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Research Article

Post traumatic stress and anxiety in patients with acute coronary syndrome

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ABSTRACT

Background: Acute coronary syndrome (ACS) is one of the diseases in which psychiatric complications develop, with initiation of treatment, and having cardiac, patient-specific behavioral problems. The aim of this study was to investigate symptoms of posttraumatic stress disorder (PTSD) and anxiety in patients that experience ACS. The relationship between PTSD symptoms and anxiety and the relationship between these psychological conditions and certain personal characteristics were reviewed.
Methods: In this study, which was prospective and descriptive, 215 patients who experienced ACS were evaluated in the first month after ACS. The data in the research was collected using the Patient Identification Form, Posttraumatic Stress Disorder Symptoms Scale Self-Report (PSS-SR) and Spielberg State-Trait Anxiety Inventory (STAI-T).
Results: 70.2% of the patients were male and 31.2% were retired. The PSS-SR mean score was 28.40 ± 10.42 and the mean STAI-T score was 57.65 ± 12:37. Between the STAI and PSS-SR there was a statistically significant positive correlation. In women, workers, grade 1 obese patients, those using alcohol, and those with chronic disease the average PSS-SR scores were significantly higher. Housewives, illiterate individuals and 1st degree obese patients had a higher average score of anxiety, as well as patients with chronic diseases and higher alcohol use.

Keywords: Posttraumatic Stress Disorder, Anxiety, Acute Coronary Syndrome

INTRODUCTION

Acute coronary syndrome (ACS) leads to hospitalization, loss of work, and increased morbidity and mortality, so it is one of the most important health problems in today's society.[1] Worldwide, ACS constitutes the cause of hospitalization for about 7 million people annually and about 1.5 million in the United States annually.[2,3]. According to the Report on Heart Diseases and Risk Factors in Turkish Adults (RHDRFTA), a study in 2009, the prevalence of coronary arterial disease (CAD) is 6% in the 45-54 age group and 7% in the 55-64 age group in our country, and increases to 28% in individuals aged 65 years and older.[4]

ACS is one of the diseases in which psychiatric complications develop, mostly due to rapid, sudden changes that can be seen in the physical and psychological condition of patients, with initiation of treatment, and having cardiac, patient-specific behavioral problems.[5,6,7] In ACS, which is described as irreversible myocardial damage and necrosis developing due to severe and prolonged ischemia, serious emotional distress occurs in the acute phase. Fear of death is its basis. In these patients, the greatest source of anxiety is fear of death.[7] After ACS, individuals enter into an extremely stressful period.[8]

Posttraumatic stress disorder (PTSD) is a disorder in which a traumatic sudden and uncontrollable event is re-experienced in a way with intense fear, helplessness and sense of horror and with avoidance of trauma stimuli. If this lasts for more than four weeks, a PTSD diagnosis is made.[9] ACS has a traumatic effect on patients and may cause many psychological problems. Patients having ACS experience psychosocial problems such as fear, anxiety, depression, delirium, anxiety, sleep disorders, treatment refusal, aggressive outbursts, denial, adjustment disorder, panic state, psychosis and PTSD.[8]

With nursing interventions implemented in counselling and cardiac rehabilitation programs for ACS, the patient is supported, interpersonal relationships are developed, emotional-physical symptoms are reduced, physiological, psychological and social maladjustment are organized and the quality of life is enhanced.[10,11] Nurses have responsibilities such as maintaining the quality of life, and development and improvement of patient physical and psychological conditions. While fulfilling these responsibilities, first of all, the quality of life and factors affecting it should be emphasized.

For better planning of patient care, knowledge of symptoms of post-traumatic stress and anxiety in acute coronary syndrome patients would be helpful. In this study, we aimed to investigate the relationship between PTSD symptoms and anxiety and the symptoms of anxiety and PTSD in patients experiencing ACS. We think that after ACS, PTSD symptoms and interventions for anxiety will affect patients' adherence to treatment and their quality of life in a positive way.

METHODS

Study type

This study was a prospective and descriptive study.

The population and sample of the study

The population consisted of all patients that experienced ACS who were hospitalized in the cardiology service of the university hospital in 2014. In the sample selection, power analysis was used, which was a method that would guarantee the reliability, precision and validity of the study results. In the power analysis, the sample size was determined as n=215 persons. Data was collected by reaching the patients one month later (when they came for a check-up or by telephone), who experienced ACS and were hospitalized in the cardiology service. Criteria for including patients in the study were:

1. Patients experienced myocardial infarction at least one month ago,
2. Patients experienced unstable angina pectoris at least one month ago,
3. Patients were 18 years old or older,
4. Patients had no communication problem and were capable of answering all the questions,
5. Patients accepted the interview and could speak Turkish.

Data collection tools

Research Data: The data in the research was collected using the Patient Identification Form, Posttraumatic Stress Disorder Symptoms Scale - Self-Report (PSS-SR) and the Spielberg State-Trait Anxiety Inventory (STAI-T). In the patient identification form were included: personal characteristics (gender, age, height, weight, education status, marital status) and disease-related characteristics in the query phase (clinical diagnosis, smoking status, alcohol use, whether an additional chronic disease was present or not, blood pressure, BMI, fasting blood glucose, triglycerides, LDL, HDL, total cholesterol values, complications after acute coronary syndrome).

Posttraumatic Stress Disorder Symptoms Scale - Self-Report (PSS-SR): Posttraumatic Diagnostic Scale - PDS is a self-report scale consisting of 49 points, developed for use in clinical and other research environments in order to measure the severity of PTSD symptoms related to a traumatic event. It was developed by Foa et al.[12] The scale's Turkish adaptation, validation and reliability was established by Aydın et al.[13] The time period used in the scale can be adjusted for different uses. The scale can be applied to individuals in the 18-65 age group. The original scale consists of four sections. The first section aims to determine the type of traumatic event (natural disaster, accident, war, rape etc.). In the second section, respondents are asked to describe their most upsetting traumatic event. In this section, there are also 6 questions that are answered as yes or no in order to determine the severity of the traumatic event. In the third section, there is a sub-scale that evaluates the symptoms of posttraumatic disorder (PSS-SR), consisting of 17 points. PSS-SR is a self-report scale. Post Traumatic Stress Disorder is assessed according to DSM-IV diagnostic criteria: B (relive), C (avoidance) and D (hyperarousal). It is a Likert-type scale scored between 0-3. Total range of the scale is 0-51. Individuals with high scores were negatively affected by events and this indicates that they show signs of post-traumatic stress. In the fourth section of the scale, there are 9 questions answered as yes or no in order to determine the traumatic event's impact on the functionality of the person. If a person mostly says "yes", it shows that he/she is affected negatively by the event in various areas of life. We have used the third and fourth sections of the scale in our study.[12,13]

Spielberger State-Trait Anxiety Inventory (STAI T): Spielberger et al.[14] developed an inventory in 1970, and its Turkish adaptation, with validation and reliability was carried out by Öner and Le Compte[15] in 1983. The

inventory consists of two sub-scales with 20 expressions that measure state and trait anxiety. Sub-trait Anxiety Inventory (STAI-T) evaluates how the individual feels. Emotions and behaviours expressed in the points of the Trait Anxiety Subscale according to frequency are: 1- never, 2- sometimes, 3- many times and 4- almost always. High scores obtained from the scale show that the anxiety level is high. In the scale, the anxiety scores are: 20-39 low, 40-59 moderate, and 60-80 high.[14,15]

Data analysis

The data was evaluated with the statistical program SPSS 21.0 (SPSS Inc., Chicago, IL, USA). Methods of analysis used were: percentage, mean, One Way Anova, regression analysis, Independent-samples t-test and Pearson correlation analysis. In comparisons, values that were $p<0.05$ were considered statistically significant.

Ethical aspect of the study

As well as the scientific principles in the research, the ethical principles of the Declaration of Helsinki were also applied. In this line of research, informed consent, autonomy, privacy, and confidentiality protection, equity, and not harming / usefulness principles were considered. In order to conduct the study, the written permission and approval of the Ethics Committee were received (26.05.2014-181). Before using the questionnaires with patients that would participate in the research, the aim of the study, plans and benefits were explained.

RESULTS

Socio-demographic and clinical characteristics of patients included in this study are shown in Table 1.

The patients' PSS-SR mean total score, average scores of the subscales and anxiety levels are shown in Table 2.

Table 1: Socio-demographic and clinical characteristics of patients (n:215).

Characteristics	n	%	Characteristics	n	%
Gender			Additional Chronic Disease		
Female	64	29.8	Yes	173	80.5
Male	151	70.2	No	42	19.5
Marital Status			Smoking		
Married	193	89.8	Yes	81	37.7
Single	7	7.9	No	134	62.3
Widow	5	2.3			
Occupation			Alcohol		
Housewife	62	28.8	Yes	23	10.7
Employee	22	10.2	No	192	89.3
Retired	67	31.2	HT		
Officer	4	1.9	Yes	93	43.3
Freelance	54	25.1	No	122	56.7
Other	6	2.8			
Education Level			BKİ (kg/m2)		
Illiterate	65	30.2	<18.5	2	0.9
Literate	43	20.0	18.5-24.9	87	40.5
Primary education	46	21.4	25-29.9	106	49.3
Secondary Education	55	25.6	30-34.9	16	7.4
Higher Education	6	2.8	35-39.9	4	1.9
			>40	0	0
Age (year)	61.47±12.98		DM		
			Yes	100	46.5
			No	115	53.5
AKŞ (mg/dl)	175.14±90.44		Total cholesterol (mg/dl)	186.35±71.29	
Triglycerides (mg/dl)	198.28±101.62		Systolic TA (mmHg)	120.27±19.17	
LDL (mg/dl)	108.15±37.36		Diastolic TA mmHg)	71.46±11.51	
HDL (mg/dl)	37.71±12.23				

HT; hypertension, diabetes mellitus, diabetes mellitus, fasting glucose; fasting blood glucose, BMI; body mass index, LDL; low-density lipoprotein, HDL; High Density Lipoprotein, TA; blood pressure. Continuous variables are presented as mean±standard deviation, categorical variables are presented as number (percentage).

Table 2: The patients' PSS-SR and STAI-T mean scores (n: 215).

	Mean±Sd
PSS-SR	28.40±10.42
Relive	9.64±3.74
Avoidance	9.31±4.83
Overstimulation	9.46±3.57
Functionality	4.44±2.67
ANXIETY	57.65±12.37

PSS-SR; Posttraumatic Stress Disorder Symptoms Scale - Self-Report

It was determined that the anxiety level of the patients was predicted in a positive way by PTSD. In other words, the anxiety level was found to be dependent on the level of stress disorder symptoms in 42% of patients after trauma (Table 3).

PTSD symptoms were measured with the anxiety correlation analysis scale and all the relationships of the criteria were mutually statistically significant, showing a positive effect ($p \leq 0.01$) (Table 4).

PTSD symptoms and anxiety levels were assessed according to the characteristics of the patients. It was found that gender, occupation, BMI, presence of alcohol and additional chronic diseases affected the level of PTSD and anxiety ($p \leq 0.01$) (Table 5). In women, in workers, in grade 1 obese patients, in those with use of alcohol as well as those with chronic diseases PSS-SR average scores were significantly higher. Housewives, illiterate individuals and 1st degree obese patients had higher average scores of anxiety as well as those with chronic disease and higher alcohol use ($p \leq 0.01$) (Table 5).

Table 3: Regression analysis results conducted for the dependent variable PSS-SR of anxiety.

	Anxiety						
	B	**SD**	**Beta**	**t**	**R**	**R^2**	**p**
PSS-SR	0.772	0.06	0.64	12.37	0.64	0.42	0.000
Relive	1.91	0.18	0.58	10.42	0.58	0.33	0.000
Avoidance	1.08	0.15	0.42	6.85	0.42	0.18	0.000
Overstimulation	2.40	0.17	0.69	14.09	0.69	0.48	0.000
Functionality	2.86	0.24	0.62	11.54	0.62	0.38	0.000

PSS-SR; Posttraumatic Stress Disorder Symptoms Scale - Self-Report

Table 4: The relationship between the total score of PSS-SR, sub-dimensions and anxiety level (correlation analysis ''r'' values).

	PSS-SR	Relive	Avoidance	Over stimulation	Functionality	Anxiety
PSS-SR		0.841**	0.849**	0.905**	0.616**	0.648**
Relive			0.452**	0.767**	0.523**	0.581**
Avoidance				0.599**	0.478**	0.425**
Over stimulation					0.594**	0.695**
Functionality						
Anxiety						

PSS-SR; Posttraumatic Stress Disorder Symptoms Scale - Self-Report

**p<0.01

Table 5: PSS-SR total score, subscale scores and anxiety mean scores according to the characteristics of the patients.

Characteristics	PSS-SR	Relive	Avoidance	Over stimulation	Functionality	Anxiety
Gender	31.48±8.85	10.71±3.51	9.85±4.57	10.90±3.01	4.51±2.68	64.31±12.13
Female	27.08±10.79	9.19±3.76	9.08±4.93	8.85±3.62	4.41±2.68	54.83±11.38
Male	t:2.28 **p:0.00**	t:2.77 **p:0.00**	t:1.07 p:0.28	t:3.98 **p:0.00**	t:0.26 p:0.79	t:5.47 **p:0.00**

Marital Status	28.56±10.35	9.73±3.67	9.39±4.90	9.54±3.58	4.50±2.64	57.78±12.65
Married	28.88±9.13	10.29±3.70	9.23±3.38	9.35±3.01	4.47±3.00	59.17±9.16
Single	20.80±16.34	7.80±6.49	6.40±6.34	6.60±4.33	1.80±1.78	47.40±5.54
Widow	F:1.37	F:0.86	F:0.93	F:1.67	F:2.52	F:1.87
	p:0.25	p:0.42	p:0.39	p:0.18	p:0.08	p:0.15
Occupation	31.72±8.89	10.67±3.56	10.04±4.52			64.93±11.80
Housewife	33.18±8.81	11.63±2.66	10.81±4.81	11.00±3.01	4.50±2.72	58.27±12.00
Employee	24.66±11.28	8.89±4.27	7.53±5.14	10.72±3.08	5.90±2.52	50.35±9.70
Retired	30.00±0.00	10.00±0.00	10.00±0.00	8.40±3.65	2.92±2.12	50.00±0.00
Officer	26.83±10.16	8.77±3.36	9.79±4.39	10.00±0.00	7.00±0.00	58.37±11.44
Freelance	30.33±11.87	7.66±2.06	11.33±5.68	8.25±3.51	5.25±2.60	60.33±13.42
Other	F:4.50	F:3.88	F:2.98	11.33±4.13	6.33±1.03	F:11.70
	p:0.00	**p:0.00**	**p:0.01**	F:6.28 **p:0.00**	F:9.53 **p:0.00**	**p:0.00**
Education Level						
Illiterate	29.93±8.86	10.35±3.40	8.84±4.52			61.93±13.31
Literate	26.70±8.46	9.06±3.00	9.00±4.50	10.73±3.17	4.15±2.64	52.53±11.21
Primary education	28.45±12.76	9.50±4.54	10.10±6.04	8.81±3.09	4.06±2.56	55.95±11.95
Secondary education	27.61±11.78	9.34±4.07	9.45±4.60	8.84±3.64	3.82±2.58	58.20±11.20
Higher Education	30.33±0.51	10.00±0.00	9.33±1.03	8.81±4.07	5.34±2.74	56.00±9.29
	F:0.74	F:0.95	F:0.51	11.00±1.54	6.66±0.51	F:4.13
	p:0.56	p:0.43	p:0.72	F:3.64 **p:0.00**	F:3.78 **p:0.00**	**p:0.00**
BKİ (kg/m2)						
<18.5	14.00±0.00	6.00±0.00	5.00±0.00	3.00±0.00	2.00±0.00	44.00±0.00
18.5-24.9	30.54±11.43	10.70±4.01	9.41±4.95	10.42±3.59	5.45±2.60	59.10±10.79
25-29.9	26.83±8.80	8.63±3.13	9.41±4.73	8.79±3.09	3.49±2.50	55.32±12.62
30-34.9	31.00±12.67	11.00±3.86	10.50±4.03	9.50±4.87	6.00±1.03	66.75±13.09
35-39.9	21.50±7.50	10.00±5.77	2.00±2.30	9.50±4.04	2.50±2.88	58.50±17.89
>40	F:3.26	F:5.02	F:3.06	F:4.40	F:10.29	F:4.26
	p:0.01	**p:0.00**	**p:0.01**	**p:0.00**	**p:0.00**	**p:0.00**
Smoking	27.92±9.37	9.39±3.21	9.38±4.52	9.14±3.20	5.04±2.52	57.79±10.58
Yes	28.70±11.04	9.79±4.03	9.27±5.03	9.65±3.77	4.07±2.71	57.57±13.37
No	t:-0.52	t:-0.76	t:0.15	t:-1.01	t:2.61	t:0.12
	p:0.59	p:0.44	p:0.87	p:0.31	**p:0.00**	p:0.90
Alcohol	34.43±5.75	11.26±2.45	12.65±4.31			61.78±11.57
Yes	27.67±10.63	9.45±3.83	8.91±4.74	10.52±1.90	5.65±2.56	57.16±12.40
No	t:2.98	t:2.20	t:3.59	9.33±3.70	4.29±2.66	t:1.70
	p:0.00	**p:0.02**	**p:0.00**	t:1.50 p:0.13	t:2.31	p:0.09
					p:0.02	
Additional Chronic Disease	32.38±8.85	11.51±3.91	11.78±3.57			66.45±11.14
Yes	28.88±10.79	10.15±3.53	9.18±4.54	10.55±3.22	5.51±2.34	55.86±10.34
No	t:3.28	t:1.67	t:1.07	8.89±3.42	4.31±2.87	t:5.25
	p:0.00	p:0.32	**p:0.00**	t:3.58 **p:0.00**	t:2.26 **p:0.01**	**p:0.00**

DISCUSSION

ACS development of psychological factors and its contribution to prognosis are continually becoming more pronounced.[16] In the study of INTERHEART, the patients that experienced acute myocardial infarction (AMI) for the first time were compared to healthy controls. Patients from 52 countries participated in this research and general stress experienced at home and at work, financial stress, acute stress experienced in the last one year and depression parameters were reviewed and patients that experienced psychosocial risk with AMI were reviewed.[17]

In our study, the Spielberger State-Trait Anxiety Inventory's mean score was 57.65±12.37. In the

inventory, a 40-59 score indicated moderate anxiety symptoms and a 60-80 score indicated high anxiety symptoms. It can be said that our patients showed a significant level of anxiety symptoms. In the study of Özcanlı and Çınar,[18] 51.2% of patients with ACS had anxiety. In the study conducted by Canlı Özer et al.[19] all patients within the research showed 100% anxiety (severe anxiety). In the study conducted with AMI patients, patients showed low anxiety levels.[20] In the study of Semiz et al.,[21] 26% of the patients with AMI have anxiety disorder.

In the study of Aydın et al.,[13] the mean scale scores obtained from PSS-SR of university students that had no PTSD were: relive 5.50±3.19, avoidance 7.63±4.67, hyperarousal 6.12±3.57, and deterioration in function 2.67±3.54. The total PTSD scale was 19.25±9.80. In our study, these mean scale scores were significantly higher as expected in ACS patients (relive 9.64±3.74, avoidance 9.31±4.83, hyperarousal 9.46±3.57, deterioration in function 2.67±4.44, and total PTSD scale of 28.40±10.42. In the study of Guler et al.,[22] 10.2% of the patients with ACS had PTSD symptoms. In a review made from studies examining patients with ACS, PTSD symptoms in patients were common and patients who had PTSD symptoms had higher cardiac complications.[23] In another study, after MI, approximately 16% of the patients had a PTSD diagnosis according to DSM-IV diagnosis criteria and 18% of the patients had PTSD symptoms.[24] In a study conducted with 241 patients hospitalized due to ACS, 17.8% of the patients had PTSD symptoms.[25] In a meta-analysis made by Edmondson et al.,[23] the incidence of PTSD of the patients after ACS was found to be between 0% and 32%. Our findings are consistent with earlier publications and support that patients who experienced MI had PTSD symptoms. In the study of Semiz et al.,[21] among the patients that experienced AMI, 24% might have had PTSD. In the study of Oflaz et al.,[26] 11.9% of the patients after myocardial infarction had PTSD and a "concern", which is a perception of the illness factor, was found to be decisive in the development of PTSD.

CONCLUSIONS

In conclusion, the patients who experienced ACS had PTSD and anxiety symptoms. The findings of this study were that ACS leads to anxiety and PTSD symptoms in patients, and ACS and PTSD had a positive relationship that increased the effects on each other. In patients who experience ACS, anxiety findings and PTSD symptoms should be considered.

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