Anxiety in the preoperative period of heart surgery

Ansiedade no período pré-operatório de cirurgia cardíaca

Ansiedad en el período preoperatorio de cirugía cardíaca

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ABSTRACT

Objective: to characterize the patients' anxiety in the preoperative period of heart surgery. **Method:** We conducted a cross-sectional study in which 106 patients, between one and five days from the date of surgery, were interviewed using a socio-demographic questionnaire and the Beck Anxiety Inventory. **Results:** The evaluated patients accounted for 59.4% (63) in minimal anxiety and 19.8% (21) in the range considered severe, and the sample had a mean in the mild anxiety level (15.8 ± 19.79). The women had scores (22.13 ± 23.41) significantly ($p = 0.003$) higher than men (10.76 ± 14.71); as well as patients who had undergone previous heart surgery (24.4 ± 28.05 X 13.14 ± 15.74). There was no significant difference between older adults and younger patients, nor in terms of weight variations, presence of diabetes, or alcoholism. **Conclusion:** We reinforces the importance of nurses in recognizing the preoperative anxiety and intervene through strategies of health education and nursing visits.
Key words: Anxiety; Heart Surgery; Health Education; Nursing; Preoperative Period.

RESUMO

Objetivo: caracterizar a ansiedade dos pacientes no pré-operatório de cirurgia cardíaca. Método: Foi realizado um estudo de corte transversal no qual 106 pacientes, entre um e cinco dias da data da cirurgia, foram entrevistados utilizando-se um questionário sócio-demográfico próprio e o Inventário de Ansiedade de Beck. **Resultados:** Os pacientes avaliados se apresentaram em 59,4% (63) na ansiedade mínima e 19,8% (21) na faixa considerada grave, tendo a amostra uma média no nível de ansiedade leve ($15,8 \pm 19,79$). As mulheres tiveram escores ($22,13 \pm 23,41$) significativamente ($p = 0,003$) maiores que os homens ($10,76 \pm 14,71$); assim como os pacientes que já haviam sido submetidos a cirurgia cardíaca prévia ($24,4 \pm 28,05$ X $13,14 \pm 15,74$). Não houve diferença significativa entre idosos e pacientes adultos mais jovens, nem no tocante as variações de peso, presença de diabetes ou etilismo. **Conclusão:** Reforça-se a importância do enfermeiro reconhecer a ansiedade pré-operatória e intervir através de estratégias de educação em saúde e visita de enfermagem.
Descritores: Ansiedade; Cirurgia Cardíaca; Educação em Saúde; Enfermagem; Período Pré-Operatório.

RESUMEN

Objetivo: caracterizar la ansiedad de los pacientes en el preoperatorio de cirugía cardíaca. **Método:** se realizó un estudio de corte transversal en el cual 106 pacientes, entre uno y cinco días de la data de la cirugía, han sido entrevistados mediante un cuestionario sociodemográfico propio y el Inventario de Ansiedad de Beck. **Resultados:** los pacientes evaluados se presentaron en el 59,4% (63) en la ansiedad mínima y el 19,8% (21) en la franja considerada grave, teniendo la muestra una media en el nivel de ansiedad leve ($15,8 \pm 19,79$). Las mujeres tuvieron scores ($22,13 \pm 23,41$) significativamente ($p = 0,003$) mayores que los hombres ($10,76 \pm 14,71$), así como los pacientes que ya habían sido sometidos a cirugía cardíaca previa ($24,4 \pm 28,05$ X $13,14 \pm 15,74$). No hubo diferencia significativa entre personas mayores y pacientes adultos más jóvenes, ni en relación a

las variaciones de peso, presencia de diabetes o etilismo. **Conclusión:** se refuerza la importancia del enfermero reconocer la ansiedad preoperatoria e intervenir mediante estrategias de educación en salud y visitas de enfermería.
Palabras clave: Ansiedad; Cirugía Cardíaca; Educación en Salud; Enfermería; Período Preoperatorio.

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INTRODUCTION

Surgery, despite the constant technological innovation and increase in the quality of interventions, is a difficult time for the human being. As a challenge for patients, the surgical procedure brings pre-and postsurgical limitations, such as changes in their life habits, besides the vulnerability of the trans-operatory period, which can generate significant levels of anxiety[1].

Several factors contribute to this aggravation in the hospital environment, ranging from the concrete or imaginary threats to the process of depersonalization, often resulting from dehumanised practices on the part of the health staff. This can impact individuals in a diversified way, particularly when they create fantasies before a surgical intervention, which may interfere in the course of the procedure and recovery, since their emotional state affects the functioning of their immune system and general physical condition. Depending on the degree of anxiety of the patient, many surgeries may be cancelled[2].

The preoperative phase is considered the period in which the patients are most vulnerable in their needs, both physiological and psychological, becoming more prone to an emotional imbalance[2].

Lack of guidance regarding surgery and lack of support on the part of the health staff, such as preventing a proper therapeutic relationship, cause the permanence of patients in the anxious and depressed state throughout the hospitalization. The presence of information about the surgery, however, contributes to reduce levels of anxiety[3].

Heart surgery and the disease itself require constant changes of physical, social, and psychological order, making the patient adjust to a new reality abruptly imposed. These changes can be perceived as stressors and represent threats in the daily life of each individual, which mobilizes different strategies to face this process, based on their experiences[4].

The cultural association of the heart as a body related to life, death, and the generation of feelings stimulates fantasies and emotional wear in patients, both for the symbolic consideration of the heart and for the fantasies and fears related to death. Thus, of all types of surgeries, heart surgery is the least psychologically tolerated, being responsible for high levels of anxiety in the preoperate period, considering the emotions experienced by patients, which have a significant role as a cause of complications in the postoperative period[5].

The heart surgical patient's well-being must be the main objective of health professionals, especially nurses who provide direct care to them, since it is in the preoperative phase that they can present considerable levels of stress and develop feelings that act negatively on their emotional state, making them vulnerable and dependent.

The nursing staff performs a decisive role in an attempt to minimize the preoperative anxiety experienced by these patients not only providing medications, but also knowledge in such a way that an informed decision can be taken. At every meeting with the patients, they must be ensured that they are physically and psychologically prepared to face both the procedure and the surgical postoperative period[6].

Before anxiety, fear, and anguish evidences in the preoperative period, which are present among the individuals undergoing heart surgery, to development nursing actions directed to minimize such effects becomes primordial. Among the tools that nurses can use to minimize the preoperative anxiety of heart surgery, to provide information about the surgical event, to promote illuminating dialogue, and the reception of patients are important strategies[7].

Through a preoperative visit of quality, the nurse adopts care strategies based not only in technical and scientific knowledge, but also on knowledge of the expectations and perceptions of the patient regarding the surgery to contemplate all physical, emotional, and social aspects, thus systematizing the assistance to be provided in this period[8].

This study presents an investigation that aimed to characterize the patients' preoperative anxiety of heart surgery, to compare anxiety between gender, age, and previous heart surgery, and to verify the association of anxiety with comorbidities in patients in the preoperative period of heart surgery.

METHOD

Ethical aspects

This study is part of a project approved by the Ethics and Research Committee of the complex Osvaldo Cruz University Hospital/Pronto-Socorro Cardiológico de Pernambuco [Heart Hospital of Pernambuco]. This study followed disciplinary standards of Resolution no. 466, December 12, 2012, of the Conselho Nacional de Saúde [National Health Council] (CNS), Ministry of Health. Regarding the resolution, the subjects who were part of this study have been previously invited to participate and were informed about the study's objectives, risks and benefits, after which they signed an informed consent form. Were addressed only patients who were already hospitalized and aware of their diagnosis and the date of the surgery, in such a way that the participation in the research does not reflect on the care/communication with the staff of the sectors process.

Design, study location and period

This is a cross-sectional study, descriptive, with quantitative approach. The research was conducted in the wards of coronary disease, valvular heart disease, and cardiomyopathies of the Pronto-Socorro Cardiológico de Pernambuco Professor Luiz Tavares [Professor Luiz Tavares Heart Hospital of Pernambuco]

(PROCAPE/UPE), north-northeast reference to cardiovascular disease and cardiac surgery in adults and childrem, from March to June, 2014. The service provides care to the metropolitan region, municipalities in the countryside of the state, and other states, performing, on average, 60 heart surgeries/month in adults.

Population and sample

For sample delimitation, we performed a calculation using the equation for calculating the sample size for means, considering that the variable-outcome is continual quantitative. For the calculation we used an α error of 5%, which corresponds to the difference between the estimated value of the research and the real value; a 95% confidence level, which is the probability that the actual sampling error is less than the sampling error admitted by the research. The maximum error adopted was of 1.0 point in the mean. Considering the finite population of 200 patients undergoing heart surgery, on average, for a period of five months of collection, the sample was estimated at 119 patients. However, we collected 106 patients, considering the inclusion criteria and at intervals with less surgeries in the service (holidays, recesses etc.)

The sample was composed of patients who were in pre-operative period, between one and five days from the date of surgery. We included all patients with knowledge of the surgery and the date, who would be submitted to the procedure of myocardial revascularization or valve replacement or repair surgeries. We excluded patients who had surgical indication for aortic and congenital diseases, who took antidepressants and antipsychotics or with clinical impairment that resulted in damaged verbal communication.

Study protocol

The collection instrument consisted of a questionnaire with socio-demographic (gender, age, religion, marital status, income in minimum wages prevailing in the period – BRL 724.00, education level, race, origin, occupation) and clinical data, and to evaluate the anxiety we used the Beck Anxiety Inventory. This instrument is a protocol of free use worldwide used both in research and in clinics to assess the levels of anxiety of patients undergoing a surgical experience. It consists of 21 items, with response alternatives ranging from nothing to mild, moderate, and severe, about which each subject reflects on the gradational levels of each symptom, being anxiety rated in minimal (0-10), mild (11-19), moderate (20-30), and severe (31-63)[9].

Analysis of the results and statistics

Data were analyzed in the SPSS 20.0 software. We considered significance of statistical tests for rejection of the null hypothesis at 5%. The characterization of patients is presented with resources of descriptive statistics in absolute and relative frequencies and mean ± standard deviation. The measured anxiety scores are compared because of categorical dichotomous variables using the student's t test for independent samples. The normal distribution of anxiety values was assessed by the Kolmogorov-Smirnov test ($p < 0.001$). To evaluate the internal reliability of the scale in use in the sample, we calculated the cronbach's alpha (α) being considered high or significant values above 0.7.

RESULTS

The sample was predominantly composed of male patients (55.7%), who claimed to be caucasian (41.5%), aged up to 60 years (53.8%), and mean of 56.58 ± 14.0 years, married or in a stable union (68.9%), with religion (96.2%) and elementary school (43.4%). Most of them we from the urban zone (77.4%), from the capital (18.9%), or from the metropolitan region (41.5%). There was a predominance of retirees (41.5 %) and mean income of 2.33 ± 0.99 wages (Table 1).

Table 1 – Socio-demographical characterization of the sample, Recife, Pernambuco, Brazil, 2014

Variables	n(%)
Gender	
Woman	47 (44.3)
Man	59 (55.7)
Age	
Age (m ± sd)	56.58 (14.0)*
Up to 60 years	57 (53.8)
> = 60 years	49 (46.2)
Income	2.33 (0.99)
Religion	102 (96.2)
Marital status	
Married/Stable union	73 (68.9)
Single	15 (14.2)
Widower	15 (14.2)
Other	3.0 (2.8)
Education level	
College degree	35 (33.0)
High school	18 (17.0)
Elementary school	46 (43.4)
Illiterate	7.0 (6.6)
People at home	3.14 (1.45)*
Race	
Caucasian	44 (41.5)
Black	15 (14.2)
Mixed race	44 (41.5)
Yellow	2.0 (1.9)
Indigenous	1.0 (0.9)
Area	
Rural	24 (22.6)
Urban	82 (77.4)
Origin	
Capital	20 (18.9)
Metropolitan region of Recife	44 (41.5)
Countryside	42 (39.6)

Table 1 (concluded)

Occupation	
Employed	22 (20.8)
Unemployed	10 (9.4)
Retiree	44 (41.5)
Student	1.0 (0.9)
Rural worker	10 (9.4)
Housewife	19 (17.9)

Note: *mean (standard deviation)

Regarding personal background, the patients had high rate of arterial hypertension (70.8%), tabagism (43.4%), and diabetes (31.1%). Among the patients, 23.6% had already undergone previous heart surgery (Table 2). The sample was predominantly in the range of overweight or obesity (53.8%).

Most of the evaluated patients were within the extremes of anxiety levels, being 59.4% in minimal anxiety and 19.8% in the range considered severe. When assessing anxiety scores, the sample maintained a mean in the mild anxiety level (15.8 ± 19.79), considering the internal reliability in the use of the scale applied $(\alpha = 0.715)$ (Table 3).

Women had scores (22.13 ± 23.41) significantly $(p = 0.003)$ higher than men (10.76 ± 14.71). There was no significant difference between older adults and younger patients, nor in terms of weight variations, presence of diabetes, or alcoholism. We observed a significantly higher difference $(p = 0.012)$ in anxiety in the group of patients who had undergone previous heart surgery $(24.4 \pm 28.05 \times 13.14 \pm 15.74)$ and among smokers $(19.27 \pm 23.57 \times 11.28 \pm 12.19; p = 0.039)$ (Table 4).

Table 2 - Sample distribution regarding weight and personal health background, Recife, Pernambuco, Brazil, 2014

Variables	n(%)
Weight	
Normal weight	49 (46.2)
Overweight and obesity	57 (53.8)
Personal background	
Arterial hypertension	75 (70.8)
Tabagism	46 (43.4)
Alcoholism	35 (33.0)
Diabetes mellitus	33 (31.1)
Previous heart surgery	25 (23.6)
Cerebrovascular accident	13 (12.3)
Rheumatic fever	(11) 10.8
Renal insufficiency	4 (3.8)
Asthma	4 (3.8)

Table 3 - Levels of anxiety, Recife, Pernambuco, Brazil, 2014

Variables	n(%)	Mean $\pm$ sd	Median	α
Anxiety		15.8 ± 19.79	8.0	0.715
Minimal anxiety	63 (59.4)			
Mild anxiety	15 (14.2)			
Moderate anxiety	7 (6.6)			
Severe anxiety	21 (19.8)			

Notes: sd: standard deviation; Cronbach's alpha (α).

Table 4 - Comparison between the means of the scores obtained, Recife, Pernambuco, Brazil, 2014

Variables	Anxiety	P value*
Sample	15.8 (19.79)	
Men	10.76 (14.71)	0.003
Women	22.13 (23.41)	
< 60 years	17.84 (23.36)	0.25
> = 60 years	13.43 (14.53)	
Normal weight	16.53 (18.89)	0.727
Overweight and obesity	15.18 (20.68)	
Previous heart surgery (HS)	24.4 (28.05)	0.012
Without previous HS	13.14 (15.74)	
Diabetic	13.21 (15.61)	0.368
Non-diabetic	16.97 (21.41)	
Hypertensive	17.27 (19.44)	0.238
Non-hypertensive	12.26 (20.50)	
Smoker	19.27 (23.57)	0.039
Non-smoker	11.28 (12.19)	
Alcoholic	14.69 (14.98)	0.686
Non-alcoholic	16.35 (21.86)	

Notes: m (sd): mean (standard deviation); *Student's t test.

DISCUSSION

The mean of age revealed a sample close to 60 years. Studies show that anxiety and depression in preoperative period have higher incidence among older adults and that in this group it presents less postoperative reduction[10].

A cohort with 148 older adults who underwent revascularization surgery identified that the group with high preoperative anxiety featured, in regression analysis, risk of mortality or severe morbidity almost five times greater than the group without anxiety. (OR = 5.1, CI95%1.27-20.2, p = 0.02). In this same study, factors such as diabetes, hypertension, obesity, and other physical factors were not directly related to the presence of anxiety as well as in the findings presented in Table 4[11].

The education level of the sample showed high level of patients with college degree (33.0%) and high school (17.7%), and only 6.6% of illiterates. A cohort of ten years with 180 patients with an education level mean of 11.4 showed that preoperative anxiety and low schooling were predictors of mortality post-discharge as much as EUROS-CORE, a score for heart surgery internationally used, which considers clinical variables as risk predictors[12].

The study previously mentioned also showed that among patients who died there was, in the preoperative period, a longer period of hospitalization, higher age, higher EU-ROSCORE, and lesser education level, whereas in the postoperative period this group showed highest rates and more persistence of anxiety and depression[12].

Another international research with 100 patients found 32% of incidence for anxiety and 19% for depression. In such research was also evaluated that preoperative anxiety had higher scores and higher persistence of pain in the postoperative period, as well as longer stay in the intensive care unit (ICU), without having been statistically significant the difference when the sample for the presence or absence of depression was dichotomized[13]. In this study there was no difference in incidence of mood disorders between genders, however, the sample showed significant difference in anxiety mean, being higher among women (p = 0.003).

On the other hand, in a national study on the preoperative period of myocardial revascularization surgery, the presence of anxiety and depression investigated with the Hospital Anxiety and Depression Scale was of 34.4% and 28.1%, respectively[14].

In a cohort performed to evaluate the effect of anxiety and depression in up to four years of myocardial revascularization evidenced significantly higher death rate associated with anxiety among the 180 individuals surveyed[15]. Another international cohort with mean follow-up of 4.4 years monitored 152 patients who underwent the heart transplant, starting the evaluation of anxiety and depression in the preoperative period. These patients were divided into two groups according to the heart failure cause and clinical indication for transplantation in ischemic and dilated cardiomyopathy cause. The ischemic cause group presented higher scores of depression and anxiety and higher mortality, the latter being associated with higher preoperative anxiety and depression outcomes in both groups[16]. Both studies reinforce that the predictive value of symptoms of anxiety and depression in the prognostic evaluation should be considered, as well as the need for developing protocols and intervention strategies to reduce these levels, in particular health education in the preoperative period.

An international cohort of 162 patients concluded a significant association between physiological markers of stress (serum cortisol, C-reactive protein, and interleukin 6) with preoperative anxiety and as predictors of unwanted symptoms in the postoperative period. This study showed that patients who leaned on religious coping strategies and social support also had better results after the surgery[17]. A national study showed that the consideration provided by the presence of the family is more significant for coping than the contact of nurses only, which was evaluated by lower levels of anxiety[18].

Using other evaluation tools, a national study showed improvement in quality of life regarding the generic aspects of mental health and emotional aspects after heart surgery, even without considering the spiritual and religious aspect[19].

When assessing the coping strategies used by patients in the preoperative period of heart surgery, another national study reported that the sustentative coping mode, which includes spirituality, was used in 50% of cases[4]. The qualitative analysis has also demonstrated the presence of positive feelings and search for faith and hope in religiosity before heart surgery[20-21]. Another study observed through interviews the high value of spiritual resources when coping heart surgery[21].

An exploratory study using a questionnaire for judging the relevance of defining characteristics of nursing diagnoses "Anxiety" and "Fear" by nurses of surgical clinics showed that patients associated fear with an intense event, with more physical effects such as tremors in the voice, increase in heart palpitations and rate, whereas anxiety was recognized by more subjective aspects related to psychological issues such as reports of inability to relax, insomnia, irritability, and impatience[22]. This reference points that nurses, most of the time, recognize anxiety, but little they include it in the systematization of their assistance or register alternatives to minimize it[22].

CONCLUSION

Preoperative anxiety here assessed presented incidence and values close to other studies, being higher among women and patients who had already undergone heart surgeries previously, with statistically significant difference.

The elevated levels of anxiety, corroborating other research, indicate that nurses should include the investigation of anxiety in their evaluation, whether through general or validated instruments or, mainly, through the use of nursing diagnosis and defining characteristics. The nurse should understand the phenomenon and recognize its relevance to the immediate and late postoperative period.

The nurse must not only recognize, but intervene before a clinical pattern very common. Currently, the value of education strategies in nursing for reducing anxiety has been recognized and investigated. Research indicate that significant interventions towards the encouragement of coping strategies are available and are accessible to the nursing field, in particular social and family support and resources from the very religiosity and spirituality of the patient, which undoubtedly reduce tension in the preoperative period.

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