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Original Research Paper

STUDY ON PREVALANCE OF PTSD IN ACS

Medicine

KEYWORDS: Post Traumatic stress disorder, Acute Coronary Syndrome, Depression, Socio economical status

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ABSTRACT

Aim : To measure the Prevalence of Post Traumatic stress disorder in patients after acute coronary syndrome and to study the demographic and clinical factors associated with the development of PTSD in these patients.

Methods : Cross sectional observational study was conducted to study the prevalence of PTSD in patients with acute coronary syndrome. . Patients attending Medicine OPD or Special Clinics were selected and after explaining the study and taking informed written consent, detailed history and examination was done and patients were analyzed by a clinician administered PTSD scale CAPS based on the DSM-IV TR criteria for the diagnosis of PTSD after a time period of 3 month following acute coronary syndrome to exclude acute stress reaction developing after the acute coronary syndrome.

Summary : Out of total 100 subjects, 77 were male and 23 were female subjects. The minimum age of patients was 25 years and maximum being 80 years. Overall prevalence of PTSD (full/partial) was 23 % with 6 % subjects developing Full PTSD and 17 % developing partial PTSD. PTSD had higher frequency in subjects with higher socioeconomic status as compared to with lower socioeconomic status with significant association present between socio economic status and frequency of PTSD (0.05) Out of total 100 subjects 62 % subjects were smokers and frequency of PTSD was more in smokers but difference was not statistically significant.(0.20)

INTRODUCTION

Acute Coronary Syndrome (ACS) is one of the most common causes of morbidity and mortality in the world1.Of all the ethnic groups, people of Indian origin have one of the highest incidences of coronary artery disease (CAD) 2,3. In India the prevalence of coronary heart disease is 6.437% in urban and 2.527% in rural population1.

In recent decades, survival rates after acute coronary syndrome [ACS; ST-segment elevation myocardial infarction (STEMI), non–ST-segment elevation myocardial infarction (NSTEMI) or unstable angina (UA)] have steadily increased4,5.With increase in the survival rate after ACS the total number of patients developing post traumatic stress disorder after ACS is also likely to increase.

According to Diagnostic and Statistical Manual of Mental Disorders (Fourth Edition; DSM-IV)6Post traumatic stress disorder is an anxiety disorder initiated by exposure to an event in which he or she experienced, witnessed, or was confronted with actual or threatened death or serious injury or a threat to the physical integrity of self or others, and is characterized by symptoms such as re-experiencing the event (e.g., intrusive thoughts, nightmares), cognitive or behavioral avoidance of stimuli associated with the event, and physiological hyper arousal. It is associated with abnormal amygdala, prefrontal cortex, and hippocampal function as well as abnormal neuroendocrinological characteristics.

Some previous research done on the subject has shown that ACS-induced PTSD also escalates the patient's subsequent risk for recurrent cardiac events and mortality and is associated with poor quality of life9,10,11.

This study aims to ascertain the prevalence of PTSD in patients following an ACS in the Indian setting along with assessment of factors which are associated with development of PTSD. Identifying such patients will also help in management of these subjects.

AIMS AND OBJECTIVES

1. To measure the Prevalence of Post Traumatic stress disorder in patients after acute coronary syndrome.

2. To study the demographic and clinical factors associated with the development of PTSD in these patients.

MATERIALS AND METHODS

The study was conducted in Department of Medicine and Psychiatry at SNMC and MDM hospital.

Study design

Cross sectional observational study was conducted to study the prevalence of PTSD in patients with acute coronary syndrome.

Sample size

Hundred patients with Acute coronary syndrome were recruited. 50 patients age<60 years and 50 patients age>60 years.

Sampling

Patients who had acute coronary syndrome13 [ACS;ST-segment elevation myocardial infarction (STEMI), non–ST-segment elevation myocardial infarction (NSTEMI) or unstable angina (UA)] 3 to 6 months before evaluation. The diagnosis of myocardial infarction will be based on the European Society of Cardiology criteria 2012 for Universal definition of Myocardial Infarction14.

Inclusion criteria

Patient who had acute coronary syndrome 3 months to 6 months prior to evaluation.

Exclusion criteria

1. Patients having history of any event other than ACS fulfilling criteria A of DSM IV TR criteria were excluded.
2. Patients on treatment with antidepressant and antipsychotic drugs were excluded.
3. Patients who did not understood English / Hindi language.

Tools

The Protocol was cleared by institutional ethical committee. Patients attending Medicine OPD or Special Clinics were selected for the study and after explaining the study and taking informed written consent, detailed history (with special reference to know whether the patient was a diagnosed case of or on treatment for diabetes, hypertension) and examination was done and patients were analyzed by a clinician administered PTSD scale (CAPS)12 based on the DSM-IV TR criteria for the diagnosis of PTSD after a time period of 3 month following acute coronary syndrome to exclude acute stress reaction developing after the acute coronary syndrome. The questionnaire based on DSM-IV TR criteria or its Hindi adaptation was administered to the subject for diagnosis of PTSD.

Outcome Measure

Primary outcome: Prevalence of Post traumatic stress disorder in

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patients with acute coronary syndrome.

Secondary outcome: Association of Demographic and Clinical factors with PTSD in patients with ACS.

Statistical analysis

The prevalence of PTSD in patients with ACS 3 to 6 months after the acute event was reported as percentage.The association of various demographic and clinical factors with the development of PTSD was assessed on the basis of Chi square test and Fisher exact test and p value < 0.05 was taken as significant.

RESULTS

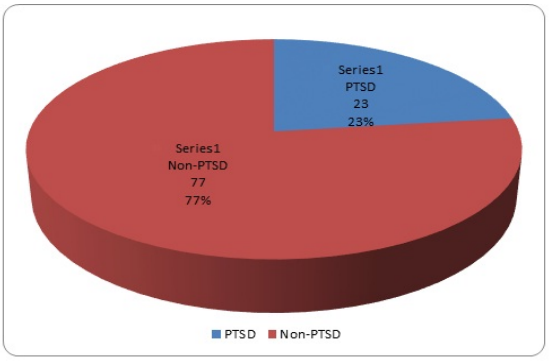
The study comprised of 100 subjects recruited from the Medical OPD and special Clinics of SNMC and MDM hospital and evaluated between 3-6 months after the first episode of acute coronary syndrome.

Out of the total 100 subjects, 77 were males and 23 were females.

The diagnosis of PTSD was made on the basis of DSM IV TR based CAPS questionnare.

Out of these 100 subjects 23 subjects (23%) developed symptoms of PTSD; 6 subjects (6%) developed full PTSD and 17 (17%) partial PTSD.

Figure 1 - Pie chart showing percentage of subject developing PTSD



Demographic profile

Gender

In our study of 100 subjects 77 subjects were male. Frequency of PTSD symptoms in male subjects was 27.27% with 21 male subjects devoloping symptoms of PTSD and 6 male subjects developing full PTSD. Among the female subjects frequency of partial PTSD was 8.69% while none of the female subjects developed full PTSD.

Table :1

Table 1:Showing frequency of PTSD according to gender

Gender	PTSD n = 23	Non-PTSD n = 77	Total n = 100	Frequency (%)	P value
Male	21	56	77	27.27%	.063
Female	2	21	23	8.69%	

Age

The miimum age of subject was 25 years and maximum age of 80 years.

Table 2

Table 2: Showing distribution of PTSD by age

Marital status	PTSD n = 23	Non-PTSD n = 77	Total n = 100	Frequency %	P
Unmarried	0	0	0	0	.727
Married	21	66	87	24.13	
Living alone	2	11	13	15.38	

Marital status

Subjects were divided into unmarried, married and single (death of spouse, divorced) . None of the subjects were unmarried and out of the 100 subjects 13 (13%) were living alone while 87 (87%) were married. Among the married subjects, 21 developed PTSD (24.13%) while 2 (15.38%) subjects who were living alone developed PTSD .

Table 3

Table 3: Showing distribution of PTSD in subjetcs with respect to marital status

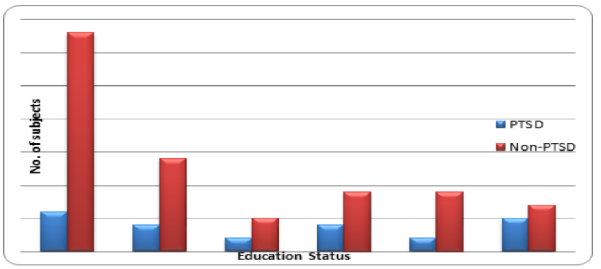
Age group	PTSD n = 23	Non- PTSD n = 77	Total n = 100	Frequency%	P value
<60	18	45	63	28.57%	.067
>60	5	32	37	13.51%	

Educational Status

Subjects were divided into 7 groups based upon educational status. 12 subjects had completed graduation / post graduation level education, 11 subjects had intermediate or post high school diploma, 13 subjects had education upto high school, 7 subjects had education upto middle schoool, 18 subjects had education upto primary school and 39 were illiterate.

Figure 2

Figure 2: Bar-diagram showing frequency distribution of subjects developing PTSD in relation to their educational status.

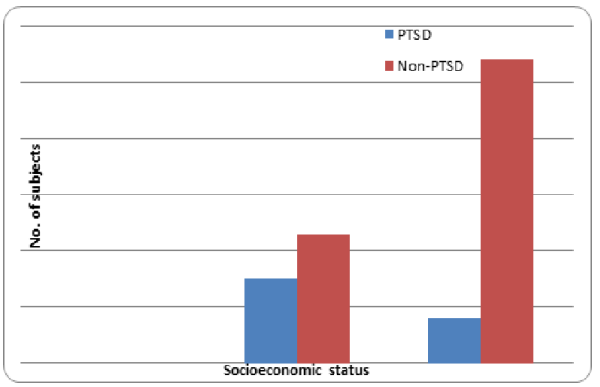


Socioeconomic status

Subjects were divided into three groups based on kuppuswamy scale. Out of 100 subjects 38 (38%) subjects were from middle socioeconomic status and rest were from lower socioeconomic status.

Figure 3

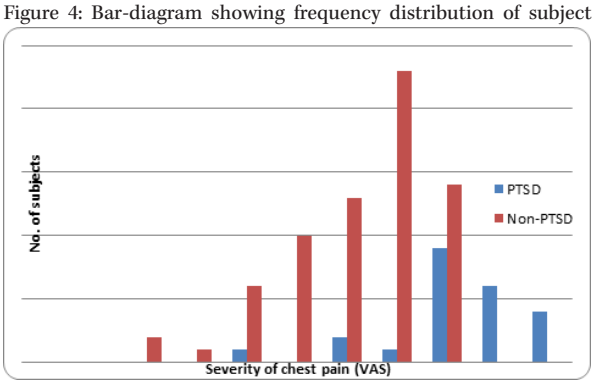
Figure 3: Bar diagram showing frequency distribution of subjects developing PTSD in relation with socioeconomic status.



Severity of chest pain

Patients were classified on the basis of severity of chest pain as per the visual analogue scale into various groups. A significant association was found between severity of chest pain and frequency of PTSD with more severe chest pain being associated with higher frequency of PTSD. The mean of pain in patients developing PTSD was 7.913 and in those not developing PTSD was 6.15 with significant association present between severity of chest pain and devlopment of PTSD.

Figure 4
Figure 4: Bar-diagram showing frequency distribution of subject



DISCUSSION

Aim of our study was to measure the Prevalence of Post Traumatic stress disorder in patients 3-6 months after acute coronary syndrome and to study the demographic and clinical factors associated with the development of PTSD in these patients. Our study consisted of 100 patients evaluated between 3 to 6 months after the first episode of acute coronary syndrome.

Previous studies done for evaluation of PTSD in patients with acute coronary syndrome suggested a prevalence ranging from 0 to 25% in various studies13, 14proto.Roberge et al reported 4% of the patients had PTSD and 12% had partial PTSD, the perception of a threat to life, the intensity of acute stress disorder and symptoms of depression several days after the MI, a history of referral to a psychologist or psychiatrist, and female sex were risk factors for the intensity of PTSD16.In the meta analytic review conducted by Edmondson et al overall prevalence of ACS-induced PTSD was 12%17. Study of PTSD in these patients in particularly important in view of findings in some studies suggesting role of PTSD in increased prevalence of metabolic syndrome, increased alcohol consumption and smoking,non-adherence to drugs, decreased utilization of medical facilities and overall adverse clinical outcome18, 19-21.

In our study 23 subjects (23%) developed PTSD following ACS, 6 subjects (6%) developed full PTSD and 17 (17%) patients developed partial PTSD; that is, they had at least one symptom of re-experiencing the ACS (criteria B), avoidance or blunting of general reactivity (criteria C) and autonomic hyperactivity (criteria D) in addition to having perceived a threat to their life and having felt fear, helplessness or horror during the ACS (criteria A). All the patients who fulfilled criteria A also had re experiencing the event in the form of intrusive recollection, dreams, hallucinations, psychological distress or physiological reactivity on exposure to cues resembling the event. 15% subjects developed symptoms of avoidance and 13% subjects developed symptoms of autonomic hyperactivity while 12%had significant distress and impairment in occupational and social functioning.

Demographic factors

Both male and female subjects developed partial PTSD but only the male subjects developed full PTSD. The frequency of PTSD was higher in male subjects as compared to female subjects which are in contrast with the studies done in western countries in which frequency was more in female patients16.

Subjects were divided into two age groups in order to study the association of age with PTSD and it was found that the prevalence was higher in the subjects in the age group of less than 60 years; this is consistent with the findings in the studies done in the western countries but in contrast to the only one study we could find from the developing nations in which the prevalence of PTSD was more in the old age groups as compared to younger subjects.

No statistically significant difference was found in prevalence of PTSD in patients who were living alone (spouse dead or unmarried) as compared to patients who were married. In the studies done in western countries "living alone" was considered as a risk factor for the development of PTSD but due to differences in the structure of families in developed and developing countries the subjects whose spouse had died were not living alone which might explain the absence of increased frequency of PTSD in those subjects. The frequency was more in married subjects as compared to other subjects but not to a statistically significant degree.

Frequency of PTSD was highest in subjects with higher education status as compared to subjects with lower education status and was lowest in illiterate patients possibly because one hypothesis suggesting PTSD as a fashionable disease arising out of socio-political ideas14, 15.

These results of higher frequency in middle socioeconomic status who showed higher prevalence than patients of lower socioeconomic status as assessed by Kuppuswamy scale and the association was statistically significant (<0.05).

Clinical Factors

The severity of the traumatic event and persistence of reminder of traumatic events are associated with increased prevalence of PTSD. In our study severity of traumatic event (i.e. the chest pain) was assessed on a visual analogue scale for pain and it was seen that those patients who had severe chest pain were more likely to develop PTSD. We also found a statistically significant relationship between the severity of chest pain and development of PTSD.

SUMMARY AND CONCLUSION

The stuy was conducted in Department of Medicine and Psychiatry, SNMC and MDM hospital. It was an observational study done to assess the prevalence of PTSD in patients with ACS and the demographic and clinical factors associated with the development of PTSD in such patients.

Hundred subjects were recruited in the study 3 – 6 months after their first episode of ACS from Medical OPDs and Special Clinics, who fulfilled the inclusion and exclusion criteria for the study.

After explaining the study to the subjects and obtaining written and informed consent, subjects were evaluated for PTSD with CAPS questionnaire or its Hindi version based upon the DSM IV TR for diagnosis of PTSD along with detailed history and clinical examination and data was recorded in case record form. This data was subjected to statistical analysis.

Out of total 100 subjects, 77 were male and 23 were female subjects. The minimum age of patients was 25 years and maximum being 80 years.

Overall prevalence of PTSD (full/partial) was 23% with 6% subjects developing Full PTSD and 17% developing partial PTSD. Avoidance and numbing was the most common symptom of PTSD in our study with 15% subjects developing symptoms of avoiding the event in one way or the other, 11% subjects developed symptoms of intrusive recollection and 13% had symptoms of autonomic hyperactivity and hyperarousal while 12% had significant distress and impairment in occupational and social functioning.

Male gender was associated with increased frequency of PTSD and none of the female subjects developed full PTSD but the difference in frequency was statistically non - significant. (p = .063).

Younger age was associated with increased frequency of PTSD as compared to older age group and but difference was statistically non significant. (p = 0.067).

Male gender was associated with increased frequency of PTSD and none of the female subjects developed full PTSD but the difference in frequency was statistically non - significant. (p = .063).
Younger age was associated with increased frequency of PTSD as compared to older age group and but difference was statistically non significant. (p = 0.067).

No significant difference was present in the frequency of PTSD in subjects who were married and the other group. (p = 0.727).

PTSD developed more frequently in subjects with lower education status as compared to subjects with higher education status but the difference in frequencies was not statistically significant. (p = 0.663).

PTSD had higher frequency in subjects with higher socioeconomic status as compared to with lower socioeconomic status with significant association present between socio economic status and frequency of PTSD. (0.05).

Significant association was present between severity of chest pain and frequency of PTSD, with subjects perceiving more severe chest pain having higher frequency of PTSD. (p = 0.001).

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