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A STUDY OF CLINICAL PROFILES OF DEPRESSION, ANXIETY AMONG FEMALE POST MYOCARDIAL INFARCTION PATIENTS

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INTRODUCTION

It is well known that there is a close relationship between cardiac function and psychological factors. All human beings have emotions like anger, sad, fear, joy which have direct effect on cardiac function.[1] Variations in heart rate and rhythm occurs in relation to these emotions. Myocardial infarction, commonly known as heart attack is irreversible necrosis of heart muscle cells due to prolonged ischemia. Most heart attacks are caused by obstruction to blood flow in the coronary vessels by atherosclerotic plaques, made up of cholesterol and other cells. The pathogenesis of myocardial infarction can include (i) occlusive thrombus – thrombus overlying plaque causes seventy five percent (75%) of myocardial infarction with superficial plaque erosion in 25%. (ii) Vasospasm – with or without atherosclerosis of coronary arteries and association with platelet aggregation (iii) Emboli – from other sites. WHO[1] report says that in 2004, 12.2% of worldwide deaths were due to ischemic heart disease. In most high income countries, there was declining trend of death from ischemic heart disease. In contrast to developing countries like India, death due to ischemic heart disease was expected to increase double during 1985-2014.[2] WHO 2008 report also predicted that DALYS (Disability Adjusted Life Years) lost to coronary artery disease will be 5.5% of total DALYS in 2030; after major depressive disorder, it is the second most important cause of disability. The disease can indirectly affect mental function, producing chronic impairment, most commonly associated with depression and anxiety. So recently much attention was given to psychological and social factors in relation to myocardial infarction (coronary artery disease). The factors that lead to development of atherosclerosis in blood vessels are diabetes mellitus, dyslipidemia and smoking which are associated with psychosocial factors also. Genetic factors also play important role in atherosclerosis development.

In patients were suffering from myocardial infarction, the illness significantly can interfere with daily activities of patients. So their quality of life is affected. QOL (Quality of Life) is defined as state of wellbeing that consists of two components (i) ability to perform daily activities that reflect psychological, physical and social wellbeing (ii) patient''s satisfaction with their levels of functioning and control over their disease. If patients were affected by psychiatric problems like depression and anxiety, after myocardial infarction their quality of life was further more affected. The goal of management in any chronic medical illness is to rehabilitate the patients. If myocardial infarction patients were given psychiatric evaluation and treatment for anxiety and depression along with follow up treatment for myocardial infarction, their quality of life would be improved. Many studies indicate that prevalence of depression and anxiety was more in female patients than male patients. A European study[3] says that female preponderance to depression may be due to socio cultural roles, coping skills, psychological attributes related to life events vulnerability. An Iranian journal of psychiatry indicated[4] highest rate of prevalence of depression and anxiety in female inpatients. An American heart lung journal[5] indicated higher levels of depression and anxiety in females than male cardiac patients. But there are no much studies about prevalence of anxiety and depression in female post myocardial infarction patients in India. Hence aim of this study is to assess prevalence of depression and anxiety in female post myocardial infarction patients.

MATERIALS AND METHODS

The sample comprised of female patients with myocardial infarction who were taking treatment for myocardial infarction. Data was collected from female patients with myocardial infarction at cardiology department of Govt. Stanley Medical College & hospital Chennai. The study was conducted from July 2013 to December 2013. Female Patients with age 30 years or above who were diagnosed with myocardial infarction and those who gave informed consent was included in the study. Male patients, those having delirium or dementia and patients having mental retardation, patients

with previous history of psychiatic illness and non-consenting patients were excluded from the study.

A Semistructured proforma was used to collect socio demographic and illness related information which includes age, education, residence, occupation, religion, Socio economic status, marital status and other personal habits and comorbidity. The following scales were used for evaluation.

MINI MENTAL STATUS EXAMINATION (MMSE)
It has two sections. Section I tests orientation, attention and memory and the maximum score on this section is 21. Section II test able to follow verbal and written commands, ability to name, write a sentence correctly and copy complex polygon, on this section maximum score is 9. Thus the maximum score is 30. A score of twenty (20) or below is found only in patients with, delirium, dementia schizophrenia, or affective disorder. It has been proved to be a valid and reliable test of cognitive functions.

MONTGOMERY–ÅSBERG DEPRESSION RATING SCALE (MADRS)
It is a ten-item questionnaire, used to diagnose and measure severity of depression. It was designed by British and Swedish researchers in 1979. It includes questions on the following symptoms 1. Apparent sadness 2. Reported sadness 3. Reduced sleep 4. Inner tension 5. Reduced appetite 6. Lassitude 7. Concentration difficulties 8. Inability to feel 9. Suicidal thoughts 10. Pessimistic thoughts. Each item gives a score of 0 to 6. The overall score is from 0 to 60. An international study[6] indicated that MADRS score of 10 or higher had good sensitivity and specificity for the identification of current major depressive disorder in patients with coronary artery disease.

COVI ANXIETY SCALE
It is a simplified scale to diagnose anxiety. It has three domains. (1) Verbal report (2) Behavior (3) Somatic symptoms of anxiety. The score is in the range of 1 to 5. Thus total maximum score is 15. A study (cutler NR, 1994)[7] indicated that the covi anxiety score of 8 or more is reliable to diagnose anxiety disorder.

This study was conducted after getting permission from cardiology department and approval from institutional ethical committee. Female patients who were diagnosed as having myocardial infarction and taking follow up treatment were recruited for study on basis of inclusion criteria. Informed consent was taken after explaining the nature of study to patients. First, patients were screened using Mini International Neuropsychiatric Inventory for significant psychiatric morbidity. Patients were administered with mini mental state examination to rule out cognitive disorder. Then semi structured proforma was administered to collect socio demographic and illness related information. Montgomery–Åsberg Depression Rating Scale (MADRS), and Covi Anxiety Scale was used in patients with significant anxiety and depression to rate severity of depression and anxiety respectively.

The collected data were analysed after entering the data into a statistical package, Statistical Package for Social Sciences (SPSS) version 20.0. Data distributions were analyzed by using descriptive statistics such as frequencies, means, and standard deviation. Parametric statistics such as "t" test was used to find out the relationship between many variables. Non parametric chi-square test was also used to find significant association. P value < 0.05 was taken for significant association.

RESULTS
The sample consisted of 130 female post myocardial infarction patients. Mean age of sample is 59.6 (range 40 to 76) years. 77.7% of the patients were unemployed house makers (n=101) and rest working. Urban population constituted 92.3% (n=120) and rest from semi urban areas. Illiterates were majority (n=72, 55.4%), 37.7% did not complete high school. Major population belonged to Hindu religion (83.8%) and lower middle social class (79.2%). Most were widowed (n=82, 63.1%). Mean age of onset of myocardial infarction 56.3 years (37-74). Most patients had one attack and were in 1-2 years after last attack (n=52). Diabetes was found in 69.2%, hypertension in 66% and dyslipidemia in 69% of the sample. 94.6% attained menopause. 15.4% of females were abusing tobacco.

Among the 130 patients, patients 46.2% (n=60) had depressive symptoms, 24.6% (n=32) had anxiety symptoms and rest (n=38, 29.2%) had no depression or anxiety. Both anxiety group and depressive group were studied for socio demographic profile and risk factors association. Most of the depressed and anxious populations were in 60 -69 age group.

Table 1: Demographic features.

Variable		Anxiety	Depression	None	CHI^2	P Value
Age Group	40-49YR	7	9	6	5.110	0.530
	50-59YR	7	9	10		
	60-69YR	16	30	16		
	70-76YR	2	12	6		
Occupation	Unemployed	23	47	31	0.970	0.616
	Employed	9	13	7		
Education	Illiterate	21	36	15	11.58	0.021*

	<10 STD	9	22	15		
	>10STD	2	2	8		
Residence	Urban	26	57	37	7.494	0.024*
	Rural	6	3	1		

In our study group depression was seen more in unemployed women than in employed. Most of them were from urban area but were illiterate. Similarly most of the patients were from low socioeconomic status family. Also majority of the patients were widows. Only few patients were looked after by their spouse/children in both groups of patients with anxiety and depression.

In our study group most of patients with age at onset of MI >55 years had depression and anxiety. Also depression was more in 1 – 2 years after an attack of MI and anxiety more during the first year. Whereas previous episodes did not decide depression or anxiety.

Table 2: Demographic features.

Socioeconomic	Lower	25	47	31	3.620	0.728
	Lower middle	4	6	2		
	Upper middle	3	7	5		
Marital Status	Married	11	17	15	7.250	0.123
	Widow	18	43	21		
	Separated	3	0	2		
Family Type	Nuclear	32	58	36	5.339	0.069
	Joint	0	2	2		
Caregiver	Spouse/Children	8	10	2	1.638	0.441
	Others/Alone	24	50	36		

Coming to comorbidities majority of the depressed and anxious population were diabetic, hypertensive and dylipidemic which is because all patients were had MI. All females in depressed group had attained menopause.

Those with less educational status and living in metropolitan areas had constituted more in depressed and anxious group. Other socio-demographic variables did not associate with depression and anxiety.

With analysis using Pearson chi- square, the following illness related variables were studied for any significant association with anxiety and depression and reference (no morbidity) groups.

Table 3: Correlation with Illness variables.

Variable		Anxiety	Depression	None	CHI^2	P Value
Age of Onset	<55	17	20	17	3.59	0.166
	>55	15	40	21		
Menopause	Yes	28	60	35	7.065	0.029*
	No	4	0	3		
Diabetes	Yes	24	46	19	8.503	0.014*
	No	8	14	19		
Hypertension	Yes	23	48	16	15.563	0.000*
	No	9	12	22		
Dyslipidemia	Yes	24	47	18	11.172	0.004*
	No	8	13	20		
Duration	0-1 yr	14	12	14	16.886	0.010*
	1-2 yr	9	31	12		
	2-5 yr	6	11	5		
	>5 yr	3	6	7		
Previous Episode	No	20	37	28	1.641	0.440
	Yes	12	23	10		
Tobacco Use	Yes	4	13	3	3.661	0.160
	No	28	47	35		
Family History of MI	Yes	4	9	4	0.422	0.810
	No	28	51	34		

Most postmenopausal women had anxiety and depression. Most diabetic, hypertensive and dyslipidemic MI patients had anxiety and depression. Anxiety was more in the first year and depression in between 1 – 2 year period.

Next we correlated the factors influencing in patients with depression and anxiety in depressive group, age, postmenopausal years and numbers of episodes have positively correlated with MADRS depressive symptoms.

Table 4: Depression group.

	Age	Menopause	Episode
Spearman"s RHO	.986**	.989**	.862**
Sig. (2-Tailed)	.000	.000	.000
N	60	60	60

Similarly in Anxiety group also, postmenopausal years and number of episodes have positively correlated with COVI Anxiety Score. Age has negative correlation i.e, younger age had more anxiety.

Table 5: Anxiety group.

	Age	Menopause	No of Episode
Spearman"s RHO	-.896**	.878**	.818**
Sig. (2-Tailed)	.000	.000	.000
N	32	32	32

DISCUSSION

In the last few decades, there was increasing trend in focusing on psychiatric aspects of medical illness. The more research has been done in the consultation liaison psychiatry area. This study was focusing on prevalence of anxiety and depression in female post myocardial infarction patients. This study was also focusing on relationship between psychosocial factors and anxiety and depression. This study wanted to make intervention strategies in improving quality of life through psychosocial evaluation and treatment. This was cross sectional study and patients were recruited on a purposive basis from cardiology department of Govt. Stanley Medical College Hospital, Chennai, through inclusion and exclusion criteria.

In this study, mean age of onset of MI was 56.25, correlates with an Indian study[8] which indicated peak age of onset of MI in Indian population was 51 – 60 years. Only 13.1% of patients had family history of MI, even though family history is a risk factor for MI.[9,10]

Among the 130 patients, patients 46.2% (n=60) had depressive symptoms, 24.6% (n=32) had anxiety symptoms and rest (n=38, 29.2%) had no depression or anxiety. We divided patients in to three groups such as (1) anxiety group (2) depressive group (3) none (no anxiety and depression) for various analysis. The group was made through MADRAS Score of 10 and more for depressive group, COVI anxiety scale score of 8 and more for anxiety group.

One study[11] reported that prevalence of anxiety & depression is 44.8% (Both Male & female). Indian study[12] reported that 44.6% (Both male &female) had anxiety &depression. Another study[13] reported that total of 48% patients had depression and females were more (64%) to be depressed than males (44%). An American study[14] reported that females had higher anxiety levels than males. Thus prevalence of anxiety and depression in this study is within range observed by other studies.

Most of the patients in anxiety and depressive group were illiterate, which has significant association. It correlates with previous studies.[15] In this study, diabetes mellitus has significant association with anxiety and depression and it correlates with other studies.[16] In this study, post menopausal status has significant association with anxiety and depression, it may be due to hormonal variations and endocrinological status. In this study hypertension has significant association with anxiety and depression and it correlates with previous studies.[12] In this study dyslipidemia has significant association with anxiety and depression. Which also correlates with previous studies.[17] In this study, duration of MI, particularly 1-2 years of duration has significant association with depression in accordance with previous studies.[18] In this study most anxious patients were in less than 1 year duration, which have significant association. In this study, depression and anxiety has positively correlated with post menopausal period and number of episodes.[19]

CONCLUSION

Psychiatric problems particularly anxiety and depression have been reported in myocardial infarction patients in previous researches and quality of life have been studied in patients with myocardial infarction. Results showed two third of patients had anxiety or depression. Diabetes mellitus, hypertension, dyslipidemia, low education, menopause and duration of myocardial infarction were variables shown significant association with anxiety and depressive disorder. These results are in tandem with previous studies, suggesting that high depression and anxiety have poor quality of life is in female post myocardial infarction patients. From the study, we concluded that psychiatric evaluation and treatment is necessary to reduce psychiatric morbidity and thereby improving quality of life in female post myocardial infarction patients.

LIMITATIONS AND SUGGESTION

This study was cross sectional, but a follow up study may reveal true levels quality of life and anxiety / depression. A control group may be useful for us to compare the rates with age and other variables matched populations. No specific sampling method was used; subjects were selected on purposive basis. Sample of this study was from Govt. tertiary care hospital, so we could not able to generalize study findings. A large sample from community, covering all sections of population, based follow up study with a control group with a specific sampling method may overcome the limitation of this cross sectional study.

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