

Avaliação da Ansiedade e Depressão no Período Pré-Operatório em Pacientes Submetidos a Procedimentos Cardíacos Invasivos *

Evaluation of Preoperative Anxiety and Depression in Patients Undergoing Invasive Cardiac Procedures

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RESUMO

Carneiro AF, Mathias LAST, Rassi Júnior A, Moraes NS, Gozzani JL, Miranda AP - Avaliação da Ansiedade e Depressão no Período Pré-Operatório em Pacientes Submetidos a Procedimentos Cardíacos Invasivos.

JUSTIFICATIVA E OBJETIVOS: A avaliação específica da ansiedade e da depressão não está incluída na rotina de avaliação pré-operatória, o que faz com que em situações como as doenças cardíacas, em que o estado emocional dos pacientes pode estar modificado pela própria doença, possam não ser diagnosticadas. O objetivo do estudo foi comparar o nível e a prevalência de ansiedade e depressão em pacientes com doença cardíaca a serem submetidos a procedimentos invasivos e/ou cirúrgicos, utilizando a Escala Hospitalar de Ansiedade e Depressão (Hospital Anxiety and Depression Scale – HAD).

MÉTODO: Após a aprovação pelos Comitês de Ética, foram incluídos 96 pacientes, estado físico ASA II e III, que constituíram três grupos: estudo eletrofisiológico (EEF), implante de marcapasso (MP) e revascularização do miocárdio (RM). Os escores considerados “ponto de corte” foram: escala HAD-ansiedade (HAD-A) com ansiedade > 9; escala HAD-depressão (HAD-D) com depressão > 9.

RESULTADOS: Os grupos foram homogêneos quanto às variáveis sociodemográficas. Observou-se diferença estatística significativa entre os três grupos ($p = 0,006$; $p = 0,034$) quanto ao nível e prevalência de ansiedade (HAD-A) e na comparação do nível de ansiedade grupo a grupo verificou-se diferença significativa entre os grupos EEF x RM e EEF x MP ($p < 0,05$). A comparação dos

três grupos quanto ao nível e prevalência de depressão (HAD-D) não mostrou diferença estatística significativa.

CONCLUSÕES: Os pacientes com doença cardíaca a serem submetidos a estudo eletrofisiológico, implante de marcapasso e revascularização do miocárdio têm diferença dos níveis e prevalência de ansiedade, mas não apresentam diferença em relação aos níveis e prevalência de depressão.

Unitermos: AVALIAÇÃO PRÉ-ANESTÉSICA: estado psicológico, ansiedade, depressão; CIRURGIA, Cardíaca: revascularização, implante de marcapasso, estudo eletrofisiológico.

SUMMARY

Carneiro AF, Mathias LAST, Rassi Júnior A, Moraes NS, Gozzani JL, Miranda AP – Evaluation of Preoperative Anxiety and Depression in Patients Undergoing Invasive Cardiac Procedures.

BACKGROUND AND OBJECTIVES: Specific assessment of anxiety and depression is not included in routine preoperative evaluation; therefore, in cases of cardiac diseases in which the emotional status of the patient may be modified by the disease those disorders may not be diagnosed. The objective of the present study was to compare the level and prevalence of anxiety and depression in patients with cardiac disease undergoing invasive and/or surgical procedures using the Hospital Anxiety and Depression Scale – HAD.

METHODS: After approval by the Ethics Committee, 96 patients, physical status ASA II and III, were divided in three groups: electrophysiological study (EPS), pacemaker (PM) placement, and myocardial revascularization (MR). “Cutting points” were as follows: HAD-anxiety scale (HAD-A) with anxiety > 9; HAD-depression scale (HAD-D) with depression > 9.

RESULTS: All three groups were homogenous regarding socio-demographic parameters. Statistically significant differences were observed among the three groups ($p = 0.006$; $p = 0.034$) in the level and prevalence of anxiety (HAD-A); and in the intergroup comparison of the anxiety level significant differences were observed between the EPS x MR and EPS x PM groups ($p < 0.05$). Significant differences in the level and prevalence of depression (HAD-D) among the study groups were not observed.

CONCLUSIONS: Patients with cardiac diseases undergoing electrophysiological studies, pacemaker implantation, and myocardial revascularization have different levels and prevalence of anxiety, but they do not show differences in the level and prevalence of depression.

Keywords: PRE-ANESTHETIC EVALUATION: psychological status, anxiety, depression; SURGERY, Cardiac: revascularization, pacemaker implantation, electrophysiological study.

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INTRODUCTION

Patients awaiting surgical procedures including simple ones should be considered in the context of its severity when fragility, anguish, and apprehension are present ^{1,2}. The number of individuals with anxiety symptoms after procedures that treated cardiac disease varies from 16% to 50%, while

40% of those undergoing myocardial revascularization can have psychological symptoms³.

The state of anxiety and depression in non-psychiatric hospitalized patients can be assessed by several scales. The Hospital Anxiety and Depression – HAD scale has been used both to screen and measure the severity of the disorder^{4,5}; it has a high degree of acceptance and it is easily answered⁴. This instrument can detect cases of mood disorders than could go unnoticed in the conventional assessment⁵. A detailed pre-anesthetic assessment and the use of the HAD scale can contribute for a better evaluation of the preoperative emotional status⁶.

The objective of this study was to compare the level and prevalence of anxiety and depression in patients with cardiac diseases undergoing invasive and/or surgical procedures, such as the electrophysiological study (EEF), pacemaker implantation (PM), and myocardial revascularization (MR), using the Hospital Anxiety and Depression Scale.

METHODS

After approval by the Ethics Committee of the Irmandade Santa Casa de Misericórdia de São Paulo and the Hospital Anís Rassi de Goiânia, 96 patients undergoing myocardial revascularization, pacemaker implantation, and electrophysiological studies were enrolled in this opened transversal study.

Inclusion criteria were as follows: patients with physical status ASA II and III due to a specific cardiac disease (coronary insufficiency or cardiac diseases with indication of electrophysiological studies or pacemaker), requiring myocardial revascularization, pacemaker implantation, or electrophysiological studies, and age equal or greater than 18 years. Illiterate patients, hearing impaired, hearing-speech impaired, visual or mental impairment, present or past history of anxiety and/or depression, and patients using psychoactive drugs were excluded.

Patients were allocated into three groups:

- EPS group: patients undergoing electrophysiological study (n = 32);
- PM group: patients undergoing pacemaker implantation (n = 32);
- MR group: patients undergoing myocardial revascularization (n = 32).

At the time of the pre-anesthetic evaluation, patients were informed about the study and signed an informed consent. Those who agreed to participate in the study were asked to

answer by themselves to the following forms before the pre-anesthetic evaluation:

a) Sociodemographic questionnaire with information about gender, age, race, marital status, schooling, and employment status;

b) Hospital Anxiety and Depression Scale (HAD).

The cutting points indicated by Zigmond and Snaith⁷ were adopted and recommended for both subscales:

- HAD-A – absence of anxiety, 0 to 8; with anxiety, ≥ 9 ;
- HAD-D – absence of depression, 0 to 8; with depression, ≥ 9 .

Parameters analyzed included: age, gender, race; marital status; schooling; current employment status; and HAD-anxiety and HAD-depression medians and scores.

The size of the study population was calculated considering a 25% difference in the prevalence of anxiety among the study groups with an alpha error of 5% and beta error of 20%⁸. This required 32 patients per group. The Kolmogorov-Smirnov test was used to analyze normal data distribution. ANOVA was used to compare age and anxiety and depression scores. The Chi-square test was used to compare gender, race, marital status, schooling, current employment status, and prevalence of anxiety and depression. Differences were considered statistically different when $p < 0.05$. The tests used are part of the software SPSS for Windows 10.

RESULTS

None of the patients in the three groups were excluded and the final study population consisted of 96 patients. According to table I, all three groups were similar regarding the sociodemographic characteristics (gender, age, race, marital status, schooling, and current employment status).

Table II shows median and the 25th and 75th percentiles of HAD-anxiety and HAD-depression scores and ANOVA results. Significant differences in HAD-anxiety among the study groups were observed ($p = 0.006$); the Tukey test was used for intergroup comparison and a significant difference was observed ($p < 0.05$) between the EPS x MR and EPS x PM groups. Statistically significant differences in HAD-depression scores among the three groups were not observed ($p = 0.102$).

Table III shows the total number and percentage of patients with/without anxiety and with/without depression in the study groups according to the HAD scale; significant differences were observed only in the prevalence of anxiety ($p = 0.034$).

Table I – Sociodemographic Characteristics of the Patients Evaluated and Results of the Statistical Tests

Parameter	EPS n (%)	PM n (%)	MR n (%)	p
Gender				0.0907 ²
Male	13 (40.7%)	18 (55.6)	22 (68.8%)	
Female	19 (59.3%)	14 (44.4%)	10 (31.2%)	
Age (years) *	54.8 ± 10.7	59.6 ± 9.6	58.9 ± 6.3	0.079 ¹
Race				0.6180 ²
White	21 (66.7%)	25 (78.1%)	26 (81.5%)	
Others	11 (33.3%)	07 (21.95)	06 (18.5%)	
Marital status				0.9395 ²
has a partner	24 (75.0%)	22 (68.8%)	24 (75.0%)	
no partner	08 (25.0%)	10 (31.2%)	08 (25.0%)	
Schooling				0.6065 ²
< elementary	10 (31.2%)	10 (31.2%)	13 (40.7%)	
≥ junior high	22 (68.8%)	22 (68.8%)	19 (59.3%)	
Current employment situation				0.8100 ²
has an income	20 (63.0%)	22 (68.8%)	24 (75.0%)	
no income	12 (327.0%)	10 (31.2%)	08 (25.0%)	

*Results expressed as Mean ± SD

p¹ – level of significance of ANOVA; p² – level of significance of the χ^2 test for tables greater than 2x2

EPS – electrophysiological study group; PM – pacemaker group; MR – myocardial revascularization group

Table II – Median and 25th and 75th Percentiles of the Scores of the Anxiety (HAD-A) and Depression (HAD-D) Scales in the Study Groups and Results of the ANOVA test

	HAD – Anxiety				HAD – Depression			
	EPS	PM	MR	p	EPS	PM	MM	p
median	10.00	7.00	7.00	0.006	8.00	6.00	5.00	0.102
25th percentile	6.00	5.00	4.00		5.00	2.50	3.00	
75th percentile	13.00	10.50	10.00		10.00	10.00	9.00	

EPS – electrophysiological study group; PM – pacemaker group; MR – myocardial revascularization group

p – level of significance; ANOVA

Table III – Prevalence of Anxiety (HAD-A) and Depression (HAD-D) in the Study Groups and Results of the χ^2 Test.

Group	E P S		P M		M R		P
	With	Without	With	Without	With	Without	
HAD-A	20 (62.5%)	12 (37.5%)	11 (34.4%)	21 (65.6%)	11 (34.4%)	21 (65.6%)	= 0.034
HAD-D	15 (46.9%)	17 (53.1%)	10 (31.3%)	22 (68.7%)	09 (28.1%)	23 (71.9%)	= 0.244

EPS – electrophysiological study group; PM – pacemaker group; MR – myocardial revascularization group;

p – level of significance; χ^2 test

DISCUSSION

This study demonstrated that patients with cardiac disease undergoing invasive and/or surgical procedures, such as electrophysiological studies, pacemaker implantation, and myocardial revascularization showed a high prevalence of anxiety and depression, and those patients undergoing EPS had the highest level of anxiety.

According to the cutting points proposed by Snaith et Zigmund⁷, only patients in the EPS group who presented a median HAD-A score of 10.0 crossed the cutting point and would be considered as having anxiety. However, analyzing the prevalence of anxiety one can notice that all groups presented a relevant number of patients with anxiety, i.e., 62.5% in the EPS group and 34.4% in the PM and MR groups. Similarly, depression was seen in 46.9% of the patients in the EPS group, 31.1% in the PM group, and 28.1% in the MR group.

Comparing of the results of the present study to those found in the literature was difficult, specifically for the data of the group of patients undergoing electrophysiological study and pacemaker implantation because studies comparing the incidence of anxiety and depression in those groups of patients are rare. In a comparative study between patients undergoing electrophysiological study and pacemaker implantation, Duru et al.⁸ did not observe differences in the prevalence of anxiety and depression after the procedure. However, those authors did not evaluate the presence of anxiety and depression before the procedures. The remainder of the studies found did not compare both groups, assessed anxiety and depression only in the late postoperative period of electrophysiological studies, and reported an increase prevalence of depression in patients undergoing EPS⁹⁻¹³.

The frequency observed in this study, 34.4% of anxiety in the MR group, is within the levels reported in the literature. However, the majority of the studies refer to the evaluation of anxiety and depression after the surgical procedure with a prevalence ranging from 16% to 50%¹⁴⁻¹⁸ or only mention that patients undergoing surgical myocardial revascularization showed high preoperative anxiety indexes^{9,20}.

The frequency of depression observed varied from 28 to 47%, which is more worrisome in the group of patients undergoing EPS, PM, and MR. Those results are in agreement with studies that document an increase in the prevalence of depression, which affected up to 60% of the patients with coronary artery disease²³.

It should be emphasized that a lower frequency of anxiety was observed in the MR group, which was unexpected. The elevated frequency of anxiety (between 34.4% and 62.5%) in all three groups demonstrated that a considerable percentage of the patients in the present study had those symptoms and therefore should have undergone more detailed assessment of their emotional status before the surgical intervention.

Moerman et al.²⁴ defended the application of anxiety assessment questionnaires to all surgical patients during the pre-anesthetic evaluation, especially patients with cardiac disease, who need special attention.

In the present study, the HAD scale was chosen because it is easy to handle and rapidly executed (mean time of ten minutes), and it can be answered by the patient. Other factors that influenced this choice include the absence of items that evaluate somatic symptoms and its validity and reliability have been demonstrated by several studies²⁵.

This study corroborated the importance of the HAD scale in patients scheduled to undergo electrophysiological studies, pacemaker implantation, and myocardial revascularization. By identifying patients with elevated levels of anxiety and/or depression and consider the use of appropriate and continuous psychological support in the pre- and postoperative period it would be possible to prevent the development of other psychological disorders that require differentiated pharmacological intervention.

Since the decade of 1960, studies have been reporting the association between the presence of anxiety and depression and an increase in morbidity and mortality after myocardial revascularization and currently studies have demonstrated that the presence of anxiety and depression can influence the development of cardiovascular lesions in previously healthy patients^{20,26}.

The results of the present study reinforce the importance of evaluating the emotional status of the patient with cardiac disease undergoing invasive and/or surgical procedures such as electrophysiological studies, pacemaker implantation, and myocardial revascularization since the prevalence of mood disorders is high.

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RESUMEN

Carneiro AF, Mathias LAST, Rassi Júnior A, Morais NS, Gozzani JL, Miranda AP - Evaluación de la Ansiedad y Depresión en el Período Preoperatorio en Pacientes Sometidos a Procedimientos Cardíacos.

JUSTIFICATIVA Y OBJETIVOS: *La evaluación específica de la ansiedad y de la depresión no está incluida en la rutina de evaluación preoperatoria, lo que hace con que en algunas situaciones como las enfermedades cardíacas, en que el estado emocional de los pacientes puede estar modificado por la propia enfermedad, puedan no quedar diagnosticadas. El objetivo del estudio fue comparar el nivel y la prevalencia de ansiedad y depresión en pacientes con enfermedad cardíaca a ser sometidos a procedimientos invasivos y/o quirúrgicos, utilizando la Escala Hospitalaria de Ansiedad y Depresión (Hospital Anxiety and Depression Scale - HAD).*

MÉTODOS: *Después de la aprobación por parte de los Comités de Ética, se incluyeron 96 pacientes, estado físico ASA II y III, que constituyeron tres grupos: estudio electrofisiológico (EEF), implante de marcapaso (MP) y revascularización del miocardio (RM). Las puntuaciones consideradas "punto de corte" fueron las siguientes: escala HAD-ansiedad (HAD-A): con ansiedad > 9; escala HAD-depresión (HAD-D): con depresión > 9.*

RESULTADOS: *Los grupos fueron homogéneos en cuanto a las variables sociodemográficas. Se observó una diferencia estadística significativa entre los tres grupos ($p = 0,006$; $p = 0,034$) en lo concerniente al nivel y a la prevalencia de ansiedad (HAD-A) y en la comparación del nivel de ansiedad grupo a grupo, se verificó la diferencia significativa entre los grupos EEF x RM y EEF x MP ($p < 0,05$). La comparación de los tres grupos en cuanto al nivel y a la prevalencia de Depresión (HAD-D) no arrojó diferencia estadística significativa.*

CONCLUSIONES: *Los pacientes con enfermedad cardíaca a ser sometidos a estudio electrofisiológico, implante de marcapaso y revascularización del miocardio, tienen diferencia de los niveles y prevalencia de ansiedad, pero no presentan diferencia con relación a los niveles y a la prevalencia de depresión.*