Research Article

Depression in Acute Coronary Syndrome Patients

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A B S T R A C T

Aims and Objectives: To study the prevalence of depression in Acute Coronary Syndrome (ACS) patients.

Methods: Patients diagnosed with Acute coronary syndrome and attending cardiology OPD after 2-4 weeks of index episode were the subjects (n=75). Study period was from st January 2011 to 29th Feb 2012. Patients already on antidepressants were excluded from the study. WHO Well Being Index was used as a screening tool. Diagnosis of depressive disorder was made through clinical interview as per the criteria given in International Classification of disease 10th ed. (ICD-10). Beck's Depression Inventory (BDI) was applied to rate the severity of depressive episode. Socio demographic profile and other clinical variables of two groups (ACS with or without depression) were compared. It was a single point cross sectional study. Prevalence rate of depression was obtained and chi square test was applied to compare variables associated with depression in ACS.

Result: Prevalence of depressive disorder was found to be 22.7% (n=17) in our sample. Socio demographic and clinical variables were comparable between the two groups except for the history of current substance use (p=.045) and history of past depressive episode (p=0.021), which were significantly associated with depression in post ACS patients.

Conclusion: It could be concluded from the study that unrecognized and untreated depression was frequent in ACS patients 2-4 weeks after the index episode. In our study substance intake+ and past history of a depressive episode were the risk factors associated with depression post ACS and subjects with history of these should be screened specifically for depression and adequately treated.

Keywords: Acute Coronary Syndrome, Depression

Introduction

According to WHO statistics cardiovascular diseases are the number one cause of death globally accounting for approximately 30% of all causes of global deaths.[1] Acute coronary syndrome is a life threatening event resulting in sudden death of a person in significant number of cases. For those who survive, it is a significant stressor leading to physical, social and psychological consequences. It has

Makkar D et al.
J. Adv. Res. Psychol. Psychother. 2019; 2(3&4)

24

enormous impact on an individual's overall health and daily functioning. Cardiac events often result in disability and a change in social role function and affect the individual's perception of his or her mortality. Hence it is not surprising that depression appears to be the most common psychiatric disorder in patients with Coronary Artery Disease (CAD).[2] Presence of depression leads not only to poor outcome in ACS patients but also greater cardiac morbidity and poorer quality of life.[3,4]

Occurrence of depression following ACS has been studied in the past. Presence of high rate in such population has been documented since 1960s.[2,5,6] Recently, studies have reported prevalence of depression in ACS patients to be around 15-27 %. An Indian study reported prevalence of depression to be around 23.8 %.[7]

Several variables have been found to be predictive of depression in patients with cardiac disease. These includes degree of functioning post MI, overall medical burden,[8,9] prior history of MI[6] family history of psychopathology[10] and low levels of perceived social support.[11] The prevalence of depression was more in females as compared to males,[12,13] however there was no impact of age on prevalence of depression.[14,15]

In a study done in India, the mean age of patients with depression was 54 yrs. and 75% were males.[7] Depression was also significantly associated with literacy rate.

Successful treatments for depression in patients with CAD may have the potential to improve not only quality of life but also cardiovascular and physical health. In SADHART study, there was modest differences in reduction in depressive symptoms between sertraline recipients and placebo recipients.[16] In a secondary analysis of 1,834 patients from the ENRICHD study, the risk of death or recurrent MI was significantly lower in patients taking SSRIs (selective serotonin reuptake inhibitors).[17] The relationship between coronary heart disease and depression is bidirectional. Depression and stress is now itself is an independent risk factor for coronary heart disease and coronary heart disease for depression.[18]

Material and Methods

The aim of the present study was to find the prevalence of depression in Acute Coronary Syndrome (ACS) patients 2-4 weeks after the index episode. The study was conducted in the department of cardiology of G B Pant hospital, which is a tertiary care referral hospital in Delhi and affiliated to Maulana Azad Medical college. Duration of the study was from the intake of the first patient i.e. from 1st January 2011; to the intake of the last patient, i.e., 29th February 2012. Consent was obtained from all the participating subjects. Sample size was 75 (n=75) and consecutive cases were taken Diagnosis of acute coronary syndrome (unstable angina, ST elevation MI or NON ST elevation MI) was made by cardiologist. Among these those patients were included for the study who were coming to attend the opd between 2-4 weeks after the index episode of ACS. Patient already on antidepressants were excluded from the study.

Data of the patient was collected using Semi Structured Proforma especially designed for this study incorporating Modified Kuppuswamy scale and Parekh scale to determine socio-economic status including the consent form.[19] Depression was diagnosed by clinical interview using WHO's international classification of Diseases and Related Health Problems (ICD-10).[20]

To measure severity of symptoms of depression Beck Depression Inventory II (BDI II)[21] was applied.

Statistical analysis was done using SPSS 16.0. Chi square and t-test were used for comparision of variables. Ethical clearance was taken from institute's ethical committee.

Result

There were 63 (84%) males and 12 (16%) females. Mean age of males was 50.87±9.33 and that of females was 57.35±9.62. mean age of females was 5 years more than the males. Among socio demographical details 72% of patients were from urban area. 81% were Hindu while 17% were Muslim. 20 (26%) of the subjects were illiterate (table1).

Table 1.Socio demographical details of Subjects

	n=75	Mean age (51.89±9.60)
Male	63 (84%)	50.87±9.33
Female	12(16%)	57.25± 9.62
Married	70 (93.3%)	
Widow	5 (6.7%)	
Hindu	61 (81.3%)	
Muslim	13 (17.3%)	
Sikh	1 (1.3%)	
Urban	54 (72%)	
Rural	21 (28%)	
Literate	55 (73.3)	
Illiterate	20 (26.7)	
Employed	60 (80%)	
Unemployed	15 (20%)	
Type of ACS		
STEMI	53 (70.7%)	
NSTEMI	8 (10.7%)	
USA	14 (18.7%)	
Smoking	35 (46.67%)	

25

Makkar D et al.
J. Adv. Res. Psychol. Psychother. 2019; 2(3&4)

Maximum number of subjects had ST elevation myocardial infarction (70.7%). NSTMI was present in 10.7 % of subjects and unstable angina in 18.7% of subjects. Among STEMI, 38 out of 53 had anterior wall MI.

Table 2. Prevalence of depression in ACS patients and their mean BDI score

	Present	Absent	p
Depression (n=75)	17 (22.7)	58 (77.3)	
Mean age	49.29±11.32	52.66±9.01	.362
Males	15		.454
Females	2		
Mean BDI score (n=17)	25.529		

Depression was present in 17 (22.7%) patients with mean BDI - II score of 22.53. Mean age of patients with depression was 49.29±11.32 while that of non-depressed patients was slightly higher 52.66±9.01. Percentage of males was more in depressed group. However in both, the difference was not significant. Few other variables were compared between the two groups (depressed vs non depressed) such as type of ACS, Obesity, Diabetes, Hypertension, history of substance use and past depressive episode. Current use of substance and history of depressive episode in past was significantly associated with presence of depression in ACS patients *p≤.05.*

Discussion

The present study is a cross sectional study to see the prevalence of depression in patients of Acute Coronary Syndrome (ACS). The presence or absence of depression was assessed 2-4 weeks after the index episode of ACS.

In our sample of 75 subjects, we found prevalence rate of depressive disorder to be 22.7% (17 out of 75). there have been few studies from India reporting prevalence of depression post ACS. One study from India reported similar prevalence of depression in post MI patients, 23.8%.[7] While other studies from India reported much higher prevalence, 34.6%-44%.[22,23,24] In one case control study, prevalence of depression was 35% in cases as compared to 20% in controls.[7]

In our study, patients were assessed in OPD after 2-4 weeks of index episode of ACS. In different studies depression has been assessed at different time following ACS thus resulting in wide difference in prevalence of depression in different studies. Few studies have studied its prevalence as early as 3-5 days post ACS.[22,25,26] While others have studies prevalence of depression either during the hospitalization period within 2-4 weeks' time frame,[7,27,28] or after hospitalization at 3 months or 6 months period.[29,30] It is currently difficult to comment whether this has any bearing on occurrence of depression. Even after this difference, majority have reported similar outcome, i.e. poor prognosis in depressive group. Assessing depression in immediate early period could lead to inclusion of patients with reactionary depressive symptoms or symptoms being accounted for general medical condition and resulting in increased incidence. Assessing depression at 2-4 weeks interval seems reasonable to rule out reactionary depression and also to include subjects for earlier diagnosis and assessment of depression.

Table 3. Comparison of different variables between depressed and non-depressed ACS patients

Variables	Sub groups	Groups				P
		ACS with depression n=17		Without depression n=58		
		Frequency	Percent	Frequency	Percent	
Type of ACS	STEMI	11	64.7	42	72.4	.379
	NSTEMI	1	5.9	7	12.1	
	USA	5	29.4	9	15.5	
Diabetes	Present	3	17.6	11	19.0	.606
	Absent	14	82.4	47	81.0	
Substance	Present	13	76.4	22	37.9	.045
	Absent	4	23.6	36	62.1	
Past ACS	Present	13	76.5	53	91.4	.111
	Absent	4	23.5	5	8.6	
Past Depression	Present	4	23.5	2	3.4	.021
	Absent	13	76.5	56	96.6	
Treatment Related	Medicine	8	47.1	23	39.7	.393
	PTCA	9	52.9	35	60.3	

Makkar D et al.
J. Adv. Res. Psychol. Psychother. 2019; 2(3&4)

26

Rate of depression in post ACS patients has also differed depending upon the method used to assess depression, i e different rating scales or clinical interview. Prevalence of depression was higher when using BDI-II scale as compared to clinical interview or HADS scales.[31]

History of current substance use was significantly associated with depression post AC*S* (p=.045). Though similar correlation has been found in earlier studies[32,33] but overall there are not enough studies to suggest a strong evidence.

However there are enough evidences to suggest that post ACS depression itself is linked to relapse to smoking, prospectively.[34] Smoking has been one of the most important factors associated with CAD and depression both[35] Depression is independently linked to daily smoking and nicotine dependence. [36] Researchers have found that people with a history of major depression have a threefold elevation in risk of becoming a smoker[37] Depressed smokers are less likely to quit successfully and are more likely to have withdrawal symptoms during attempts to quit. Smokers with a history of depression have been shown to have an exaggerated belief in the positive effects of smoking.[37]

Another important significant relationship in our study was between history of past depressive episode and depression post ACS (p=0.21). This result supports findings from earlier studies.[38,39,40] Significance related to past history of depression is mixed in term of morbidity and mortality after ACS. Two studies showed positive correlation.[41,42] However other study reported that incident depressive episode was more predictive of favorable or unfavorable outcome after ACS rather than past episode of depression.[43,44] Past history of CAD however was not significantly related to depression post ACS (p=.111,>.05).

The 2008 American Heart Association Science Advisory concluded that depression is commonly present in patients with coronary heart disease and is independently associated with increased cardiovascular morbidity and mortality.[45]

Therefore, screening tests for depressive symptoms should be applied to identify patients who may require further assessment and treatment. In view of adverse outcome of depression associated with CHD and the availability of easy-to-administer and reasonably accurate screening tools, it is reasonable to screen for depression to improve outcomes.

Conflicts of Interest: None

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27

Makkar D et al.
J. Adv. Res. Psychol. Psychother. 2019; 2(3&4)

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J. Adv. Res. Psychol. Psychother. 2019; 2(3&4)

28

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