D J Med Sci 2021;7(3):276-279
doi: 10.5606/fng.btd.2021.25072

Original Article

Comparison of anxiety and depression scores between patients with and without ST-segment elevation acute coronary syndrome

Mert Palabıyık[1], Ümit Yaşar Sinan[2], Özge Çetinarslan[1], Veysel Oktay[2], Alev Arat Özkan[3]

[1]*Department of Cardiology, Demiroglu Bilim University, Faculty of Medicine, Istanbul, Turkey*
[2]*Department of Cardiology, Istanbul University-Cerrahpaşa Institute of Cardiology, Istanbul, Turkey*
[3]*Department of Cardiology, Koç University Hospital, Istanbul, Turkey*

ABSTRACT

Objectives: We aimed to investigate the difference between anxiety and depression status among ST-segment elevation acute coronary syndrome (STE-ACS) and non-ST-segment elevation ACS (NSTE-ACS) patients.

Patients and methods: This study is a cross-sectional study that included 165 patients (132 males, 33 females; mean age: 59.3±10.5 years; range, 48 to 71 years) who were hospitalized with a final diagnosis of ACS (both NSTE-ACS and STE-ACS) between January 2019 and April 2019. The Hospital Anxiety and Depression Scale (HADS) was used to measure the patients' anxiety and depression status.

Results: According to current European Society of Cardiology (ESC) guidelines, 91 (55.2%) patients were classified as NSTE-ACS and 74 (44.8%) patients as STE-ACS. According to the HADS scores, 33 (20%) of the total study population had anxiety diagnoses, and 28 (17%) of them had depression . While the mean depression score was 4.8±4.9 for NSTE-ACS patients, it was 4.6±4.3 for STE-ACS patients (p=0.723). The mean anxiety score was 6.1±5.1 for NSTE-ACS patients and 5.6±4.5 for STE-ACS patients (p=0.546), which was similar between the two groups.

Conclusion: Although NSTE-ACS and STE-ACS are two different entities of ACS spectrum, patients hospitalized with these diagnoses have similar anxiety and depression scores.

Keywords: Acute coronary syndrome, anxiety, depression, HAD score.

Several studies have been conducted in recent decades that show a relationship between depression and coronary artery disease (CAD). Some of these studies revealed that anxiety and depression are associated with a higher risk of CAD.[1] On the other hand, some of the studies showed that having CAD is associated with an increased risk of developing depression.[1,2]

In the Global Burden of Disease Study by Murray and Lopez,[2] first two leading causes of disability-adjusted life years (DALYs) in the 1990-2020 period were predicted to be ischemic heart disease and unipolar major depression. A meta-analysis of 12 prospective studies of at least six months duration in patients who had had a myocardial infarction found that anxiety was associated not only with new cardiac events but also with an increased risk for cardiac death.[3] Another meta-analysis included 28 study, 11 of which were assessed as high quality, and reported that depression was an independent predictor of cardiovascular disease (CVD).[4] Defining depressed and anxious patients who are at an increased risk of having a cardiovascular event can help to enhance potential therapies for improving cardiovascular outcomes in patients with CVD.

Swenson et al.[5] investigated the relationship between antidepressant therapy and acute coronary syndrome (ACS). They demonstrated that sertraline treatment after acute coronary syndrome was effective in preventing recurrent depression.

Received: December 27, 2021
Accepted: January 05, 2022
Published online: January 28, 2022

Correspondence: Mert Palabıyık, MD.
e-mail: mert.palabiyik@yahoo.com

Cite this article as:
Palabıyık M, Sinan ÜY, Çetinarslan Ö, Oktay V, Arat Özkan A. Comparison of anxiety and depression scores between patients with and without ST-segment elevation acute coronary syndrome. D J Med Sci 2021;7(3):276-279.

While some studies have raised concerns about depression and anxiety levels in patients with stable coronary heart disease or acute myocardial infarction, the magnitude of depression and anxiety levels in patients with and/or without ST-segment elevation acute coronary syndrome (STE-ACS and NSTE-ACS) is not well established. We aimed to investigate the difference between anxiety and depression status among STE-ACS and NSTE-ACS patients.

PATIENTS AND METHODS

This cross-sectional, observational study included 165 consecutive patients (132 males, 33 females; mean age 59.3±10.5 years; range 48 to 71 years) who were hospitalized with a final diagnosis of ACS (both NSTE-ACS and STE-ACS) between January 2015 and April 2015. The term acute myocardial infarction was used when there was evidence of myocardial injury (elevation of cardiac troponin levels with at least one value above the 99th percentile upper reference limit) with necrosis in a clinical setting consistent with myocardial ischemia. Patients with persistent chest discomfort or other symptoms suggestive of ischemia and ST-segment elevation at least two contiguous leads were classified as STE-ACS, while patients without ST-segment elevation at presentation were classified as NSTE-ACS according to current European Society of Cardiology (ESC) guideline.[6] The inclusion criteria were as follows: *(i)* a diagnosis of ACS by a cardiologist, *(ii)* being within the first 12 hours of the ACS event, and *(iii)* angiographic evidence of at least 50% stenosis in at least one coronary vessel. Patients who had previously been diagnosed with an anxiety disorder or depression, and those who refused to participate in the study, were excluded.

The Hospital Anxiety and Depression Scale (HADS) was used to measure the patients' anxiety and depression status.[7] It was described by Zigmond and Snaith[7] in 1983. It is used to identify anxiety and depression symptoms in patients who have serious physical health problems and have been admitted to the hospital for non-psychiatric reasons. The score ranges from 0 to 3 for 14 multiple-choice items. Seven of them are related to anxiety (HAD-A), while the remaining seven are related to depression (HAD-D). A total score of seven was found to be the cut-off for the depression subscale and 10 for the anxiety subscale. Aydemir et al.[8] revealed the reliability and validity of the HADS scores in a medically ill Turkish population. A written informed consent was obtained from each patient. The study protocol was approved by the Cerrahpasa Faculty of Medicine Ethics Committee (date/no: 1 December 2014/3283). The study was conducted in accordance with the principles of the Declaration of Helsinki.

Statistical analysis

Statistical analysis was performed using IBM SPSS Statistics version 21.0 software (IBM Corp., Armonk, NY, USA). All data were expressed as mean ± SD or median (minimum-maximum) for continuous variables and as a percentage for categorical variables. The Kolmogorov-Smirnov test was used to identify distribution of variables normally. Student's t-test or Mann-Whitney U test was used to compare continuous variables, and chi-square test was used to compare categorical data. A p-value of <0.05 was considered to be statistically significant.

RESULTS

According to current ESC guidelines, 91 (55.2%) patients were classified as NSTE-ACS and 74 (44.8%) patients as STE-ACS. Our study had a much higher number of NSTE-ACS patients, which reflects daily practice. Patients with NSTE-ACS were older than those with STE-ACS patients (62.3±10.7 and 55.6±8.9 years; $p<0.001$). It was also compatible with real life data. Other baseline clinical characteristics and risk factors were similar between groups.

Table 1. Age, anxiety and depression scores of patients with and without ST-segment elevation acute coronary syndrome

	NSTE-ACS	STE-ACS	
	Mean±SD	Mean±SD	*p*
Age* (year)	62.3±10.7	55.6±8.9	<0.001
Anxiety score*	6.1±5.1	5.6±4.5	0.546
Depression score*	4.8±4.9	4.6±4.3	0.723

NSTE-ACS: Non-ST-segment elevation acute coronary syndrome; STE-ACS: ST-segment elevation acute coronary syndrome; * Student's t-test.

According to the HADS scores, 33 (20%) of the total study population had anxiety diagnoses, and 28 (17%) of them had depression. While the mean depression score was 4.8±4.9 for NSTE-ACS patients, it was 4.6±4.3 for STE-ACS patients (p=0.723). The mean anxiety score was 6.1±5.1 for NSTE-ACS patients and 5.6±4.5 for STE-ACS patients (p=0.546), which was similar between the two groups.

DISCUSSION

Previous studies showed a relationship between anxiety, depression and CAD in both stable and ACS patients.[3,4,9-15] Furthermore, there is growing evidence that anxiety and depression are prognostic factors for major adverse cardiac events.[12,13] The NSTE-ACS and STE-ACS are two different entities of the ACS spectrum according to clinical and pathophysiological characteristics. In our study, both the anxiety and depression scores of STE-ACS and NSTE-ACS patients were similar. The common baseline characteristics and clinical risk factors of both two groups might be the reason for this result. Furthermore, the study was conducted in a primary percutaneous coronary intervention (PPCI) capable center. As a result, STE-ACS patients were re-vascularized sooner than NSTE-ACS patients. Early revascularization could be the main factor of decreased (but not significant) anxiety score in our study population. Close monitoring may also help patients avoid anxiety problems. Facing with an acute life-threatening condition may be the reason for depression in ACS patients. Even though revascularization can reduce anxiety degree, it cannot change the perception of having a life-threatening disease in either group. This could explain why there is no statistically significant difference in depression scores between the two groups. In addition, our study is a real-time snapshot of ACS patients who were hospitalized. We did not consider the patient's background, which could have an impact on his or her depression and anxiety status. As a result, these findings do not explain the link between previous cardiac events and current depression status. It is difficult to say whether having previous ACS can reduce or increase depressive symptoms.

Although Vural et al.[16] found that anxiety and depression are more frequent in patients with acute coronary syndrome in another study, we detected no statistical difference in anxiety and depression scores among acute coronary syndrome subgroups. Meneghetti et al.[9] investigated the incidence of anxiety and depression in hospitalized ACS patients. The incidence of anxiety (48%) and depression (26.4%) was higher than in our study. In contrast to our study, they did not classify the patients as NSTE-ACS and STE-ACS.

This study has some limitations. The first limitation of our study might be the inadequate number of patients. Second, the majority of the patients were male. So, the results may not be generalized to women. Third, the use of a self-report screening scale in our study may make assessing anxiety and depression difficult. A cross-sectional study of our work may also result in limitations in establishing cause-effect relationships. More research is needed to investigate the emotional status of different types of ACS patients and the role of emotional status in prognosis in patients with CHD.

In conclusion, although NSTE-ACS and STE-ACS are two different entities of the ACS spectrum with different clinical and pathophysiological features, patients hospitalized with both diagnoses in this study had similar anxiety and depression scores. Our study is a unique in that it compares anxiety and depression levels among acute coronary syndrome subgroups.

Declaration of conflicting interests

The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

Funding

The authors received no financial support for the research and/or authorship of this article.

REFERENCES

1. Panagiotakos DB, Pitsavos C, Chrysohoou C, Skoumas I, Stefanadis C; ATTICA Study. Five-year incidence of cardiovascular disease and its predictors in Greece: The ATTICA study. Vasc Med 2008;13:113-21.
2. Murray CJ, Lopez AD. Alternative projections of mortality and disability by cause 1990-2020: Global Burden of Disease Study. Lancet 1997;349:1498-504.

3. Roest AM, Martens EJ, de Jonge P, Denollet J. Anxiety and risk of incident coronary heart disease: A meta-analysis. J Am Coll Cardiol 2010;56:38-46.
4. Van der Kooy K, van Hout H, Marwijk H, Marten H, Stehouwer C, Beekman A. Depression and the risk for cardiovascular diseases: Systematic review and meta analysis. Int J Geriatr Psychiatry 2007;22:613-26.
5. Swenson JR, O'Connor CM, Barton D, Van Zyl LT, Swedberg K, Forman LM, et al. Influence of depression and effect of treatment with sertraline on quality of life after hospitalization for acute coronary syndrome. Am J Cardiol 2003;92:1271-6.
6. Ibanez B, James S, Agewall S, Antunes MJ, Bucciarelli-Ducci C, Bueno H, et al. 2017 ESC Guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation: The Task Force for the management of acute myocardial infarction in patients presenting with ST-segment elevation of the European Society of Cardiology (ESC). Eur Heart J 2018;39:119-77.
7. Zigmond AS, Snaith RP. The hospital anxiety and depression scale. Acta Psychiatr Scand 1983;67:361-70.
8. Aydemir Ö, Güvenir T, Küey L, Kültür S. Hastane anksiyete ve depresyon ölçeği Türkçe formunun geçerlilik ve güvenilirlik çalışması. Turk psikiyatri dergisi 1997;8:280-7.
9. Meneghetti CC, Guidolin BL, Zimmermann PR, Sfoggia A. Screening for symptoms of anxiety and depression in patients admitted to a university hospital with acute coronary syndrome. Trends Psychiatry Psychother 2017;39:12-8.
10. Cohen BE, Edmondson D, Kronish IM. State of the art rfeview: Depression, stress, anxiety, and cardiovascular disease. Am J Hypertens 2015;28:1295-302.
11. Lichtman JH, Bigger JT Jr, Blumenthal JA, Frasure-Smith N, Kaufmann PG, Lespérance F, et al. Depression and coronary heart disease: Recommendations for screening, referral, and treatment: A science advisory from the American Heart Association Prevention Committee of the Council on Cardiovascular Nursing, Council on Clinical Cardiology, Council on Epidemiology and Prevention, and Interdisciplinary Council on Quality of Care and Outcomes Research: Endorsed by the American Psychiatric Association. Circulation 2008;118:1768-75.
12. Lichtman JH, Froelicher ES, Blumenthal JA, Carney RM, Doering LV, Frasure-Smith N, et al. Depression as a risk factor for poor prognosis among patients with acute coronary syndrome: Systematic review and recommendations: A scientific statement from the American Heart Association. Circulation 2014;129:1350-69.
13. Meyer T, Hussein S, Lange HW, Herrmann-Lingen C. Anxiety is associated with a reduction in both mortality and major adverse cardiovascular events five years after coronary stenting. Eur J Prev Cardiol 2015;22:75-82.
14. Moryś JM, Bellwon J, Adamczyk K, Gruchała M. Depression and anxiety in patients with coronary artery disease, measured by means of self-report measures and clinician-rated instrument. Kardiol Pol 2016;74:53-60.
15. Kaur S, Zainal NZ, Low WY, Ramasamy R, Sidhu JS. Factor Structure of Hospital Anxiety and Depression Scale in Malaysian patients with coronary artery disease. Asia Pac J Public Health 2015;27:450-60.
16. Vural M, Acer M, Akbaş B. The scores of Hamilton depression, anxiety, and panic agoraphobia rating scales in patients with acute coronary syndrome. Anadolu Kardiyol Derg 2008;8:43-7.