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Original Article

Preoperative anxiety and depression: differences among patients submitted to the first cardiac surgery

Ansiedade e depressão pré-operatória: diferenças entre pacientes submetidos à primeira cirurgia cardíaca

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Objective: to compare the preoperative symptoms of anxiety and depression among patients submitted to the first cardiac surgery. **Methods:** observational, analytic and cross-sectional study. A consecutive and non-probabilistic sample consisted of patients submitted to elective cardiac surgeries, without clinical decompensation on the day of the interview. To assess the anxiety and depression symptoms, the Hospital Anxiety and Depression Scale was used. The symptoms were compared by means of the Mann-Whitney test, α=5.0%. **Results:** the study participants were 80 patients submitted to the first surgery and 19 to reoperation. Patients in their first surgery presented a median score of six and reoperated patients a median score of four on the depression scale (p=0.107). Concerning the anxiety symptoms, patients in their first surgery presented a median score of eight, against six for the reoperated patients (p=0.171). **Conclusion:** the anxiety and depression scores were higher among the patients submitted to their first surgery, but no statistically significant difference was found between the groups.
Descriptors: Thoracic Surgery; Anxiety; Depression; Perioperative Nursing.

Objetivo: comparar os sintomas pré-operatórios de ansiedade e depressão entre pacientes submetidos à primeira cirurgia cardíaca. **Métodos:** estudo observacional, analítico, de corte transversal. Uma amostra consecutiva e não probabilística foi constituída por pacientes submetidos às cirurgias cardíacas eletivas, sem descompensação clínica no dia da entrevista. Para avaliação dos sintomas de ansiedade e depressão foi utilizado o *Hospital Anxiety and Depression Scale*. A comparação dos sintomas foi realizada com o teste de *Mann-Whitney*, α=5,0%. **Resultados:** participaram do estudo 80 pacientes submetidos à primeira cirurgia e 19 à reoperação. Pacientes da primeira cirurgia apresentaram mediana de seis e os reoperados de quatro na medida de depressão (p=0,107). Nos sintomas de ansiedade, pacientes da primeira cirurgia apresentaram a mediana de oito e os reoperados de seis (p=0,171). **Conclusão:** os escores de ansiedade e depressão foram maiores entre os pacientes submetidos à primeira cirurgia, mas não foi encontrada diferença estatisticamente significativa entre os grupos.
Descritores: Cirurgia Torácica; Ansiedade; Depressão; Enfermagem Perioperatória.

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Introduction

Cardiovascular diseases figure among the leading causes of morbidity and mortality in both developing and developed countries. In 2014, in Brazil, the percentage of mortality due to diseases of the circulatory system was 27.7% in all age groups, considering the general mortality data. The number of deaths from all diseases of the circulatory system was 340,284 in Brazil and, in the State of São Paulo, 82,592 deaths were registered[1].

Cardiac surgery is still the treatment of choice for many patients with cardiovascular disease, despite the technological advancement in minimally invasive treatments. In addition to the pathophysiological aspects, there is also the emotional impact for patients undergoing cardiac surgery. The high complexity of the surgical procedure and the patient's critical condition can cause stress, anxiety and depression.

Low levels of anxiety and depression are considered normal and adaptive in the course of a major surgery, unlike increased levels, which may predict worse outcomes[2]. There is evidence of a strong relationship between the presence of preoperative anxiety and depression symptoms and the postoperative evolution of cardiac surgery[3].

Among the emotional disorders observed in the preoperative period of cardiac surgery, anxiety is one of the most common, universally experienced by almost all surgical patients, which can influence the individual's response to surgical treatment and have negative effects on postoperative recovery. For example, high levels of anxiety prior to coronary artery bypass graft surgery are associated with postoperative depression, poor recovery and exacerbation of pain[4].

Another recurrent emotional disorder is the presence of depressive symptoms, which has also been associated with worse postoperative recovery, with prolonged hospitalization periods, a greater number of hospital readmissions and an increased need for repeated surgical procedures[5].

Therefore, the early identification and treatment of symptoms of anxiety and depression may favor physiological recovery and psychosocial rehabilitation after cardiac surgery.

Although the literature contains studies on the presence of anxiety and depression symptoms in the perioperative period of cardiac surgeries[6-7], no studies were found that investigated differences in the presence of these symptoms in the preoperative period, considering whether the patient had background experience or if it is the first experience of cardiac surgery.

In view of the above, this study aimed to compare the preoperative symptoms of anxiety and depression among patients submitted to the first cardiac surgery.-

Methods

An observational, analytical, cross-sectional study was performed at the Surgical and Medical Inpatient Units of a university hospital in the interior of the State of São Paulo between August 2015 and December 2016.

A consecutive, non-probabilistic sample consisted of patients who met the following inclusion criteria: age over 18 years, regardless of social class and race, who were hospitalized for elective coronary artery bypass graft surgery, correction of valvular heart disease or aneurysm/dissection of the aorta.

Patients were excluded who did not present cognitive conditions to answer the questionnaires; presented clinical decompensation of the heart disease on the day of the interview (presence of dyspnea, precordialgia and orotracheal intubation); and received their elective surgical schedule less than 12 hours in advance.

In total, 245 cardiac surgeries were performed during the data collection period. Of this total, 99 patients met the inclusion criteria and accepted to parti-

cipate in the study. To identify the patients regarding the cognitive conditions to answer the questionnaires, the Mini Mental State Examination[8] was used, in the version adapted to Portuguese[9]. This instrument is used to evaluate the orientation and memory of the individual and detect possible cognitive impairments. In this study, the following cut-off points were adopted: illiterate patients had to score at least 13 points; those with one to seven years of education at least 18 points; and with eight or more years of education at least 26 points[9].

The data were collected in the preoperative period, on the day before the surgery, through individual interviews and consultation of the participants' charts. For this stage, an instrument was created containing sociodemographic and clinical variables: dates of hospitalization, interview and birth; sex; marital status; education and professional situation; monthly family income; surgery performed; comorbidities (obesity, dyslipidemia, hypothyroidism, diabetes mellitus, acute or chronic renal failure, arrhythmias, hypertension and chronic obstructive pulmonary disease); life habits (current or previous smoking); the use of psychotropic drugs; need to reschedule the surgery; symptoms (pain and dyspnea); number of surgeries performed; and name of the surgery.

To measure the symptoms of anxiety and depression, the Hospital Anxiety and Depression Scale (HADS)[10] was used, in an adapted version for Portuguese[11]. This choice is justified because it is an easy-to-understand instrument, fast to apply, with few items and suitable psychometric properties. It contains 14 questions (seven for anxiety symptoms and seven for depression) that address somatic and psychological symptoms, with a four-point response scale. The answer scores range from 0 to 3, whose sum can range from zero to 21 points for each of the emotional disorders surveyed. In this study, the evaluation of the responses was based on the total score of each subscale (HADS-anxiety and HADS-depression) in which, the higher the score, the greater the presence of symptoms.

The data were entered into Office Excel 2010 software using the double data entry technique followed by validation. After the validation, data were transported to the Statistical Package for the Social Sciences, version 22.0 for Windows.

For the choice of the hypothesis test, first, the Kolmogorov Smirnov normality test was performed to evaluate the distribution of the variables "anxiety symptoms" and "symptoms of depression".

The Mann-Whitney test for independent samples (age, education and monthly income) and the chi-square test (sex, marital status, professional status, and use of psychotropic drugs) were used to compare the patients' sociodemographic and clinical characteristics, separated by group (first surgery or reoperation). Fisher's Exact Test was used in the results with frequencies lower than five, obtained in the 2x2 Contingency Tables (professional situation and use of psychotropic drugs). The Mann-Whitney test for independent samples (first surgery or reoperation) was performed to compare the measures of anxiety and depression symptoms evaluated by HADS. The level of significance was set at 5%.

The study complied with the formal requirements contained in the national and international regulatory standards for research involving human beings.

Results

Among the study participants, 80 were patients submitted to the first cardiac surgery and 19 to reoperation. The groups' sociodemographic characteristics are displayed in Table 1.

As regards the groups' sociodemographic characteristics, most of the patients submitted to the first surgery were men; differently from the patient group submitted to reoperation. The difference found was statistically significant. The other variables were similar between the groups, without a significant difference.

Table 1 – Patients' sociodemographic characteristics according to the number of surgeries (first or reoperation)

Variable	First surgery (n=80)		Reoperation (n=19)		p
	Median	n (%)	Median	n (%)	
Sex					0.031*
Female	-	37 (46.3)	-	14 (73.7)	
Male	-	43 (53.8)	-	5 (26.3)	
Age	59.29		57.04		0.342†
Marital status					0.297*
With partner	-	60 (75.0)	-	12 (63.2)	
No partner	-	20 (25.0)	-	7 (36.8)	
Education (years)	8		9		0.824†
Monthly income (*reais*)	1.500		1.200		0.072†
Professional situation					0.324‡
Active	-	4 (5.0)	-	2 (10.5)	
Inactive	-	76 (95.0)	-	17 (89.5)	

*Chi-squared test; †Mann-Whitney's test for independent samples; ‡Fisher's exact test

In Table 2, the patients' clinical characteristics are displayed.

Considering that, in the first surgery group, the percentage of patients who did not receive psychotropic medication was 67.5%, against 89.5% in the reoperation group, Fisher's Exact Test showed a difference that was not statistically significant (p=0.053). Thus, most of the patients in both groups did not receive psychotropic drugs preoperatively.

Regarding the type of surgery performed in both groups, the most frequent surgery was correction of valvular heart disease (first surgery: 40 (50.0%) and reoperation: 13 (68.4%), followed by (first surgery: 28 (31.8%) and reoperation: 3 (26.3%), correction of aortic diseases (first surgery: 7 (8.7%) and reoperation: 1 (5.3%) and coronary artery bypass graft surgery in combination with correction of valvular heart disease (first surgery: 5 (6.2%) and reoperation: 2 (10.5%). A small percentage of patients in both groups had their surgery rescheduled preoperatively (first surgery: 10 (12.2%) and reoperation: 2 (10.5%).

Table 2 – Patients' clinical characteristics according to the number of surgeries (first or reoperation)

Clinical variable	First surgery (n=80)	Reoperation (n=19)
	n (%)	n (%)
Presence of comorbidities		
Systemic arterial hypertension		
Yes	69 (86.3)	12 (63.2)
Overweight/obesity		
Yes	38 (47.5)	8 (42.1)
Dyslipidemia		
Yes	42 (52.5)	8 (42.1)
Diabetes mellitus		
Yes	28 (35.0)	6 (31.6)
Heart failure		
Yes	11 (13.8)	3 (15.8)
Atrial fibrillation		
Yes	8 (10.0)	5 (26.3)
Hypothyroidism		
Yes	8 (10.0)	5 (26.3)
Presence of smoking		
Past smoking		
Yes	34 (42.5)	4 (21.1)
Active smoking		
Yes	8 (10.0)	1 (5.3)
Preoperative use of psychotropic drug		
Yes	26 (32.5)	2 (10.5)
Dyspnea		
Yes	48 (60.0)	12 (63.1)
Precordialgia		
Yes	29 (36.2)	3 (15.8)

Table 3 presents the median and the interval obtained for anxiety and depression measures, according to the number of surgeries (first surgery or reoperation).

Table 3 – Comparison of mean scores on anxiety and depression subscales according to number of surgeries (first surgery or reoperation)

Variables	†HADS –Anxiety		HADS – Depression	
	Median	Interval	Median	Interval
First surgery (n=80)	8.0	0 - 21	6.0	0 - 16
Reoperation (n=19)	6.0	2 - 11	4.0	0 - 12
p*	0.171		0.107	

*Mann-Whitney test for independent samples; †HADS – Anxiety and Depression Scale

As observed, the patients submitted to the first cardiac surgery presented higher scores than patients who went through reoperations, for the anxiety as well as the depression symptoms. Nevertheless, the differences found were not statistically significant.

Discussion

The main limitation of the study is the difference between the number of participants in each group. In the health service where the data were collected, the seasonality of hospitalization varied. When the service had many severe and chronic patients, patients who would undergo the first cardiac surgery were summoned. Considering that there is no recommendation in the literature not to make intergroup comparisons, despite this numerical difference, we consider that this information will be important to prepare future projects considering these two groups of patients, which to date are nonexistent.

Although no difference was found in the presence of anxiety and depression symptoms between patients undergoing the first cardiac surgery and reoperation, the results identified may give rise to further studies, involving more hospitals and longer data collection intervals, in order to investigate the symptoms of anxiety and depression in greater depth, according to the surgical experience.

As already explained, patients submitted to the first cardiac surgery presented more symptoms of anxiety and depression, but the differences found were not statistically significant. No studies of this nature were found in the literature, which makes it impossible to compare the main results.

It is known that the indication of cardiac surgery may trigger anxiety and depression symptoms that may persist during the perioperative period when left undiagnosed and treated. In designing this study, we considered if the patient undergoing the first cardiac surgery could present more symptoms of anxiety and depression, as he has less knowledge about the hospitalization, the anesthetic-surgical procedure and the stay in an Intensive Care Unit; while the patient undergoing a reoperation would already have some knowledge and experience of this process.

Patients in the preoperative phase of cardiac surgeries feel low self-esteem, anxiety and distress and think they are close to death, feelings related to a lack of knowledge about the disease, procedure and recovery[12]. In a qualitative study, the researchers investigated patients' perceptions in the preoperative period of cardiac surgery, and the data pointed to a large gap in the knowledge about the surgical procedure and the recovery process[13]. No studies were found that investigated the correlation between the lack of knowledge and the frequency of the presence of anxiety and depression symptoms.

A study carried out in a university hospital investigated the relationship between anxiety and depression symptoms an the sex and age of patients in the preoperative period of the first coronary artery bypass graft surgery and correction of valvular heart disease. Women presented more symptoms than men, both for anxiety and depression, and these differences were statistically significant[14]. Two other studies also found that women had more anxiety and depression symptoms in the preoperative period of cardiac surgeries when compared to men[7,15]. Regarding age, the group of participants aged 55-64.9 years presented the highest mean scores for anxiety symptoms, followed by the group aged 18-44.9 years, while the group aged 65-74.9 years presented higher mean values for

depression symptoms, also followed by the group between 18 and 44.9 years of age, but these differences were not statistically significant[14].

In this study, the patients submitted to the first surgery were mostly men (53.8%). This differs from the group of patients submitted to reoperation, who were mostly women (73.7%). These results reflect a limitation of the study, as homogeneity among the groups is expected for the sake of comparison. Moreover, the larger number of women in the reoperation group may have raised anxiety and depression scores. As already shown in the literature, women present more symptoms of anxiety and depression when compared to men[7,14-15].

Research has shown the relationship between preoperative anxiety and depression symptoms and increased postoperative complications, frequent readmissions, long postoperative hospital stay[16], significant increase in pain and consumption of analgesics in the postoperative period[17], worse outcomes in cardiac rehabilitation[18] and increased mortality[19]. Thus, management of anxiety and depression symptoms in the preoperative period may help to reduce morbidity after cardiac surgery[20]. The more evidence is available about the perception of these symptoms, the greater the chance of effective planning.

The strategies used to cope with the experience of cardiac surgery make this experience less traumatic for patients. The provision of information is a well-established strategy through which the health professionals can address the patients' fear and concerns. In that context, nurses play a paramount role in the elaboration and implementation of actions to minimize the preoperative psychological tension.

Conclusion

Higher anxiety and depression scores were found among the patients submitted to the first surgery, but no statistically significant difference was found between the groups.

Collaborations

Kazitani BS and Dessotte CAM contributed to the conception, project, analysis and interpretation of the data, writing of the article, relevant critical review of the intellectual content and final approval of the version for publication. Furuya RK and Dantas RAS contributed to the relevant critical review of the intellectual content and final approval of the version for publication.

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