

EFFECT OF PSYCHOTHERAPY ON DEPRESSED PATIENTS WITH CORONARY ARTERY DISEASE (CAD)

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Contribution

SH conceived, designed and wrote manuscript. AK, RA did critical review and statistical analysis. AI, AZ, HI did data collection, critical review. AMG did final approval of manuscript. All authors contributed equally

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ABSTRACT

Objectives: To see the effects of psychotherapy in depressed patients with coronary artery disease (CAD)

Methodology: This was a randomized clinical trial conducted in Preventive section, Cardiology department, Lady Reading Hospital, Peshawar from March 2018 to October 2018. Verbal informed consent was taken from patients. Patients from both genders and all ages were included. Patients were randomly allocated to therapy group and non-therapy group. In therapy group, treatment plan based on cognitive behavioral therapy techniques, were administered to subjects. There were six session in total, two every week. The subjects in non-therapy group received routine care. After completing the sessions, the subjects were reassessed by PHQ-9 to see improvement in the level of depression. Data is presented as frequency, mean and standard deviation calculated for each variable. Paired T test was used to compare continuous data and Chi-square for categorical variables.

Results: A total of 1100 patients with CAD presenting to cardiology department were enrolled. Out of these 1100 patients, 272 post MI patients diagnosed with depression on PHQ-9 were selected for the study. A sample of 260 subjects who met the inclusion criteria was analyzed. Therapy group had 125 subjects and non-therapy group had 135 subjects. Mean age was 57.07 ± 13.07 . Males were 43% and females 57%. Of total literate were 33%, hypertension was documented in 52.3%, diabetes in 31.2%, and Current smokers were 21.2%. At baseline the PHQ scores were 10.08 ± 1.68 in therapy group and 10.10 ± 1.49 in non-therapy group respectively ($p = 0.783$). After six sessions of treatment, therapy group showed reduction in level of depression PHQ-9 scores to 6.04 ± 0.347 PHQ scores were 10.08 ± 1.68 in therapy group and 10.10 ± 1.49 in non-therapy group ($p = 0.783$) at the baseline ($p \leq 0.001$). In non therapy group the level of depression did not reduce significantly

Conclusion: Psychotherapy was found to be effective treatment in reducing symptoms of depression

Key Words: CAD, Depression, PHQ-9, Psychotherapy

INTRODUCTION

Psychotherapy- generally known as talk therapy is a process focused on helping an individual to heal and learn to adopt in more constructive ways to cope with the problems within one's life. Mostly used for the treatment of mild to moderate depression. It can also be a supportive therapy for individuals with increased stress due to any reason. Psychotherapy is a therapeutic alliance between the patients/client and therapist that need rapport building and agreement about the goals and tasks of the treatment.¹ It is a practice designed to provide relief from current symptoms and preventing future recurrence. The goal is enhancing quality of life and promoting adaptive functioning in life, relationships and workplace.¹ Cognitive behavioral therapy (CBT) has been found to be effective in treating depression. CBT helps a person to recognize distorted thinking and then change behavior accordingly.²

An estimated one in 15 adults (6.7%) of individuals are affected by depression. One in six people (16.6%) experience depression at sometime in their life.² Inpatients with coronary heart disease depression is a common predictor of mortality and morbidity. About 65% of patients experience symptoms of depression and major depression is present in 15% to 22% after an episode of myocardial infarction.³ According to WHO estimation depression and CVD will be the two major causes of disability-adjusted life years by 2020.⁴ The prevalence of depression in CAD patients varies from 17.2% to 45.0% while that of MDD (major depressive disorder) with myocardial infarction has been reported to be 16% to 23%.⁵

About 300 million of people are estimated to suffer from depression, which is the 4.4 % of the world's population. Depression is more common among females (5.1%) than in male (3.6%). People living with depression in the world are 322 million, nearly half of these people live in the South-East Asia region. The total estimated number of people living with depression increased by 18.3% between 2005 and 2015 this reflects the overall growth of the population as well as a proportionate increase in the age group at which depression is more prevalent.⁶ In Pakistan, depression affects almost 34 percent of people. Both genetic and environmental factors play an important role in its pathogenesis. According to a research around 35.7 percent citizens of Karachi are affected with this mental illness, while 43 percent from Quetta and 53.4 percent from Lahore are affected.⁶

A cardiac event is a traumatic episode and depression in common occurrence after that. The aim of the study was to assess whether psychotherapy is effective treatment for depressed patients with CAD. It would help in assessing the effectiveness of the psychotherapy introduced as a part of cardiac rehabilitation services in the preventive section of cardiology department.

METHODOLOGY

This study was conducted in Preventive section, Cardiology department, LRH, Peshawar. The data was collected from March 2018 to October 2018. PHQ9 was used as a scale for diagnose of depression and its severity. PHQ-9 or Patient Health Questionnaire-9 is a diagnostic instrument for common mental disorders, validated for use with patients for diagnosis of

depression. Mostly used to make a tentative diagnosis of depression in at-risk populations e.g those with coronary heart disease or after stroke.^{7,8} A total of 1100 patients with CAD presenting to cardiology department were enrolled. Out of these 1100 patients, 272 post MI patients with diagnosis of depression on PHQ-9 were selected for the study. Verbal informed consent was taken from patients and the purpose and nature of the study was explained to them. Patients were included if 3 weeks had passed after their cardiac event (MI) and depression was diagnosed on PHQ-9. Patients from both genders and all ages were included. Patients were randomly allocated to two groups, having 135 subjects in therapy group and 137 in non-therapy group. Randomization was done by drawing lots and allocating subjects to either therapeutic or non therapeutic group. Therapy group was given psychotherapy treatment, while non-therapy group received routine care. Patients with severe CAD symptoms like breathlessness, recurrent chest pain and those who were clinically unstable were excluded. Patients having score of 0-4 on PHQ-9, which is categorized as minimal depression were excluded. Patients those were unable to complete the psychotherapy sessions due to any reason were excluded from analysis. In therapy group, out of 135, seven were lost to follow up. In non-therapy group out of 137, six subjects were lost to follow up. Statistical analysis was done on 260 subjects, 135 subjects in non-therapy group and 125 in therapy group.

A collective treatment plan based on cognitive behavioral therapy techniques (cognitive restructuring, socio learning approach, progressive muscle relaxation, ABC model and family counseling) was designed for patients in therapy group. Client centered therapy techniques (empathy, acceptance, unconditioned positive regard) A total of 6 sessions were conducted for all patients. All subjects in therapy group were called for therapeutic sessions (psychotherapy) twice a week. After successfully completing the sessions, the subjects were reassessed by PHQ-9 for improvement in level of depression. In non therapy group, subjects were given routine care and general tips for coping with mental stress. They were reassessed after 6 weeks and PHQ-9 scores were re-recorded.

Demographic data was presented as frequency, mean and standard deviation calculated for each variable. Paired T test was used to compare continuous data and Chi-square for categorical variables. Statistical SPSS20 was used to analyze data.

RESULTS

A total of 1100 patients with CAD presenting to cardiology department were enrolled. Out of these 1100 patients, 272 post MI patients diagnosed with depression on PHQ-9 were selected for the study. A sample of 260 subjects who met the inclusion criteria was analyzed. Therapy group had 125 subjects and non-therapy group had 135 subjects. Mean age was 57.07 ± 13.07 . Males were 43% and females 57%. Of total literate were 33%, Hypertension was documented in 52.3 %, Diabetes in 31.2%, and Current smokers were 21.2 %.

PHQ scores were 10.08 ± 1.68 in therapy group and 10.10 ± 1.49 in non-therapy group ($p 0.783$) at the baseline. The PHQ9 scores and categories of depression of therapy and non therapy groups were compared using χ^2 test the results was found to be

significant ($p \leq 0.001$) (table 2), Data was compared within Non therapy group at the end of six weeks. using paired t test. The result was not significant ($p 0.783$) (table 3). After six sessions of treatment, therapy group showed reduction in level of depression PHQ-9 scores to 6.04 ± 0.347 ($p \leq 0.001$) using paired T test (table 4). None of the parameters such as age, gender, literacy,

marital status, educational status, area of residence, occupational status, family style, presence of diabetes, hypertension or family history, smoking status and anthropometric data had any significant effect on the treatment results.

Table 1: Demographic Data and Risk Factor Profile of Study Population (n=260)

Variables	Frequency (n)	Percentage (%)
Age (Mean age)	57.07 ± 13.07	
Male	108	41.5
Female	152	58.5
Education		
Literate	85	32.7
Illiterate	175	67.3
Residence		
Rural	84	32.3
Urban	176	67.7
Occupation		
Yes	126	48.5
No	134	51.5
Family life Style		
Joint	235	90.4
Nuclear	25	9.6
Socio-economic status		
Personal	99	38.1
Family	161	61.9
Marital status		
Married	239	91.9
Unmarried	21	8.1
Family history of CVD		
Yes	35	13.4
No	225	86.6
Patients with Hypertension		
Yes	136	52.3
No	124	47.7
Patients with Diabetes		
Yes	81	31.2
No	179	68.8
Smoking status		
Current smoker	55	21.2
Non-smoker	205	78.8
Second hand smoke		
Yes	106	40.8
No	154	59.2
Physical Activity		
Sedentary	169	65.0
Lightly active	83	31.9
Moderately active	8	3.1
BMI (Mean±SD)	25.6±4.07	

Table 2: Level of Depression and PHQ-9 Score in Therapy and Non-Therapy Group (n=260)

PHQ-9 scores	Non-therapy n=135	Therapy group n=125	P value
Normal	00(0.0%)	11(8.8)%	0.0001
Mild	9 (6.7)%	43 (34.4)%	0.0001
Moderate	52 (38.5)%	35 (28)%	0.0001
Severe	74 (54.8)%	36 (28.8)%	0.0001

Table 3: PHQ-9 Score within Non-Therapy Group

Non therapy group	Baseline Mean \pm SD	No therapy Mean \pm SD	P value
PHQ-9 scores	10.08 \pm 1.68	9.60 \pm 1.49	0.783

Table 4: PHQ -9 Score within Therapy Group

Therapy group	Before therapy Mean \pm SD	After therapy Mean \pm SD	P value
PHQ-9 scores	10.04 \pm 2.13	6.04 \pm 0.347	=0.001

DISCUSSION

Our study showed marked improvement in the depression level after psychotherapy in the treatment/ therapy group. There was a marked difference in PHQ 9 scores before and after six sessions of psychotherapy. A study done in our department of Lady Reading Hospital in 2011 investigated the frequency of depression and anxiety in patients admitted with coronary artery disease. A sample of 200 patients of AMI without complications presenting to the coronary care unit and 200 controls were studied. Patients were interviewed with standard scales of HADS and HRS for the assessment of depression.⁹ Depression was found to be more in patients with acute myocardial infarction as compared to controls indicating that depression is more prevalent in cardiac patients.³ The study recommended the importance of psychological interventions in cardiac rehabilitation. A study identified that some practitioners favor biobehavioral approaches with strong breathing/relaxation components whereas others prefer unstructured support, also the psycho education to maximize compliance for psychological intervention and cardiac rehabilitation.^{3,15}

A study done by Albusc in 2011, stepwise psychotherapy intervention for reducing risk in coronary artery disease (SPIRR-CAD) patients and high depression score high on HADS were randomized into the intervention or control group.¹⁰ Interventional group received three sessions of supportive individual psychotherapy and cognitive behavioral therapy. The control group received only one psycho social counseling session. There was decline in the depressive symptoms of patients receiving multiple sessions of psychotherapy.¹⁰

In CAD patients major depression prevalence is nearly 20% and minor depression prevalence is approximately 27%. Mortality independent risk factor of cardiac disease is depression and also its severity after AMI. A recent randomized clinical trial showed that the antidepressants sertraline hydrochloride improved recurrent depression in patients with acute MI and unstable angina.¹⁴ However, no clinical trial was observed for treating

depression with counseling or antidepressants after MI which reduces or improves cardiac events. The absence of social support is a risk factor for cardiac mortality and morbidity in patients with CHD.¹¹

Group interpersonal psychotherapy (IPT-G) for patients with major depressive disorders and those who responded to antidepressant during the treatment. Subjects were studied into two groups, therapy centered IPT-G while the other with standard treatment. Study design was double-blind and matched-control. All subjects were assessed five times during and finally 6 months after termination of IPT-G. There was a significant improvement in the depressive symptoms of IPT-G group subjects and those receiving standard treatment.¹²

A cross-sectional study conducted in preventive cardiology Lady Reading Hospital in 2015 studied effects of short term psychotherapy on depressed patients with after AMI. Depression in patients was assessed using scale Beck Depression Inventory (BDI) and categorized into mild, moderate and severe. Subjects were divided into two groups - therapy and non-therapy groups. Therapy group underwent psychotherapy while the non therapy group received routine care. There was significant improvement in depressive symptoms and BDI score after psychotherapy ($p=0.0001$) in the intervention group.¹³ However there was no improvement in symptoms of depression in control in non-therapy group. Hence psychotherapy is effective in treating the depression in CAD patients.

The results of our study show that psychotherapy is effective in reducing the symptoms of depression in CAD patients. A study comparing psychotherapy vs antidepressants plus psychotherapy would show if psychotherapy alone or in combination with medication would be more effective in such patients. In patients with poor tolerance of antidepressants, psychotherapy alone could be treatment of choice. Therefore, clinicians should explore the option of psychotherapy in depressed patients especially those who are not compliant to anti depressants due to side effects and poor tolerance. Every depressed CAD patient needs to be evaluated by a psychologist for diagnosis and

treatment options.

LIMITATIONS

Our study had limitations as it was a single center study and sample size was small. Therefore, a large and multi-centre study is needed to generalize the results of effectiveness of psychotherapy in depressed patients with CAD.

CONCLUSION

To conclude, psychotherapy was found to be effective treatment in reducing depression in CAD (coronary artery disease) patients.

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