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RESEARCH

Impact of anxiety and depression on morbidity and mortality of patients with coronary syndrome

Impacto da ansiedade e depressão na morbimortalidade de pacientes com síndrome coronariana

Impacto de la ansiedad y depresión en la morbimortalidad de pacientes con síndrome coronaria

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ABSTRACT

Objective: Evaluate the impact of anxiety and depression on morbidity and mortality of patients with acute coronary syndrome. **Method:** Retrospective cohort study, with follow-up of two years, conducted with 94 patients. The morbidity and mortality (readmission, myocardial revascularization, and death) was evaluated immediately after discharge and after one and two years. Anxiety and depression were evaluated by the State-Trait Anxiety Inventory and by Beck's Depression Inventory. The Kaplan-Meier estimator and the Logrank test were used. The significance level adopted was 0.05. **Results:** We observed that 76.6% of the patients did not present symptoms of depression or had mild signs, while 78.8% had low to moderate anxiety. The symptoms of depression and anxiety were not related to morbidity (need for MR p = 0.098 and 0.56, respectively; readmission p = 0.962 and 0.369, respectively) and mortality (p = 0.434 and 0.077, respectively). **Conclusion:** No relationship was found between levels of anxiety and depression with the morbidity and mortality of patients.

Descriptors: Acute Coronary Syndrome; Anxiety; Depression; Myocardial Infarction; Nursing.

RESUMO

Objetivo: Avaliar o impacto da ansiedade e depressão na morbimortalidade de pacientes com síndrome coronariana aguda. **Método:** Estudo de coorte retrospectivo, com seguimento de dois anos, realizado com 94 pacientes. A morbimortalidade (readmissão, revascularização do miocárdio e óbito) foi avaliada imediatamente após a alta hospitalar e depois de um e dois anos. A ansiedade e a depressão foram avaliadas pelo Inventário de Ansiedade Traço e pelo Inventário de Depressão de Beck. Utilizou-se dos gráficos de Kaplan-Meier e do teste Logrank. O nível de significância adotado foi de 0,05. **Resultados:** Observou-se que 76,6% dos pacientes não apresentavam sintomas de depressão ou apresentavam sinais leves e 78,8% tinham ansiedade baixa a moderada. Os sintomas de depressão e ansiedade não se relacionaram à morbidade (necessidade de RM p = 0,098 e 0,56, respectivamente; readmissão p = 0,962 e 0,369, respectivamente) e à mortalidade (p = 0,434 e 0,077, respectivamente). **Conclusão:** Não houve relação entre níveis de ansiedade e depressão com a morbimortalidade dos pacientes.

Descritores: Síndrome Coronariana Aguda; Ansiedade; Depressão; Infarto do Miocárdio; Enfermagem.

RESUMEN

Objetivo: Evaluar el impacto de la ansiedad y de la depresión en la morbimortalidad de pacientes con síndrome coronaria aguda. **Método:** Estudio de cohorte retrospectivo, con seguimiento de dos años, ha sido realizado con 94 pacientes. La morbimortalidad (la readmisión, la revascularización del miocardio y del óbito) ha sido evaluada inmediatamente después del alta hospitalaria y después de uno y dos años. La ansiedad y la depresión han sido evaluadas por el Inventario de Ansiedad Trazo y por el Inventario de Depresión de Beck. Se ha utilizado de los gráficos de Kaplan-Meier y de la prueba Logrank. El nivel de significancia que ha sido adoptado ha sido de 0,05. **Resultados:** Se ha observado que el 76,6% de los pacientes no presentaban síntomas de depresión o presentaban señales leves y el 78,8% tenían ansiedad de baja a moderada. Los síntomas de depresión y de ansiedad no se han relacionado a la morbilidad

(necesidad de RM p=0,098 y 0,56, respectivamente; readmisión p=0,962 y 0,369, respectivamente) y a la mortandad (p=0,434 y 0,077, respectivamente). **Conclusión:** No hubo relación entre niveles de ansiedad y depresión con la morbimortalidad de los pacientes.
Descriptores: Síndrome Coronaria Aguda; Ansiedad; Depresión; Infarto del Miocardio; Enfermería.

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INTRODUCTION

Depression is a psychiatric syndrome highly prevalent in the general population and its association with clinical diseases can result in lower compliance with therapeutic guidelines and worse prognosis[1]. Anxiety disorder, in turn, is a psychiatric condition that affects both children and adults, with estimated values of 9 and 15%, respectively, during the period of life[2].

These psychiatric disorders are present in large portion of the population after the occurrence of acute coronary syndrome (ACS), which covers the acute myocardial infarction with ST-segment elevation (STEMI), non-ST segment elevation (NSTE), and unstable angina (UA). Anxiety affects between 20 and 50% of this population, while depressive symptoms are present between 15 and 45% of the population[3-4].

Numerous international studies have shown that the presence of depression and anxiety in patients after acute coronary syndrome (ACS) can be significant predictors of worse prognosis and increased mortality[5-8]. Despite this strong association, most clinicians have difficulty identifying these psychic states, which, being little recognized, can persist for months to years, substantially impacting the quality of life of patients after ACS[9].

Studies related to this theme were not found in the national literature. Thus, national studies that demonstrate the impact of anxiety and depression on patients with ACS from a particular institution are important.

OBJECTIVE

Evaluate the impact of anxiety and depression on morbidity and mortality of patients with acute coronary syndrome.

METHOD

Ethical aspects

Before collection, the study was approved by the Research Ethics Committee, and the participants signed an Informed Consent Form.

Design, location, and period

It is a retrospective cohort study. The research was conducted in the Coronary Unit of the Heart Institute of Hospital das Clínicas, linked to the School of Medicine of the University of São Paulo, Brazil, in the period from June to October 2016, using the database of a previous study from 2012. The population sample of this preliminary study consisted of 120 patients with ACS in Killip 1; literate, with at least four years of schooling; and under the age of 75 years.

Sample, inclusion and exclusion criteria

The inclusion criterion was to have participated in the previous study, and the exclusion criterion involved those who refused to participate in the current study and/or who we could not reach by telephone. Thus, the sample was made up of 94 patients, once 4 refused to participate and 22 could not be reached by telephone.

Study protocol

First, the patients were contacted and invited to participate in the study. When they accepted to participate, an Informed Consent Form was forwarded via mail and, subsequently, signed and returned to the researchers.

Data related to anxiety and depression were collected from the database of the previous study[10]. In this study, the depressive symptoms were assessed through Beck's Depression inventory, a self-report scale to measure the frequency and intensity of depressive symptoms, composed of 21 items, each one with four alternatives scored from 0 to 3, in increasing degree of intensity of depression[11]. This inventory was validated for Portuguese in 1996 by Gorenstein et al., which noted an internal consistency of 0.81 in the sample of students and of 0.88 in the sample of depressed patients[12-13]. For this study, the categorization used was as follows: absence of symptoms of depression/mild depression (0-19 points) and moderate/severe depression (20-63 points)[4,11].

In the previous study, symptoms of anxiety were assessed through the State-Trait Anxiety Inventory, self-report scale with 20 statements on a scale of four points (1 to 4), in which the subjects describe how they feel. The total score ranges from 20 to 80 points[14]. This inventory has been validated for Portuguese in 1977 by Biaggio et al.[15]. For this study, the categorization used was the following: low/moderate anxiety (20-49 points) and high/very high anxiety (50-80 points)[4,11].

The morbidity and mortality of patients were verified immediately after discharge, after one year and after two years through data collected in the electronic patient record. When such information was not found, phone contact was made. For morbidity, we considered the need for readmission due to cardiovascular disease and/or need for myocardial revascularization (MR). For patients who had two relapse-related hospitalizations, only the first was considered.

Analysis of results and statistics

To describe the behavior of morbidity, mortality and mortality/morbidity over time, the Kaplan-Meier estimator was used, and the association of the survival curves by category of depression and anxiety was compared using the Logrank test. Analyses were performed with the software R 3.1.2, the normality of the data was verified through the Anderson-Darling test, and the significance level of 0.05 was adopted.

RESULTS

We evaluated 94 patients. Of these, 61 (64.9%) individuals were men. The age of patients ranged from 29 and 75 years, with mean and standard deviation of 61.6 ± 9.6 years.

When assessing the cardiovascular risk factors, we observed higher prevalence of hypertension (n = 74; 78.7%), followed by family history (n = 62; 66%), stress (n = 54; 57.4%), sedentary lifestyle (n = 53; 56.4%), dyslipidemia (n = 53; 56.4%), diabetes mellitus (n = 35; 37.2%), obesity (n = 22; 23.4%), smoking (n = 15; 15.9%), and daily alcohol (n = 2; 2.1%). As to the diagnosis concerning the first hospitalization, when the rating scales of anxiety and depression were applied, 37 (39.4%) patients presented UA, 34 (36.1%) NSTE and 23 (24.5%) STEMI.

After analyzing the presence of symptoms of depression, 72 (76.6%) patients did not exhibit symptoms of depression or had mild signs, while 22 (23.4%) presented moderate to severe depression. As for the state-trait anxiety, 74 (78.8%) patients had low to moderate anxiety, while 21 (21.2%) had high to very high anxiety.

Twenty-two patients (23.4%) were hospitalized again after the first year, and 12 (12.8%) after the second year. During the hospitalization, 16 (17%) patients performed MR, 4 (4.2%) after the first year and none after two years of hospital discharge. In the studied period, 9.6% of patients died, and the highest rate of mortality happened in the first and in the last four months of follow-up.

Table 1 shows that no relationship was found between the level of anxiety and symptoms of depression with the need for MR.

Figure 1 shows that the readmission of patients was similar for both levels of anxiety and depression.

No statistical significance was found between higher levels of anxiety and depression with increased mortality (Figure 2).

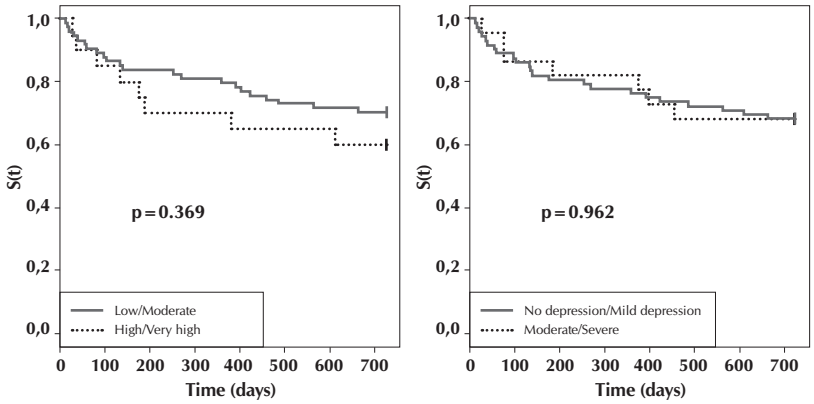

Figure 1 – Survival curves of the time until the first readmission by categories of anxiety and depression, São Paulo, Brazil, 2016

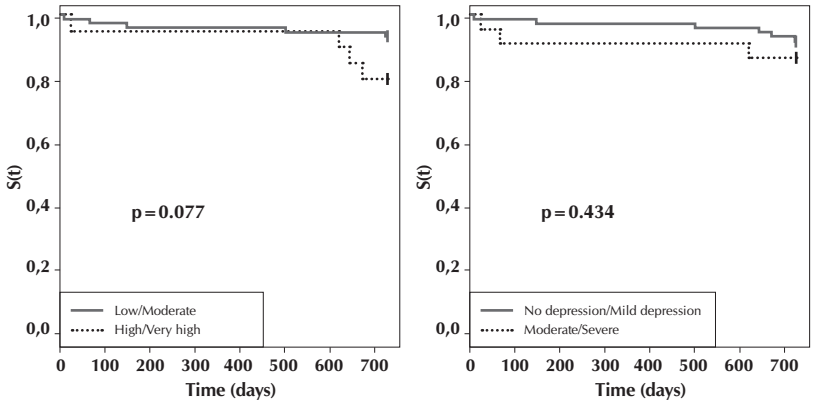

Figure 2 – Survival curves of the time until death (mortality) by categories of anxiety and depression, São Paulo, Brazil, 2016

No statistical significance was found between higher levels of anxiety and depression with increased morbidity and mortality (Figure 3).

Table 1 – Relationship between anxiety and symptoms of depression with the need for myocardial revascularization during the follow-up period of two years, São Paulo, Brazil, 2016

Categoria	General (N = 94)		With the need for MR (n = 20)		Without the need for MR (n = 74)		*p* value
	Frequency	%	Frequency	%	Frequency	%	
Anxiety							0.56
Low/moderate	74	78.7	17	85	57	77	
High/very high	20	21.3	3	15	17	23	
Moderate/severe	22	23.4	2	10	20	27	
Depression							0.098
No depression/mild depression	72	76.6	18	90	54	73	

Note: MR = Myocardial revascularization.

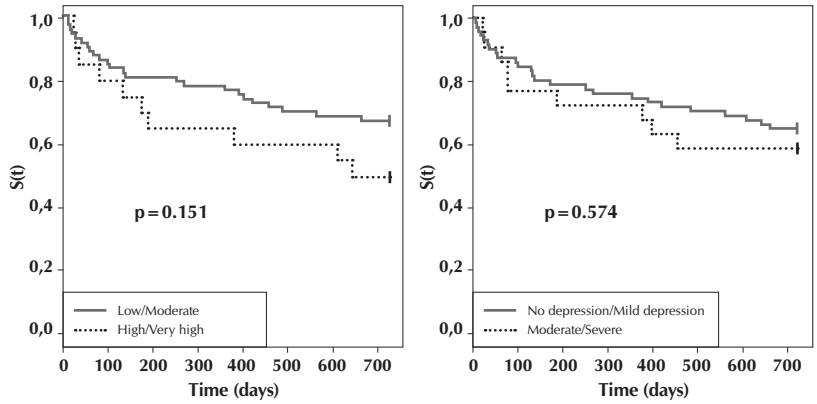

Figure 3 – Survival curves of the time until the first readmission or death (morbidity/mortality) by categories of anxiety and depression, São Paulo, Brazil, 2016

DISCUSSION

Most of our patients had mild/low levels of anxiety and depression, results similar to other studies[7,16-18]. According to AHA, approximately 20% of patients hospitalized for ACS meet the criteria of the Diagnostic and Statistical Manual of Mental Disorders-V (DSM-V) for major depression[5]. The low number of patients with moderate/severe symptoms of depression and anxiety in this study may be partially explained by their average age, since young adults hospitalized due to ACS report the presence of these feelings more frequently than older adults. In addition, the presence of symptoms of anxiety tends to decrease with the older age[2]. Another possible explanation for the lower levels of anxiety and depression in this sample is because most of the sample is composed of men, and it is known that these feelings are more common in women[19].

We also observed that readmission and death showed no relationship with anxiety and depression. However, results of other research that studied readmission in patients after percutaneous coronary intervention showed that 18.8% of these individuals were readmitted in the period of six months after the study[20]. Another study, with ten-year follow-up showed that 45.2% of patients had an adverse event, including death[7]. Other studies[6-8,21-23] also identified the relationship between anxiety and depression with these clinical outcomes.

A study showed that the presence of depressive symptoms (with or without a clinical diagnosis of major depressive disorder) predicts the incidence of cardiovascular disease (CVD) in healthy individuals, secondary events in patients with coronary heart disease and adverse outcomes among those who have undergone myocardial revascularization[21]. In patients hospitalized with CVD, depression is an independent risk factor for future hospitalization or death[22].

A meta-analysis showed that patients with depression post AMI have a 2.25 times higher risk of mortality from any cause, a 2.71 times higher risk of cardiac mortality and a 1.59 times higher risk of new cardiac events[6]. The presence of anxiety after AMI is associated with the 36% increase in the risk of cardiac morbidity and mortality[23].

A study in patients post AMI, with ten-year follow-up, showed that the presence of generalized anxiety disorder is associated with the increase of almost twice the risk of cardiac events, regardless of the presence of depression[7]. Another prospective cohort study conducted with 1,968 survivors of AMI, with ten-year follow-up, revealed that high levels of anxiety were associated with a higher rate of all the causes of cardiovascular mortality, especially in the first three years of follow-up[8].

The lack of relationship found in our study may be attributable to the size of the sample and to a small portion of patients with high levels of anxiety and depression, which may have resulted in a lower occurrence of adverse events. Another possible explanation lies in the fact that most of the studies that identified a correlation between a worse prognosis and increased mortality had as sample patients with AMI diagnosis and without distinction regarding Killip, unlike our sample in which most of the patients had UA and all in KillipI[4,7,16-17]. Patients with higher AMI and Killip tend to show an increase in morbidity and mortality after discharge[24-25].

Limitations of the study

The limitations of this study include the fact that it was conducted in a single center, which can compromise the generalization of the results, as well as the limited number of participants in the sample, which may have compromised the statistical significance of the results.

Contributions to the fields of nursing and health

The concern with the impact of anxiety and depression on prognosis of patients with acute coronary syndrome is relevant because these psychiatric disorders are present in a great part of the population. Despite this relationship not being significant in our study, we observed a trend of higher levels of anxiety and depression in patients who died and had readmissions. Thus, the staff must identify and treat these disorders at an early stage in order to improve the prognosis of the patients.

CONCLUSION

We conclude there was no statistically significant association between levels of anxiety and depression with increased morbidity and mortality of patients, but we also observed that, although not significant, the higher levels of these psychic states led to more readmissions or death.

The results of this study cannot be generalized for all patients with ACS, requiring thus further studies to cover patients with severe disease (Killip II, III and IV) and, possibly, higher levels of depression and anxiety.

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