



ANXIETY, DEPRESSION AND SUICIDALITY AMONG PATIENT WITH CORONARY ARTERY DISEASE: A CROSS SECTIONAL STUDY

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ABSTRACT

Introduction- coronary artery disease (CAD) is the leading cause of death and disability in highly industrialized countries. With urbanization the prevalence of risk factors of coronary artery disease is increasing rapidly in the developing countries. Depression and cardiovascular disease are both highly prevalent disorders and both of them are seen to be causing significant decrease in quality of life of patient.

Aims & Objectives- To evaluate the relationship between coronary artery disease anxiety, depression and suicidality. To compare the levels of anxiety, depression and suicidality among patients of CAD with hypertension and CAD without hypertension.

Materials And Method- The study will be performed at our tertiary care centre - Adesh Medical College & Hospital, Shahabad. Study Population of 157 patients who will come to cardiology OPD or will be admitted under department of cardiology in Adesh Medical College and Hospital during the period of February 2021 to June 2021.

All the patients attending cardiology OPD, those who are willing to provide written informed consent and meeting the inclusion criteria will be included in the study.

Results- In our study out of 50 patients of CAD with hypertension 31(62%) had normal, 12(24%) had mild depression, 12(24%) had moderate depression and 1(2%) had severe depression. Out of 107 patients of CAD without hypertension 83 (77.6%) had normal, 15(14%) had mild depression, 12(7.6%) had moderate depression and 4(2.5%) had severe depression.

Conclusion- The result shows the levels of depression was more in patients of CAD with hypertension as compare to patients of CAD without hypertension.

KEYWORDS : CAD- Coronary artery disease, HAM-A -Hamilton Anxiety rating scale, HAM-D - Hamilton depression rating scale, ACS-acute coronary syndrome

INTRODUCTION

Coronary artery disease (CAD) is the leading cause of death and disability in highly industrialized countries [1]. With urbanization the prevalence of risk factors of coronary artery disease is increasing rapidly in the developing countries. The reason for high risk of CAD among Indian is not clear but it could be attributed to genetic factors and unhealthy lifestyle. Depression, anxiety and type A personality have shown to be risk factor for developing coronary artery disease. Depression and cardiovascular disease are both highly prevalent disorders and both of them are seen to be causing significant decrease in quality of life of patients.[2]

One explanation for this comorbidity is that chronic disease, such as Cardiovascular disease, leads to depression and anxiety, through restriction of activities, fear of impending mortality, and other consequences of debilitating disease. However, depressive symptoms have also been found to predict coronary heart disease (CHD) in cohorts not initially presenting cardiac symptoms, suggesting a possible bidirectional model of comorbidity. [3]

By 2020, it is estimated that depression would be the second most common cause of death worldwide surpassing the other conditions. A bidirectional relationship has been noted between cardiovascular diseases and psychiatric comorbidities.

The INTER HEART study conducted across 52 countries found higher prevalence of four stress factors – stress at work and home, financial stress, and major life events in the past year, along with eight other risk factors of history of hypertension or diabetes, waist/hip ratio, dietary patterns, physical activity, smoking, consumption of alcohol, and blood apolipoprotein association with the increased risk of acute coronary syndrome (ACS).[4]

Less attention has been paid to the prevalence and impact of anxiety on heart disease than to the prevalence and impact of depression. In epidemiological research, anxiety has been linked with increases in the risk of carotid atherosclerosis, post-MI cardiac events, fatal CHD, nonfatal MI and sudden cardiac death, ventricular arrhythmia and recurrent cardiac events.

Like depression, anxiety has been found to influence the prognosis of CHD and the risk of CHD-related mortality and it is a predictor of post-MI cardiac events and health care consumption. Also showed that anxiety predicted poor quality of life at four months after MI [5]

AIMS AND OBJECTIVES

1. To evaluate the relationship between coronary artery disease anxiety, depression and suicidality.
2. To compare the levels of anxiety, depression and suicidality among patients of CAD with hypertension and CAD without hypertension.

MATERIALS AND METHODS

It is a quantitative study method

1. **Study Design (Specify):** It will be a cross sectional and observational study, A hospital-based study
2. **Study Site and Its Justification:** The study will be performed at our tertiary care centre - Adesh Medical College & Hospital, Shahbad.
3. **Study Population (Specify):** 157 patients who will come to cardiology OPD or will be admitted under department of cardiology in Adesh Medical College and Hospital during the period of February 2021 to June 2021.
4. **Inclusion and Exclusion Criteria**

Inclusion Criteria-

- Patients whose age is between 18-95 years
- Patients who provided consent

- Patients with CAD whose onset of CAD is within 1 year diagnosed by
- Cardiologist.

Exclusion Criteria-

- Patients with past history of primary severe psychiatric disorders
- Patients with CAD whose onset of CAD is more than 1 year

Sampling Methods / Techniques (Specify):

All the patients attending cardiology OPD, those who are willing to provide written informed consent and meeting the inclusion criteria will be included in the study.

Data Collection Tools:

Patients between 18 to 95 years of age, willing to give written informed consent.

A semi structured Proforma will be used to collect the socio demographic details of the patient.

Hamilton Anxiety rating scale (HAM-A) will be used to measure frequency and severity of anticipatory anxiety, fear and avoidance of agoraphobic situation and impairment in work and social functioning.

Hamilton depression rating scale (HAM-D) will be used to assess the severity of symptoms of depression.

Columbia Suicide Severity Rating Scale(C-SSRS) will be used to assess patients who are more vulnerable to get suicidal ideation following a cardiovascular disease.

RESULTS

Table- 1- Descriptive Table

Variables	Number(n= 157)	Percentage (%)
Age Group (in years)		
40-50	26	16.6
51-60	38	24.2
61-70	58	36.9
>70	35	22.3
Gender		
Male	106	67.5
Female	51	32.5
Religion		
Hindu	109	69.4
Muslim	4	2.5
Others	44	28.0
Education		
10th	44	28.0
12th	24	15.3
Graduate	33	21.0
Post graduate	4	2.5
Others	52	33.1
Marital status		
Married	141	89.8
Unmarried	1	0.6
Divorced	3	1.9
Widow/Widower	12	7.6
Residence		
Urban	49	31.2
Rural	108	68.8
Family Type		
Nuclear	66	42.0
Joint	91	58.0
Income		
Less than 20000	47	29.94
20000-40000	62	39.49
41000-61000	21	13.38

61000- 80000	26	16.56
More than 80000	1	0.64

In our study total 157 participants were taken and out of 157 maximum 58 were in age group 61-70 years followed by 38 were in age group of 51-60 , 35 were in age group of >70 year and 26 were in age group of 40-50. Mean age of patients was 58.62 ± 10.42 years. Out of 157 patients 106 were male and 51 were female. Maximum 109 were hindu, 44 were others and 4 were Muslim. Out of 157 patients 44 patients education of class 10th , 24 patients education of class 12th, 33 patients education of graduate , 4 patients education were post graduate and 52 had others qualification. Out of 157 patients 141 were married, 1 was unmarried, 3 were divorced and 12 were Widow/Widower.

Maximum 108 patients were belonging to rural area and 49 were belonging to urban area. 91 patients have joint family and 66 have nuclear family. 47 patients income was Less than 20000 , 62 patients income in between 20000 -40000, 21 patients income in between Rs 41000 -61000, 26 patients income in between 61000 -80000 and 1 patient's income in was More than 80000.

Table-2- Other Illness

Other illness	Number (n= 157)	Percentage (%)
Other Cardiac illness except hypertension	2	1.27
None	95	60.51
Hypertension	50	31.85
Respiratory illness	2	1.27
Gastrointestinal illness	7	4.46
Dermatological illness	1	0.64

In our study out of 157 patients of CAD maximum 95(60.51%) had no other illness , 50(31.85) patients had Hypertension , 7(4.46%) patients had Gastrointestinal illness , 2(1.27%) patients had Other Cardiac illness except hypertension and Respiratory illness and 1(0.64%) patients had Dermatological illness.

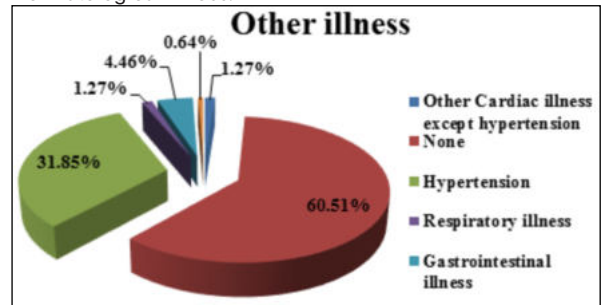


Table-3-Suicidal Ideation

Suicidal ideation	Frequency	Percent
Least severe	11	7.01
Severe	5	3.18
No	141	89.81

In our study out of 157 patients of CAD 11(7.01%) had Least severe Suicidal ideation, 5(3.18%) had severe Suicidal ideation and 141(89.81%) had no Suicidal ideation.

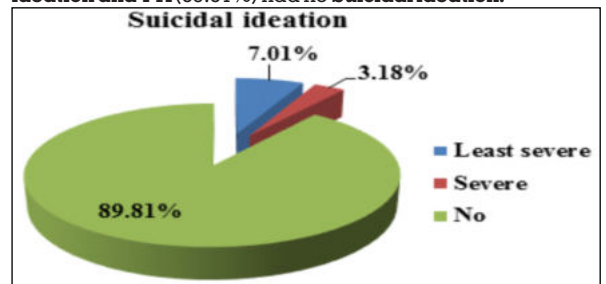


Table-4- Anxiety

Anxiety	Frequency	Percent
Mild	112	71.34
Moderate	41	26.15
Severe	4	2.55

In our study out of 157 patients 112(71.34%) had mild Anxiety,41(26.15%) had moderate Anxiety and 4(2.55%) had severe Anxiety.

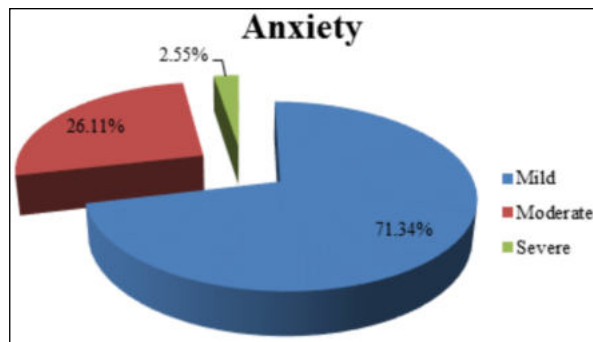


Table-5- Depression

Depression	Frequency	Percent
Normal	114	72.61
Mild	27	17.20
Moderate	12	7.64
Severe	4	2.55

In our study out of 157 patients 114(72.61%) were normal, 27(17.20%) had mild depression , 12(7.64%) moderate depression and 4(2.55%) had severe depression.

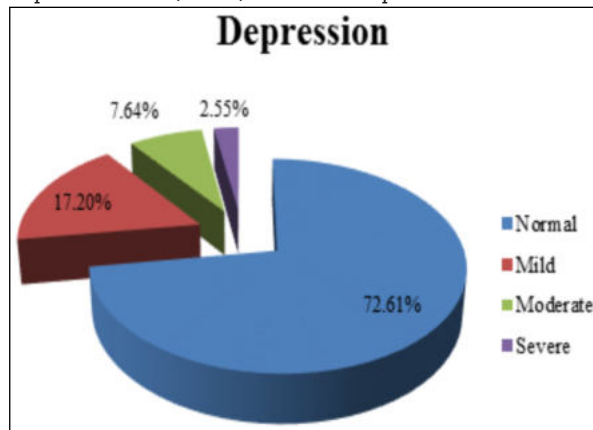


Table-6- Compare The Levels Of Suicidality Among Patients Of CAD With Hypertension And CAD Without Hypertension.

	Suicidal ideation			Total
	Least severe	Severe	No	
CAD with hypertension	5(10%)	1(2%)	44(88%)	50(100%)
CAD without hypertension	6(5.6%)	4(3.7%)	97(90.7%)	107(100%)
TOTAL	11(7%)	5(3.2%)	141(89.8%)	157(100%)

*P-Value=0.525(not significant)

In our study out of 50 patients of CAD with hypertension 5(10%) had Least severe Suicidal ideation, 1(2%) had severe Suicidal ideation and 44(88%) had no Suicidal ideation. Out of 107 patients of CAD with hypertension 6(5.6%) had Least severe Suicidal ideation,4(3.7%) had severe Suicidal ideation and 97(90.7%) had no Suicidal ideation. The result shows the levels of Suicidal ideation was almost same in patients of CAD with hypertension as compare to patients of CAD without hypertension and there was no significant difference.

Table-7. Compare The Levels Of Anxiety Among Patients Of CAD With Hypertension And CAD Without Hypertension.

	Anxiety			Total
	Mild	Moderate	Severe	
CAD with hypertension	31(62%)	17(34%)	2(4 %)	50(100%)
CAD without hypertension	81(75.7%)	24(26.1%)	2(1.9%)	107(100%)
Total	112(71.3%)	41(26.1%)	4(2.5%)	157(100%)

*P-Value=0.196(not significant)

In our study out of 50 patients of CAD with hypertension 31(62%) had mild Anxiety, 17(34%) had moderate Anxiety and 2(4%) had severe Anxiety. Out of 107 patients of CAD without hypertension 81(75.7%) had mild Anxiety, 24(26.1%) had moderate Anxiety and 2(1.9%) had severe Anxiety. The result shows the levels of Anxiety was more in patients of CAD with hypertension as compare to patients of CAD without hypertension but there was no significant difference.

Table- 8. Compare The Levels Of Depression Among Patients Of CAD With Hypertension And CAD Without Hypertension.

	Depression				Total
	Normal	Mild	Moderate	Severe	
CAD with hypertension	31(62%)	12(24%)	6(12%)	1(2%)	50(100%)
CAD without hypertension	83(77.6%)	15(14%)	6(5.6%)	3(2.8%)	107(100%)
Total	114(72.6%)	27(17.2%)	12(7.6%)	4(2.5%)	157(100%)

*P-Value=0.170(not significant)

In our study out of 50 patients of CAD with hypertension 31(62%) had normal, 12(24%) had mild depression, 6(12%) had moderate depression and 1(2%) had severe depression. Out of 107 patients of CAD without hypertension 83(77.6%) had normal, 15(14%) had mild depression, 6(7.6%) had moderate depression and 4(2.5%) had severe depression. The result shows the levels of depression was more in patients of CAD with hypertension as compare to patients of CAD without hypertension but there was no significant difference.

DISCUSSION-

In our study total 157 participants were taken and out of 157 maximum 58 were in age group 61-70 years followed by 38 were in age group of 51-60, 35 were in age group of >70 year and 26 were in age group of 40-50. Mean age of patients was 58.62 ± 10.42 years. Out of 157 patients 106 were male and 51 were female. Maximum 109 were hindu,44 were others and 4 were Muslim. Out of 157 patients 44 patients education of class 10th ,24 patients education of class 12th, 33patients education of graduate, 4 patients education were post graduate and 52 had others qualification. Out of 157 patients 141 were married, 1 was unmarried, 3 were divorced and 12 were Widow/Widower.

Maximum 108 patients were belonging to rural area and 49 were belonging to urban area. 91 patients have joint family and 66 have nuclear family. 47 patients income was Less than 20000 ,62 patients income in between 20000 -40000, 21 patients income in between Rs 41000 -61000, 26 patients income in between 61000 -80000 and 1 patient's income in was More than 80000.

In our study out of 157 patients of CAD maximum 95(60.51%) had no other illness, 50(31.85) patients had Hypertension,

7(4.46%) patients had Gastrointestinal illness, 2(1.27%) patients had Other Cardiac illness except hypertension and Respiratory illness and 1(0.64%) patients had Dermatological illness.

In our study out of 157 patients of CAD 11(7.01%) had **Least severe Suicidal ideation**, 5(3.18%) had **severe Suicidal ideation** and 141(89.81%) had no **Suicidal ideation**.

In our study out of 157 patients 112(71.34%) had mild Anxiety, 41(26.15%) had moderate Anxiety and 4(2.55%) had severe Anxiety. Health-related anxiety seemed to be more strongly associated with the presence of psychiatric comorbidity than the severity of the cardio vascular condition, confirming data previously reported by Sardinha et al. (31) regarding CAD patients.

In our study out of 157 patients 114(72.61%) were normal, 27(17.20%) had mild depression, 12(7.64%) moderate depression and 4(2.55%) had severe depression. Hmar and Bhagabati evaluating in a cohort of fifty patients with acute MI (AMI) found depression to be highly prevalent (34%).

In our study out of 50 patients of CAD with hypertension 5(10%) had **Least severe Suicidal ideation**, 1(2%) had **severe Suicidal ideation** and 44(88%) had no **Suicidal ideation**. Out of 107 patients of CAD with hypertension 6(5.6%) had **Least severe Suicidal ideation**, 4(3.7%) had **severe Suicidal ideation** and 97(90.7%) had no **Suicidal ideation**. The result shows the levels of **Suicidal ideation** was almost same in patients of CAD with hypertension as compare to patients of CAD without hypertension and there was no significant difference.

In study by **Karen Kjaer Larsen** et al population-based case-control study, they found that MI was strongly associated with an increased risk of suicide. The RR was highest for the patients with MI shortly after discharge, tended to decrease with age, and was particularly high among persons with a history of psychiatric illness.

In our study out of 50 patients of CAD with hypertension 31(62%) had mild **Anxiety**, 17(34%) had moderate **Anxiety** and 2(4%) had severe **Anxiety**. Out of 107 patients of CAD without hypertension 81(75.7%) had mild **Anxiety**, 24(26.1%) had moderate **Anxiety** and 2(1.9%) had severe **Anxiety**. The result shows the levels of **Anxiety** was more in patients of CAD with hypertension as compare to patients of CAD without hypertension but there was no significant difference. A study conducted on chronic IHD patients by Shiny John (2013) in India has shown a prevalence of 34.6% of major depressive disorder, 36.9% had anxiety due to a general medical condition, and 95.4% of patients reported psychiatric symptoms, either depression or anxiety. [10] It was, however, a point prevalence study.

In our study out of 50 patients of CAD with hypertension 31(62%) had normal, 12(24%) had mild **depression**, 12(24%) had moderate **depression** and 1(2%) had severe depression. Out of 107 patients of CAD without hypertension 83(77.6%) had normal, 15(14%) had mild **depression**, 12(7.6%) had moderate **depression** and 4(2.5%) had severe depression. The result shows the levels of depression was more in patients of CAD with hypertension as compare to patients of CAD without hypertension but there was no significant difference.

CONCLUSION

The principal findings of our study are that 3.18% had **severe Suicidal ideation**, mild Anxiety, 41(26.15%) had moderate Anxiety and 4(2.55%) had severe Anxiety, 27(17.20%) had mild depression, 12(7.64%) moderate depression and 4(2.55%) had severe depression, patients of CAD with

hypertension 31(62%) had mild **Anxiety**, 17(34%) had moderate **Anxiety** and 2(4%) had severe **Anxiety**, and patients of CAD with hypertension 31(62%) had normal, 12(24%) had mild **depression**, 12(24%) had moderate **depression** and 1(2%) had severe depression. patients of CAD without hypertension 83(77.6%) had normal, 15(14%) had mild **depression**, 12(7.6%) had moderate **depression** and 4(2.5%) had severe depression.

The result concluded that the levels of depression was more in patients of CAD with hypertension as compare to patients of CAD without hypertension but there was no significant difference, the levels of Anxiety was more in patients of CAD with hypertension as compare to patients of CAD without hypertension but there was no significant difference and levels of **Suicidal ideation** was almost same in patients of CAD with hypertension as compare to patients of CAD without hypertension and there was no significant difference.

REFERENCES

1. **A. Sardinha, C.G.S. Araújo and A.E. Nardi**; Psychiatric disorders and cardiac anxiety in exercising and sedentary coronary artery disease patients: a case-control study; *Braz J Med Biol Res*, December 2012, Volume 45(12) 1320-1326.
2. **Jitendra Jeenger, Swati Wadhwa, Devendra Mohan Mathur**; prevalence of depression and anxiety symptoms in first attack myocardial infarction patients of mewar region: a cross sectional study; *Int J Cur Res Rev*, April 2014/ Vol 06 (07).
3. **Britta A. Larsen and Nicholas J. S. Christenfeld**; Cardiovascular Disease and Psychiatric Comorbidity: The Potential Role of Perseverative Cognition; Hindawi Publishing Corporation Cardiovascular Psychiatry and Neurology Volume 2009, Article ID 791017, 8 pages doi:10.1155/2009/791017
4. **Shruthi. DR, S. Sunil Kumar, Desai N, Raman. R, T. S. Sathyanarayana Rao**; Psychiatric comorbidities in acute coronary syndromes: Six-month follow-up study; *Indian Journal of Psychiatry* | Published by Wolters Kluwer - Medknow 10.4103/psychiatry.IndianJPsychiatry.94_18
5. **Amy L. Ai, Bruce L. Rollman, and Candyce S. Berger**; Comorbid Mental Health Symptoms and Heart Diseases: Can Health Care and Mental Health Care Professionals Collaboratively Improve the Assessment and Management; *Health & Social Work* Volume 35, Number 1 February 2010.