morbidity with the outcome of patients.

Methods: Fifty new consecutive patients of Acute Coronary Syndrome were included if they satisfied the inclusion criteria, were capable of consenting, ambulatory and not receiving treatment modalities for life threatening conditions. Patients of both sexes within the age range of 18-65 years were included.

Results: 37 (74%) patients out of 50 had diagnosable psychiatric illness. Amongst these 24 (48%) had depressive disorder and anxiety disorder. There were 15 (30%) patients with depressive disorder with equal distribution between mild , moderate and severe form of depression. Anxiety disorders were reported in 9(18%) patients. Other disorders seen were alcohol abuse in 7 (14%), alcohol dependence in 3(6%) and adjustment disorder in 1(2%) and dysthymia in 2(4%).

People with lower education status had a significantly higher prevalence of psychiatric morbidity. There was a positive correlation of psychiatric comorbidity to severity of Acute Coronary syndrome.

Conclusion: Acute Coronary Syndrome is associated with significant psychiatric co morbidity manifesting as depressive disorder and anxiety disorder. It was also observed that ACS patients with a lower educational status are more likely to develop psychiatric problems.

Keywords: Depression, Acute Coronary Syndrome, Coronary Artery Disease, MINI.

I. INTRODUCTION

Coronary Artery Disease remains the biggest cause of deaths worldwide, though over the last two decades, cardiovascular mortality rates have declined in many high-income countries. At the same time cardiovascular deaths and disease have increased at an astonishingly fast rate in low- and middle-income countries. The percentage of premature deaths from cardiovascular disease range from 4% in high-income countries to 42% in low-income countries. More than 17 million people died from cardiovascular diseases in 2008.

There is an increased emphasis on preventing atherosclerosis by modifying risk factors, such as healthy eating, exercise, and avoidance of smoking, leading a stress free life.

With the epidemiologic transition the CVD burden continues to rise in developing countries including India. Previously thought to affect primarily high-income countries, CHD affects people at younger ages in low- and middle-income countries, compared to high-income countries, thereby

having a greater economic impact on low- and middle-income countries.

In 2004, CHD was the leading cause of death in India, leading to1.46 million deaths (14% out of a total of 10.3 million deaths) 15,588,000 DALYs 1,931 age-adjusted DALYs per 100,000.

Coronary artery disease (CAD) burden is projected to rise from 47 million DALYs in 1990 to 82 million DALYs in 2020.

Stress has been established to be an independent risk factor (Sertraline Anti-Depressant Heart Attack Randomized Trial (SADHART) Platelet Substudy) manifests in form of depression, anxiety, panic disorder; social isolation and lack of quality social support;acute and chronic life events; psychosocial work characteristics; and Type A personality behavior and hostility.

A systematic review of cohort studies indicated that depression is an independent risk factor for cardiovascular diseases (CVDs) including angina, myocardial infarction and stroke: the relative risk ranges from 1.6%-6.4%. A further study was able to identify that co-morbid depression predicts re-infarction and death after myocardial infarction. There is substantial evidence to suggest that the incidence of major depressive symptoms after myocardial infarction ranges from 15-30%.

Limited studies regarding prevalence of psychiatric comorbidity in patients of Acute Coronary Syndrome have been conducted in India and to the best of our knowledge no such study has been carried out in the state of Himachal Pradesh. Hence, present study was planned with a purpose to find out the prevalence of psychiatric comorbidity in patients of Acute Coronary Syndrome.

OBJECTIVES

- ✓ To assess the association of psychiatric comorbidity (primarily depression and anxiety) in patients of acute coronary events.
- ✓ To study the association of psychiatric co morbidity with the outcome of patients.

II. METHODOLOGY

Study was a cross-sectional observational study conducted at Indira Gandhi Medical College (IGMC) and Hospital, Shimla, which is one of the tertiary care hospitals of Himachal Pradesh, located in North India.

Fifty new consecutive patients of Acute Coronary Syndrome who were admitted under Department of Cardiology in cardiac care unit (CCU) were recruited for this study.

INCLUSION CRITERIA

Patients were included if they met WHO criteria for ACS during their hospital admission.

Two of the following were required to be present.

- ✓ History of typical chest pain.
- ✓ Characteristic ECG changes.
- ✓ Elevated cardiac biomarkers.

EXCLUSION CRITERIA

Patients were excluded if they

- ✓ Were too unwell to complete the assessment even with assistance from researcher.
- ✓ Suffering from a serious comorbid medical condition.
- ✓ Were over 65 years of age.
- ✓ Patients not willing to participate in the study.

III. INSTRUMENTS AND TOOLS

Socio demographic profile of the patients was recorded on a self designed semi-structured proforma which included age, place of residence (rural/urban) and distance from I.G.M.C. Shimla. History regarding conventional cardiac risk factors like smoking, history of hypertension, hypercholestrolemia or diabetes, etc and previous cardiovascular disease were elicited. Focused examination was carried out to record blood pressure and signs of heart failure. Psychiatric comorbidity (primarily Depression and Anxiety) was assessed clinically as well as by Structured Diagnostic Interview (M.I.N.I.(Version 6.0)(Mini International Neuropsychiatric Interview). The mini international neuropsychiatric interview is a short structured clinical interview developed jointly by psychiatrists and Clinicians from United States and Europe which enables researchers to make diagnosis of psychiatric disorders according to DSM–IV or ICD-10. The administration time of the interview is approximately 15 minutes and is designed for epidemiological studies and multi centre clinical trials. This tool has been used in various studies done on Indian population.

Hamilton Depression Rating Scale (HDRS) to assess the severity of depression.

Hamilton Anxiety Rating Scale to assess the severity of anxiety disorders.

IV. PROCEDURE

Patients of Acute Coronary Syndrome diagnosed by the Consultant Cardiology as per WHO criteria were included if they satisfied the inclusion criteria. Detailed History and Examination was carried out to assess the presence of psychiatric comorbidity in patients of Acute Coronary Syndrome.

MINI was also used to elicit psychopathology.

HDRS(HAM-D) and HARS(HAM-A) were used to assess the severity of depressive disorder and anxiety disorder respectively. Diagnosis of psychiatric disorders was confirmed using ICD-10 criteria.

Severity of the index MI was recorded using Killip Class, a brief scale rating left ventricular function with higher scores representing worse left ventricular function, serial Cardiac Biomarkers levels following admission and left ventricular ejection fraction assessed using echocardiogram. Occurrence of serious cardiac complications (further MI/extension of MI, cardiac arrest) was recorded from medical records, asking with

treatment received in hospital including; user of thrombolysis, other revascularization procedures, and medication on discharge from hospital.

STATISTICAL ANALYSIS

Data was expressed using descriptive statistics such as mean, standard deviation, for continuous variables. Categorical variables were analysed using Chi Square test, P<0.05 was considered significant. All the statistical analysis was carried out using Epi Info software for stats.

V. OBSERVATIONS AND RESULTS

A total of fifty new patients of Acute Coronary Syndrome admitted in CCU and general ward participated in the study. Maximum number of patients was between age group 40-49, and least between 18-29. The mean age was 46.8 years with standard deviation 9.2.

All the patients were assessed for the degree of involvement with Acute Coronary Syndrome. Patients were assessed on the basis of ECG changes, Enzyme Elevation, Killip Class, etc.

		Number (N=50)
STEMI		36
NSTEMI		11
USA		5
KILLIP CLASS	I	34
	II	11
	III	5
Trop T Positive		22
Time delay (>12hrs)		31
Thrombolytic Therapy		4
Outcome(healthy discharged)		50
Smoker		35
HTN		10
Diabetes		5
Dyslipedemia		6

Table 1: Acute coronary syndrome morbidity and risk factors

All the 50 patients were assessed using MINI 6.0 as a screening tool. Below is a list of common symptoms taken from both MINI and Hamilton scales and their respective percentages.

Psychiatric Symptom	Number (N=50)	Percentage
Sadness	25	50%
Loss of Interest	17	34%
Decresed Apetite	10	20%
Decreased Sleep	18	36%
Restlessness	18	36%
Worthlessness	9	18%
Guilt	5	10%
Lack of concentration	11	22%
Suicidal Thoughts	2	4%
Dysfunction at home	9	18%
Dysfunction at workplace	11	22%
Recurrent episodes	10	20%
Anxious mood	26	52%
Tension	22	44%
Fears	16	32%
Intellectual difficulty	8	16%
Somatic Symptoms	10	20%
Cardiovascular symptoms	15	30%
Respiratory symptoms	9	18%
Gastrointestinal symptoms	10	20%
Genitourinary	5	10%
Autonomic symptoms	15	30%
Behavior at interview(Anxious)	19	38%

Table 2: Psychiatric Symptoms

Patients who were symptomatic on MINI were further assessed on Hamilton Depression and Anxiety scales respectively.

	HAM-D Positive		HAM-D Negative		HAM-A Positive		HAM-A Negative	
Number (n=50)	Mild	5	Mild	35	Mild	3	Mild	41
	Moderate	5	Moderate		Moderate	3	Moderate	
	Severe	5	Severe		Severe	3	Severe	

Table 3

A diagnosis of psychiatric illness (primarily depressive disorder and anxiety disorder) was made according to ICD-10 classification of disease after initial assessment on standard scales.

Disorder		Number(N=50)		
MINI positive		37		
Depressive episode		Mild	5	Total=**15**
		Moderate	5	
		Severe	5	
Dysthymia		2		
Adjustment Disorder		1		
Anxiety Disorder		Panic Disorder	6	Total=**9**
		Generalized Anxiety Disorder	3	
Alcohol use	Abuse	7		
	Dependence	3		
Total Psychiatric Morbidity(Depression and anxiety)		**24**		
No Psychiatric Morbidity		**13**		

Table 4

To find the relationship of various demographic variables to psychiatric morbidity, PSYCHIATRIC COMORBIDITY POSITIVE and NEGATIVE cases were compared to each other.

Variable		Psychiatric comorbidity positive	Psychiatric comorbidity negative	p-value
Marital status	Married	22	26	0.2253
	Single	2	0	
Sex	Male	16	23	0.06400
	Female	8	3	

Table 5

Comparison of Psychiatric co morbidity Positive and

Negative patients on demographic parameters.

Variable (Mean±SD)	Positive(N=24)	Negative(N=26)	p-value
Age	48.5±10.37	45.23±7.78	0.1634
Years of education	9.5±3.90	10.46±1.88	**0.0005979**

Table 6

The relation of psychiatric morbidity to demographic variables like place of residence, socioeconomic status, marital status, etc, patients with psychiatric morbidity were compared with those who did not have such morbidity.

Variable		Psychiatric morbidity (n=24)	No Psychiatric morbidity (n=26)	p-Value
Place of Living	Urban	9	14	0.38
	Rural	15	12	
Gender	Male	16	23	0.06400
	Female	8	3	
Marital Status	Married	22	26	0.2253
	Single	2	0	
Smoker	Yes	16	19	0.8522
	No	8	7	

Table 7

Some other parameters are mentioned in following table.

Govt. Employee		11	13
		13	13
Self employed		6	13
		18	13
Housewife		7	0
		17	26
Unemployed		0	0
Student		0	0
HTN	Yes	4	6
	No	20	20
DM	Yes	4	1
	No	20	25
Dyslipidemia	Yes	2	4
	No	22	22

Table 8

CORRELATION OF PSYCHIATRIC MORBIDITY TO ACUTE CORONARY SYNDROME

A relationship of Acute Coronary Syndrome severity and severity of Depressive disorder and anxiety disorder is described in the following table.

Severity of ACS	No of patients	Psychiatric Morbidity			
Mild	34	9	Depression N=4	Mild Moderate Severe	2
					1
					1
			Anxiety N=5	Mild Moderate Severe	2
					2
					1
Moderate	11	10	Depression N=8	Mild Moderate Severe	3
					2
					3
			Anxiety N=2	Mild Moderate Severe	1
					0
					1
Severe	5	5	Depression N=3	Mild Moderate Severe	0
					1
					2
			Anxiety N=2	Mild Moderate Severe	0
					1
					1

Table 9

Out of fifty, 37 (74%) patients of ACS had diagnosable psychiatric illness. Amongst these 24 (48%) had depressive disorder and anxiety disorder. There were 15 (30%) patients with depressive disorder with equal distribution between mild , moderate and severe form of depression. Anxiety disorders were reported in 9(18%) patients. Other disorders seen were alcohol abuse in 7 (14%) , alcohol dependence in 3(6%) and adjustment disorder in 1(2%) and dysthymia in 2(4%).

People with lower education status had a significantly higher prevalence of psychiatric morbidity.

No significant difference was found while studying the correlation between psychiatric morbidity and variables like type of job, type of place of living, or marital status.

There was a positive correlation of psychiatric comorbidity to severity of Acute Coronary syndrome. Depressive disorder was statistically significant whereas Anxiety was not.

No significant difference was found between various risk factors like hypertension, diabetes, dyslipidemia and psychiatric comorbidity.

VI. DISCUSSION

Acute coronary events are associated with a variety of psychological difficulties and psychiatric disorders. The role of stress both in the causation and future outcome in coronary artery disease has been significant with disorders like depressive disorder and anxiety disorder at the top of hierarchy. When undetected and untreated, these comorbid psychiatric conditions can lead to further coronary events as well as worsen the prognosis.[1]

In the present study 37 (74%) patients screened positive on MINI. Out of these, 24(48%) were having diagnosable depressive disorder and anxiety disorder. Depressive disorder was found in 15(30%) patients out of whom 5 had mild depression, and so was the number for moderate and severe depression, i.e. 5 each. Anxiety disorder patients were 9 (18%), with 6 patients of panic disorder, and remaining 3 of generalized anxiety disorder. With respect to severity (as assessed on Hamilton Anxiety rating scale) of anxiety disorder, equal number of patients had mild, moderate and severe anxiety disorder. Dysthymia was found in 2 patients and 1 patient had adjustment disorder. Prevalence of depressive disorder (30%) in our study was found to be almost similar to studies conducted by Strikk et al[7] from Netherlands (31%) and, by Amin et al. from USA[8] (24.5%).

The male female ratio was almost 3:1 with 39 (78 %)

males and 11(22%) female patients participating in the study. Percentage of males and female patients in the study may not reflect the gender prevalence in general population as this was a hospital based study and in a previous hospital based study by Dias et al, almost similar percentage of patients were males (84%).[9] In our study, out of 39 males, 16(41%) and out of 11 females, 8(72%) had psychiatric comorbidity (mainly depression and anxiety) showing a higher prevalence of in females. These findings are also comparable to a study conducted by Strikk et al from Netherlands and Dias et al. from Portuguese. In the study by Strike et al, the higher prevalence of depressive disorder in female patients was statistically significant(P=0.04) while Dias et al observed that the proportion of females was higher in the group of patients with Beck Depression Inventory; BDI ≥ 10 (24% vs. 9.3%, p = 0.02).

Majority (96%) of ACS patients in our study were married. A south Indian study conducted on Ischemic Heart Disease (IHD) patients also had a sizable number of patients (83%) in the married group.[10] On comparing marital status it was observed that psychiatric morbidity was present in 46% of married people and both the unmarried patients, but these results were statistically insignificant (p=0.2253). Unlike the present work, Dias et al (2005)[9] had reported a better outcome in married patients. In their study lower BDI scores were more frequent in married patients.

An assessment of education status showed that 52 % patients had studied for more than 12 years, 32% had completed 10 years, 12% had completed 5 years and 4% were illiterate. Comparison was made between the mean years of education among psychiatric morbidity positive patients with those without any psychiatric morbidity. The mean years of education among patients with and without psychiatric morbidity was 9.5±3.90 and 10.46±1.88 respectively and this difference was statistically significant (p=0.0005979). Thus signifying a possible role of lesser educational status, i.e. patients with comparatively lower education have a higher prevalence of psychiatric morbidity. This is in agreement with observation made by Dias et al who found lesser BDI scores in patients with higher education (OR=0.28, p=0.09).[9]

Ten (10) patients had substance related disorders in our study out of which 7 had alcohol abuse and 3 had alcohol dependence. Seventy percent (35) patients were smokers.

Assessing risk factors for ACS like diabetes, hypertension and dyslipidemia it was found that 10(20%) of patients had hypertension, 6(12%) had dyslipidemia and 5(10%) had diabetes mellitus. This is in contrast to study by John S (2013)[10] from Kerela, who found a significantly higher prevalence. He reported hypertension in 55.4 %, diabetes in 52.3 % and dyslipidemia in 65.4%. This observation signifies a possibly healthier clinical profile of our patients which could be due to increased physical activity in our patients who come from hilly areas. This could also account for decreased comorbid medical conditions.

Majority of the studies like our study had established depressive disorder as an important entity associated with ACS. The prevalence of depression in general population at a given time is ranging from 12% to 30%.[11] The prevalence rate of depressive disorder in patients with ACS ranged from 24.5% to 44.6% and this observation has further substantiated the view that presence of psychiatric comorbidity is a significant variable, management of which can alter the course of ACS.

In order to assess the severity of ACS we grouped the patients on the basis of Killip class. Killip class I were categorized as mild, class II as moderate and class III as severe. The number of patients in each class was calculated in order to establish whether a significant relation existed between either class and the number of patients with psychiatric morbidity. It was found that maximum patients were in class I (one) i.e. 34 and 9 had psychiatric co morbidity which was statistically significant (p=0.02544). However, no statistically significant relation could be found in case of KIllip II and Killip III and the number of psychiatric morbidity positive patients in each. Killip II had 11 patients with 10 positive for psychiatric morbidity(p=0.1416) and Killip III had 5, all of which were positive for psychiatric morbidity(p=0.3586).

We observed in our study that most of the patients of ACS with diagnosable psychiatric disorder were in their 40's, predominantly rural having a lower education status and females having a higher predilection for depressive and anxiety disorders in comparison to males.

This is a hospital based study with its inherent limitations. The findings indicate that psychiatric morbidity (especially depression and anxiety) in ACS occurs more frequently than expected as compared to general population. The patients of ACS, in this context need careful assessment for psychiatric manifestations for the purpose of their management. This is especially important because most of the psychiatric disturbances found in these patients are treatable and treatment of psychiatric conditions leads to a good prognosis of ACS also.

VII. SUMMARY AND CONCLUSION

In conclusion could be said that Acute Coronary Syndrome is associated with significant psychiatric co morbidity manifesting as depressive disorder and anxiety disorder. It was also observed that ACS patients with a lower educational status are more likely to develop psychiatric problems.

Patients with ACS need careful assessment for the presence of any psychiatric comorbidity. Mental health professionals may be included in the treating team of ACS patients. This would not only suggest appropriate interventions for these mostly treatable comorbid psychiatric disorders but would improve the prognosis of ACS also.

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