Original Article

Post-traumatic Stress Disorder after Myocardial Infarction

Syed Muhammad Ahsan Mehdi, Humayyun Sukrat, Iftikhar Nadeem, Masood Gondal

Abstract

Introduction: Post-traumatic stress disorder (PTSD) is a severe anxiety disorder that can develop after exposure to any forms of traumatic events including myocardial infarction (MI). PTSD after MI may affect quality of life and cardiovascular outcome. The objective of this study is to determine the frequency of PTSD after MI. **Methods:** This is a cross sectional study. A convenient sample of 98 patients with a documented history of MI, visiting the outdoor departments of 4 tertiary care hospitals in Lahore (Sheikh Zaid hospital and Jinnah hospital) and Faisalabad (Allied Hospital and Faisalabad Institute of Cardiology) for follow ups, were evaluated for the development of Post-traumatic stress disorder using the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV), World Health Organization Quality of Life (WHOQOL)-BREF questionnaire and demographic questionnaire. Descriptive analysis of the data was carried out using the Statistical package for social services (SPSS) software version 17. **Results:** Out of 98 patients (59 males, 39 females) 8 (8.2%) patients (males 3 %, females 5%) were found to develop PTSD after MI. Patients with older age (above 50 years) had a higher frequency of PTSD (21%), as compared to middle aged (between 30 and 50 years)and young aged (below 30 years) patients (5% and 0% respectively). Illiterate patients developed PTSD (13.8%) while none of the literate patient developed PTSD. Frequency of PTSD in working and non-working patients was 4.5% and 11% respectively. The frequency in poor patients was 13.2%, in middle class was 2.8% whereas no patient falling in the rich socio economic class developed PTSD. Only patients with poor quality of life developed PTSD (13.8%). Patients who experienced silent MI did not develop PTSD while those with severe MI developed PTSD (18.6%). **Conclusion:** The study highlighted the development of PTSD after MI. The patients with female sex, old age, poor economic condition, poor quality of life, non-working status, low education and severe MI had a higher frequency of PTSD. These risk factors identified in the present study can be used to facilitate the detection of patients at risk for developing PTSD symptoms so they can later be offered psychological interventions as needed. **Key Word:** PTSD (Post traumatic stress disorder), MI (Myocardial Infarction)

INTRODUCTION

The development of psychological stress after the heart diseases has been one of the primary foci of psychological research for the last couple of decades [1]. Post-traumatic stress disorder (PTSD) is an anxiety disorder that develops as a result of a traumatic event. Studies carried out in the western countries have shown that PTSD can also develop after myocardial infarction (MI)[2]. However in developing countries the studies concerning the development of PTSD after MI are very few especially in Pakistan where to our knowledge, no study has been carried out to demonstrate the development of PTSD. Myocardial infarctions one of the most prevalent diseases in Pakistan. The estimated population of patients in Pakistan who are suffering with MI at a given time is 4359000[3]. PTSD if develops after MI can further deteriorate the heart condition consequently slowing the recovery process and hastening the progression of heart disease[4, 5]. Moreover the development of PTSD can also affect the quality of life of the individual[4, 8].

This background strongly suggests that studies concerning the development of PTSD after MI should be carried out in Pakistan.

OBJECTIVES

The objective of the study is to determine the frequency of PTSD developing after MI

MATERIALS AND METHODS

Study design: Cross sectional

Sampling technique: Convenient sampling

Sample size: 98

The sample size was calculated using the formula

$$ss = \frac{Z^2 * (p) * (1-p)}{c^2}$$

Where:

Z = Z value (e.g. 1.96 for 95% confidence level)
p = percentage picking a choice, expressed as decimal
c = confidence interval, expressed as decimal (here in this study it is taken to be ±10)

Correction for Finite Population

$$\text{new ss} = \frac{ss}{1 + \frac{ss-1}{pop}}$$

SETTING

Patients with a documented history of MI, visiting the outdoor departments of 4 tertiary care hospitals in Lahore (Sheikh Zaid hospital and Jinnah hospital) and Faisalabad (Allied Hospital and Faisalabad Institute of Cardiology) for follow ups during the time period of June to September 2010, were evaluated for the development of PTSD using the PTSD Check list Civilian Version for Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (PCL-M for DSM-IV)[18]. A face to face interview was also conducted using the World Health Organization Quality of Life (WHOQOL)-BREF questionnaire [19] and Demographic questionnaire[20]. The validity of these questionnaires has been checked by WHO. The questionnaires were translated in Urdu and this translation was valid by the Head of Psychiatry department Punjab Medical College Faisalabad. A total of 163 patients were included in the study of which however only 98 met the inclusion criteria.

INCLUSION CRITERIA

Only those patients were included in this study who suffered MI at least 3 months ago as PTSD takes about 3 months to fully express and show its symptoms [4]. Proper consent was taken from all of them.

EXCLUSION CRITERIA

Patient having history of psychiatric disorder, major traumatic event or any surgical operations were excluded the present study.

ETHICAL ISSUE

Head of the outdoor departments of aforementioned hospitals reviewed the research proposal and questionnaires and gave permission to conduct the interviews. Proper consent was taken from the patient and also from the attendant (if there were anyone). Consent forms in local language (i.e. Urdu) were also been signed by the patients or their attendants.

DATA ANALYSIS

Descriptive analysis using the Statistical package for social services (SPSS) software version 17 was being carried out.

RESULTS

Out of 98 patients (59 males, 39 females) 8 (8.2%) patients (males 3%, females 5%) were found to develop PTSD after MI.

Figure-1
Demographic characteristics and PTSD

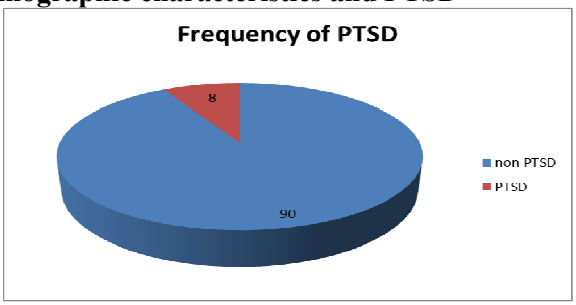

Table-1

Cross tabulation demographic variables * presence of PTSD

		Presence of PTSD				Total n=98
		PTSD		Non PTSD		
		Frequency	%	Frequency	%	Frequency
Gander	Male	3	5.084	56	94.91	59
	Female	5	14.71	34	87.17	39
Age	Young	0	0	9	100	9
	Middle	4	5.71	66	94.29	70
	Old	4	21.1	15	78.94	19
Education	Literate	0	0	40	100	40
	Illiterate	8	13.8	50	86.21	58
Scio economics status	Rich	0	0	10	100	10
	Middle class	1	2.85	34	97.14	35
	Poor	7	13.21	46	86.79	53
Work Status	Working	2	4.62	42	95.45	44
	Non-working	6	11.11	48	88.9	54

Table-2

Quality of life and PTSD:

Cross Tabulation Quality of life and Personal relations * presence of PTSD

		Presence of PTSD				Total n=98
		PTSD		Non PTSD		
		Frequency	%	Frequency	%	Frequency
Quality of life	Good	0	0	40	100	40
	Poor	8	13.8	50	86.21	58
Personal relations	Satisfactory	0	0	9	100	9
	unsatisfactory	4	5.71	66	94.29	70

Table-3

Severity of MI and PTSD

Cross tabulation Severity of MI * presence of PTSD

		Presence of PTSD				Total n=98
		PTSD		Non PTSD		
		Frequency	%	Frequency	%	Frequency
Severity of MI	Severe	8	18.6	35	81.4	43
	Silent	0	0	55	100	55

DISCUSSION

Our results highlighted that PTSD can develop after MI in developing countries like Pakistan. The frequency of PTSD while the frequency in past studies carried out in the western countries, varied between 0-38%[4].

Although both males and females were developing PTSD but frequency was higher in females. The higher frequency in females corresponds with the studies carried out in the western countries which indicates that females are more prone to develop anxiety disorders[9]. In the case of age groups patients were divided into three age groups commonly used in Pakistan. It is evident from the results that when we compare the presence of PTSD among the age groups then we find that old aged people had a higher frequency . Previous studies also show that old aged people had a higher frequency of PTSD [14]. However there has been no reason suggested as to why PTSD occurs with a higher frequency in old age.

While studying education's influence on developing PTSD, we divided patients into groups i.e. literate and illiterate according to the classification generally used in Pakistan to measure literacy rate. According to the classification those who can read Urdu and can write their names are deemed Literate while those who cannot do so are classified as illiterate. When we compare the frequency of PTSD among illiterate and literate people than we find that frequency was higher in the illiterates. The possible reason for this higher frequency in illiterates is the low intellectual level. They also have more unemployment issues and this adds a lot to their stress.

Severity of a traumatic event has been identified as the major risk factor for the development of PTSD in the past studies [4]. Our descriptive analysis also shows that patients with the severe (more painful MI) developed PTSD. Pain was being classified on the general perception of each patient as pain is subjective and varies from patient to patient. There were 55 patients with silent MIs (patients didn't feel any pain) but none developed PTSD. The severity was based on the pain the patient felt during the heart attack. Patients with silent MIs were interviewed after checking the history card.

While studying the economic status of the patients a general classification was being devised as in our country there is no survey or report carried out in the past that classified the individuals on the basis of their economic status. Patients with monthly income of 5000 PKR or less were classified as poor. Those earning about 10000 to 1 lac PKR were classified as middle class. Those earning more were classified as rich. Poor people developed PTSD with a higher frequency as compared to the middle and rich class. This raises an important question for the poor life style along with the hardships related to it as being an important risk factor for the development of PTSD after MI. To our knowledge this variable has

not been evaluated in the past studies. Non-working (jobless) had a higher frequency. Previous studies however hypothesize that being mentally free i.e. being in no tension relieves anxiety and ultimately prevents PTSD from developing upon exposure to a traumatic event[23]. Quality of life of patient was based on patients on perception about the quality of life before the MI. Results show that those with poor life quality had a higher frequency. Previous studies only regard PTSD as a factor that worsens the quality of life [9,4].

Unsatisfactory personal relations identified as another major risk factor in the past studies was also an important factor for a higher frequency of PTSD in our study as compared to those with satisfactory personal relations. The study is a descriptive analysis of the development of PTSD. The results cannot be generalized as the sampling technique was convenient and many other factors were not studied like the number of heart attacks and effects of treatments being received for MI. No tests of significance were applied as the study design is descriptive cross sectional. To explain and check the association of these factors as a risk factor for the development of PTSD an extensive research work should be carried out. Each and every factor mentioned in the study should be further studied in detail by dividing it into smaller sub groups and the association between different factors and the effect of that association on the development of PTSD should be analyzed. These future studies should be more systematic, using a prospective study design including follow ups and the sample size should be large.

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CONCLUSION

The frequency of PTSD following MI was 8.2%. Females developed PTSD with a higher frequency as compared to males. The frequency was also higher patients with old age, poor economic condition, poor quality of life, non-working status, low education and severe MI.

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