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EPIDEMIOLOGICAL PROFILE OF PATIENTS SUBMITTED TO CARDIAC SURGERY PERFIL EPIDEMIOLÓGICO DE PACIENTES SUBMETIDOS À CIRURGIA CARDÍACA

PERFIL EPIDEMIOLÓGICO DE PACIENTES SOMETIDOS A LA CIRUGÍA CARDÍACA

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ABSTRACT

Objective: to describe the sociodemographic and clinical profile of patients undergoing cardiac surgery. **Method:** this is a quantitative, cross-sectional and descriptive study carried out in a university hospital. The sample was composed of 200 patients submitted to cardiac surgery. The data was collected by means of a specific form, of secondary data contained in the medical records. The Microsoft Office Excel program, version 2010 was used for the tabulation and the data was analyzed by the Stata 14.0 statistical program. The results were presented in the table. **Results:** the medical records of 200 patients submitted to cardiac surgery were evaluated, and of these, the majority were male, composed of patients older than 60 years and pardos, systemic arterial hypertension, dyslipidemia and Diabetes Mellitus being the most common comorbidities prevalent. The main complications were identified as pulmonary and cardiac arrhythmias. **Conclusion:** it is possible, based on the knowledge about the profile of the patients that underwent cardiac surgery, to expand educational and health prevention actions, subsidizing strategies for adherence to treatment and control of complications. **Descriptors:** Length of hospitalization; Cardiovascular Surgical Procedures; Health Profile; Health Regulation and Surveillance; Thoracic Surgery; Nursing.

RESUMO

Objetivo: descrever o perfil sociodemográfico e clínico dos pacientes submetidos à cirurgia cardíaca. Método: trata-se de estudo quantitativo, transversal e descritivo, realizado em um hospital universitário. Compôs-se a amostra por 200 pacientes submetidos à cirurgia cardíaca. Coletaram-se os dados por meio de um formulário específico, de dados secundários contidos nos prontuários. Utilizaram-se para a tabulação o programa Microsoft Office Excel, versão 2010 e analisaram-se os dados pelo programa estatístico Stata 14.0. Apresentaram-se os resultados em tabela. Resultados: avaliaram-se os prontuários de 200 pacientes submetidos à cirurgia cardíaca e, destes, a maior parte era do sexo masculino, composta por maiores de 60 anos e pardos, sendo a hipertensão arterial sistêmica, a dislipidemia e o Diabetes Mellitus as comorbidades mais prevalentes. Identificaram-se, como as principais complicações, as pulmonares e as arritmias cardíacas. Conclusão: possibilita-se, a partir do conhecimento acerca do perfil dos pacientes que realizaram cirurgia cardíaca, ampliar as ações educativas e de prevenção à saúde, subsidiando estratégias para a adesão ao tratamento e ao controle das complicações. Descritores: Tempo de Internação; Procedimentos Cirúrgicos Cardiovasculares; Perfil de Saúde; Regulação e Fiscalização em Saúde; Cirurgia Toráxica; Enfermagem.

RESUMEN

Objetivo: describir el perfil sociodemográfico y clínico de los pacientes sometidos a la cirugía cardiaca. Método: se trata de un estudio cuantitativo, transversal y descriptivo, realizado en un hospital universitario. Se compuso la muestra por 200 pacientes sometidos a la cirugía cardiaca. Se recolectaron los datos a través de un formulario específico, de datos secundarios contenidos en los prontuarios. Se utilizaron para la tabulación el programa Microsoft Office Excel, versión 2010 y se analizaron los datos por el programa estadístico Stata 14.0. Se presentaron los resultados en tabla. Resultados: se evaluaron los prontuarios de 200 pacientes sometidos a la cirugía cardiaca y, de éstos, la mayor parte era del sexo masculino, compuesta por mayores de 60 años y pardos, siendo la hipertensión arterial sistémica, la dislipidemia y la Diabetes Mellitus las comorbilidades más prevalente. Se identificaron, como las principales complicaciones, las pulmonares y las arritmias cardíacas. Conclusión: se permite, a partir del conocimiento acerca del perfil de los pacientes que realizaron cirugía cardiaca, ampliar las acciones educativas y de prevención a la salud, subsidiando estrategias para la adhesión al tratamiento y al control de las complicaciones. Descriptores: Tiempo de internación; Procedimientos Quirúrgicos Cardiovasculares; Perfil de Salud; Regulación y Fiscalización em salud; Cirugía Torácica; Enfermería.

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INTRODUCTION

Cardiovascular diseases (CVD) are a major challenge for contemporary societies, especially as they are a frequent cause of morbidity and mortality, ¹ revealing a public health problem and one of the universal reasons for hospitalization.² It is known that in Brazil, CVD are among the main indicators of incidence and prevalence in the Unified Health System (UHS), and despite the reduction in mortality in recent years, these diseases accounted for 30.4% of deaths in 2011.³

In 2014, there 1,140,792 were hospitalizations due to diseases of the circulatory system in the UHS, with an overall cost of R\$2,616,411,987.59, and in the Southeast region, 505,092 hospitalizations occurred and the total amount spent was R\$1,221,847,218.82; already, in Espírito Santo, there were 24,484 hospitalizations, with a total cost of R\$48,855,697.28.4

It is explained that the therapeutic approach of cardiovascular diseases can be clinical or surgical, both with the objective of restoring the functional capacity of the heart in order to reduce the symptomatology and to return the individual to their normal activities. Alert that cardiac surgeries are large surgeries, worldwide, but indicated when the probability of survival is greater with the surgical treatment than with the clinical treatment.

lt is understood that the clinical comorbidities associated with cardiac surgery patients, the complexity of the surgical intervention, the need for intensive care unit (ICU) hospitalization some in cases. postoperative complications, infections and even the issues social factors are factors that can prolong hospital stay. This prolonged hospital stay is an indirect indicator of the quality of care provided to patients in tertiary services.7-8

It is believed that the nurse is the professional widely present at all moments of direct and indirect assistance to the patient, either on arrival at the hospital, in the preparation, assistance and recovery of the procedure, since it is he who can intervene, from of scientific knowledge and specific skills, in a more effective way, with a view to preventing the development of complications, as well as assisting in the treatment and recovery of patients undergoing cardiac surgery. 9-10

It is important, in this sense, to know the socio-demographic and clinical profile of patients submitted to cardiac surgery and who

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use the hospital beds, since it can contribute to the improvement of the management of this resource in the institution, through an adequate planning, in relation to the allocation of health resources, currently reduced in response to demand, mainly in the UHS.

OBJECTIVE

• To describe the sociodemographic and clinical profile of patients undergoing cardiac surgery.

METHOD

It is a quantitative, descriptive, epidemiological, cross-sectional and retrospective study, based on the analysis of secondary data. The study was developed in a tertiary hospital, which develops teaching, research and assistance activities, a state reference in cardiac surgery in a municipality in the Southeast region of Brazil.

The study population was composed by patients submitted to cardiac surgery, who underwent surgery between August 1, 2015 and April 30, 2017, totaling 200 cases. The choice of this period should be due to the fact that the list of patients who performed all types of cardiac surgery at that time was available at the institution.

The inclusion criteria were: cases of cardiac with surgery, or without cardiopulmonary bypass, in men and women older than 18 years. Patients who exclusively procedures performed with implantable electronic devices (pacemakers, cardiac resynchronizer, implantable cardioverter defibrillator and generator exchange).

Data was collected from May 08 to September 28, 2017, and a specific form was developed with the purpose of identifying the profile of the patient submitted to cardiac surgery, containing sociodemographic and clinical data: length of hospital stay total: preoperative time; time of intensive care; postoperative time; age; sex; race / color; County; companion; occupation; place of hospitalization; regulated access; previous acute myocardial infarction (AMI); time occurrence of AMI; previous ICU admission; type of cardiac surgery; surgical status; time of surgery; surgery suspension; previous heart surgery; ejection fraction; extracorporeal circulation time (ECT); cardiac re-boarding; readmission to the ICU; death; associated comorbidities; smoking; complications in the trans and postoperative period, as well as time of mechanical ventilation.

The following sources of data were collected: charts of patients undergoing cardiac surgery, bank records of the cardiac surgery team and the management application for university hospitals.

After the data collection, this information was coded and revised by the researcher, and they were subsequently typed into a spreadsheet in the Microsoft Office® Excel 2010 program and analyzed by the statistical program Stata 14.0.

The study was approved by the Research Ethics Committee of the Health Sciences Center of the Federal University of Espírito Santo under the number CAAE 59917116.3.0000.5060.

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RESULTS

The sociodemographic and clinical characteristics of the population studied are shown in Table 1.

It is described, regarding the sociodemographic characteristics, that among the 200 patients evaluated. Individuals married or in a stable union were considered as partners, and the individuals who were currently working, whether salaried or self-employed, were considered as occupations; the retirees, the home and the unemployed were characterized as without occupation.

Table 1 also shows data related to preoperative clinical characteristics.

Table 1. Sociodemographic and clinical characterization of patients submitted to cardiac surgery. Universitary hospital. Vitória (FS) Brazil 2017

Vitória (ES), Brazil, 2017			
Variables	N 200	%	CI95%
Age			
Up to 59	96	48.0	41.1-55.0
60 or more	104	52.0	45.0-58.9
Sex			
Male	120	60.0	53.0-66.0
Female	80	40.0	33.3-47.0
Race/Colour			
White	64	32.0	25.9-38.9
Black	07	3.5	1.7-7.2
Brown	129	64.5	57.6-70.9
Municipality			
Grande Vitória	157	78.5	72.2-83.7
Interior	35	17.5	12.8-23.5
Other states	80	4.0	2.0-7.8
Has a partner			
No	119	59.5	52.5-66.1
Yes	81	40.5	33.9-47.5
Occupation*			
No	104	57.8	50.4-64.8
Yes	76	42.2	35.2-49.6
Arterial hypertension			
Yes	151	75.5	69.0-81.0
No	49	24.5	19.0-31.0
Diabetes Mellitus			
Yes	60	30.0	24.0-36.7
No	140	70.0	63.2-76.0
Chronic kidney failure			
Yes	16	8.0	4.9-12.7
No	184	92.0	85.3-95.1
Dyslipidemia	44.4	F 7 0	F0 0 (2 7
Yes	114	57.0	50.0-63.7
No	86	43.0	36.3-50.0
Pneumopathies Yes	17	0 E	E 2 42 2
	17	8.5	5.3-13.3
No Rheumatic fever	183	91.5	86.7-94.7
	20	14.0	9.8-19.6
Yes No	28 172	14.0 86.0	80.4-90.2
Valvopathies	1/2	00.0	00.4-90.2
Yes	57	28.5	22.6-35.2
No	143	71.5	64.8-77.4
Angina	143	71.3	04.0-77.4
Yes	35	17.5	12.8-23.6
No	165	82.5	76.5-87.2
Cardiac insufficiency	103	02.3	70.5-07.2
Yes	25	12.5	8.6-17.9
No	175	87.5	82.1-91.4
Previous AMI*	., 3	07.5	02.1 71.7
Yes	73	36.7	30.2-43.6
No	126	63.3	56.3-69.8
- · -	0		55.5 57.5

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AMI time (days)***			
Up to 90	43	58.9	47.1-69.8
More than 90	30	41.1	30.2-52.9
Smoker**			
Yes	27	13.6	9.4-19.1
No	172	86.4	80.9-90.6

N=180; **N=199; ***N=73. AMI - Acute Myocardial Infarction

It is noted, regarding the profile of hospitalizations (Table 2).

Table 2. Profile of hospitalizations of patients submitted to cardiac surgery. Universitary hospital. Vitória (ES), Brazil, 2017.

surgery. Universitary hospital. Vitória (ES	5), Brazil, 201		
Variables	N	%	IC95%
Hospitalization location Emergency room	71	35.5	29.1-
Infirmary	125	62.5	42.4 55.5-
ICU Paralata da sasara	04	2.0	70.0 0.7-5.2
Regulated access Yes	09	4.5	2.3-8.5
No Previous ICU admission *	191	95.5	91.5- 97.6
Yes	19	9.6	6.1-14.5
No	180	90.4	85.4- 93.4
Suspended surgery			7011
Yes	91	45.5	38.7- 52.5
No	109	54.5	47.5- 61.3
Number of times suspended**	40	F2.0	42.4
1	49	53.9	43.4- 64.0
2 to 3	36	39.6	29.9- 50.1
>=4 Previous cardiac surgery *	08	6.6	2.9-14.1
Yes	18	9.1	5.8-13.9
No	181	90.9	86.1- 94.2
Time of mechanical ventilation in postoperative period (hours)	the		
≤ 6	54	27.0	21.3- 33.6
6 to 12	64	32.0	25.9- 38.8
≥ 12	76	38.0	31.5- 45.0
Not applicable Readmission to the ICU	06	3.0	1.3-6.6
Yes	11	5.5	3.1-9.7
No	171	85.5	79.9- 89.8
Not applicable Reason for readmission to the ICU	18	9.0	5.7-13.9
Acute pulmonary edema	02	18.2	3.5-58.0
Cardiac resuscitation	04	36.4	11.7- 71.1
Other surgery	02	18.2	3.5-58.0
Infection	02	18.2	3.5-58.0
Decompensated heart failure Death	01	9.1	0.9-53.7
Yes	19	9.5	6.1-14.4
No	181	90.5	85.6- 93.9
Probable cause of death	00	47.4	25.0
Cardiac	09	47.4	25.0- 70.8

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Infectious	05	26.3	10.4- 52.4
Coagulation Disorder	02	10.5	2.3-37.1
Neurological	01	5.3	06-33.8
Pulmonary	02	10.5	2.3-37.1

*N=199; **N=91; *N=199; ***N=182; ****N=195. ICU - Intensive care unit.

Table 3 details the procedures performed by the patients submitted to cardiac surgery and the duration of the surgeries. These values were adopted for the duration of surgery and the value of ECT because they are the median values of the duration of surgery and duration of ECT in the surgical procedures collected, since there is no reference to be used for these purposes in previous studies.

Table 3. Procedures performed by patients undergoing cardiac surgery. University Hospital, Vitória (ES), Brazil, 2017.

surgery. University Hospital, Vitória (ES), Brazil, 2017.				
Varibles	N	%	CI95%	
Cardiac surgery				
MRS	125	62.5	55.5-69.0	
Valve replacement	45	22.5	17.2-29.0	
MRS / valve replacement	07	3.5	16.7-7.2	
Valve plastid	02	1.0	0.2-4.0	
Correction IAC / IVC	03	1.5	0.5-4.6	
Other	18	9.0	5.7-13.9	
Type of prosthesis *				
Biological	23	39.0	27.2-52.3	
Metallic	36	61.0	47.7-72.8	
Location of the prosthesis *				
Mitral	28	47.5	9.8-19.6	
Aortic	21	35.6	6.9-15.6	
Mitroaortica	10	16.9	2.7-9.1	
Surgical Status				
Elective	194	97.0	93.4-98.7	
Urgency / emergency	06	3.0	1.3-6.6	
Ejection fraction (%) ***				
Up to 63	96	52.8	45.4-60.0	
More than 63	86	47.2	40.0-54.5	
Surgery time (minutes)				
Up to 270	108	54.0	47.0-60.8	
More than 270	82	46.0	39.1-53.0	
Extracorporeal circulation				
Yes	195	97.5	94.1-99.0	
No	05	2.5	1.0-5.9	
ECC time (minutes) ****				
Up to 57	99	50.8	43.7-57.8	
More than 57	96	49.8	42.2-56.3	
Reopened by cardiac surgery				
Yes	10	5.0	2.7-9.1	
No	190	95.0	90.9-97.3	
Reason for re-entry	.,,	7010		
Valve replacement	01	10.0	0.9-57.8	
Bleeding	02	20.0	3.7-62.2	
Mediastinitis	02	10.0	3.7-62.2	
Pericardial effusion or	04	40.0	12.5-75.7	
tamponade	0.1	10.0	12.5 / 5./	
Cardiac arrhythmia	01	10.0	3.7-62.2	
*N=199; **N=91; *N=199; ***N=182;				

*N=199; **N=91; *N=199; ***N=182; ****N=195. MRS - Myocardial Revascularization Surgery. IAC /IVC - Interatrial communication / Interventricular communication. ECC - Extracorporeal Circulation

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The profile of complications in the trans and postoperative period of patients

undergoing surgery was shown in table 4.

Table 4. Profile of trans and postoperative complications of patients submitted to surgery. Universitary hospital. Vitória (ES), Brazil, 2017

vitoria (ES), Brazil, 2017	_		_
Variables	N	%	C195%
Cardiorespiratory arrest			
Yes	16	8,0	4,9-12,7
No	184	92,0	87,3-95,1
Neurological events			
Yes	16	8,0	4,9-12,7
No	184	92,0	87,3-95,1
Need for vasoactive drug			
Yes	177	88,5	83,2-92,2
No	23	11,5	7,7-16,8
Vasoactive drug number			
One	55	31,4	24,9-38,7
Two to three	114	65,1	57,7-71,9
More than three	06	3,4	1,5-7,8
Heart Arrhythmias			
Yes	96	48,0	41,1-55,0
No	104	52,0	45,0-58,9
Acute renal failure			
Yes	37	18,5	13,7-24,5
No	163	81,5	75,5-86,3
Pulmonary complications			
Yes	96	48,0	41,1-55,0
No	104	52,0	45,0-58,9
AMI			
Yes	02	1,0	0,2-3,9
No	198	99,0	96,0-99,8
Hospital infection			
Yes	50	25,0	19,4-31,5
No	150	75,0	68,5-80,6

AMI - Acute myocardial infarction.

DISCUSSION

The sociodemographic and clinical profile of patients submitted to cardiac surgery observed in this study is in line with the results of other national studies. It was observed a cross-sectional study carried out in São Paulo, involving 100 patients submitted to cardiac surgery. Among the patients, the male gender (56.0%), aged between 50 and 70 years (67.0%) and mean of 58.7 (SD = 10.5). Previous diseases such as systemic arterial hypertension, Diabetes Mellitus type 2 and dyslipidemia were more frequent, and the most frequently performed surgery was myocardial revascularization (MR) (58.0%), with complications, atrial fibrillation was highlighted, and 93% were elective in terms of surgical status. 11

The majority of the population was composed of elderly men, who were in the metropolitan area of the State and had no occupation, in the same way as the study performed with patients undergoing coronary artery bypass surgery in 2017, showing a masculine and senile population. It is also possible to relate the origin of the metropolitan region, that is, in the vicinity of the hospital institution, to facilitate access to highly complex health services.⁵

The majority of the patients were hospitalized in the study, but on the other

hand, a portion had, as an entrance, the emergency and emergency department of the institution, often being diagnosed and treated an AMI prior to surgery cardiac. It was identified, in a study carried out in Florianópolis, that verified the access to health services by patients submitted to cardiac surgery, which the hospital search for, in cases of health intercurrences, was related to the difficulty in accessing the consultations with the general practitioner in primary care and specialist in medium complexity.⁵

It was observed in most cases that postoperative MV time was greater than 12 hours and surgery time was up to 270 minutes. In another study, similarity between these times was found, with an average time of surgery of 253 minutes, and the invasive ventilatory strategy lasted for a median time of 870 minutes, that is, 14.5 hours.² In another study, surgery times of 202 minutes and MV of 608.4 minutes were found, that is, approximately ten hours.¹²

Cardiac surgery of the extracorporeal circulation is needed in most cases, since it is a long-term procedure. By the evolution and development of CPB, complex cardiovascular pathologies were surgically treated, and what was previously inoperable and meant a sentence of poor quality of life or even short

duration of life became a solution to many problems in the area of Cardiology. 13 However, it is pointed out in other studies that this technique provokes a systemic inflammatory response with the release of substances that impair coagulation and the autoimmune system. 9,14

It is advised that, during the cardiac transoperative period, as a result of ECC and cardiac arrest, the patient will need an artificial ventilatory support, 15 which causes changes in the patient's cardiovascular hemodynamics and causes a decrease in renal blood flow.² Know As for the postoperative period, the patient undergoing cardiac surgery will remain in the MV until full lucidity is recovered, and the nurse's attention is necessary in monitoring vital signs, clearing the airways and keeping the head high. 7,10

Pulmonary complications were among the most common among patients undergoing surgery, as well as cardiac arrhythmias. The main complications include ventilatory and respiratory changes due to surgical procedures extracorporeal circulation, as well as preoperative factors such as pulmonary diseases and previous respiratory conditions. 15

It was confirmed that the most frequent postoperative complications were respiratory and hemodynamic complications, with a higher incidence of MRS between the first postoperative days. 12 There was also a greater frequency of pulmonary complications in 64.6% of patients in the postoperative period of cardiac surgery.16

It was also identified in another study that the most frequent complication among patients in the postoperative period of cardiac surgery was arrhythmia, specifically atrial fibrillation, and is related comorbidities.2

It is reported that, in relation to the use of vasoactive drugs, the majority of patients these medications postoperatively, because, due to hemodynamic instability that may occur in the immediate postoperative period, the patient may need vasoactive drugs and remain in the ICU for as long as.⁷

It was determined, in a study analyzing the clinical characteristics of patients submitted to cardiac surgery, that the use of AVD was present in 45.8% of the patients who underwent coronary artery bypass surgery. 16

It is stated that the mortality in the study was equivalent to 9.5%, similar to the retrospective study carried out in Rio de Janeiro in 2011, in which a mortality rate of 8.89% was observed. 17

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Some limitations were observed, since it is a retrospective study and with secondary data, in the form of obtaining the data, the completeness of the data, as well as the quality of the information; despite this limitation, this study was able to reach about discussions pertinent characterization of patients submitted to cardiac surgery, as well as to encourage and strengthen the regulation and management culture, beginning the change of practices and concepts in this institution.

CONCLUSION

This study allowed us to know the epidemiological profile of patients who underwent cardiac surgery in a university hospital in cardiology and cardiac surgery, through cross-sectional research. For this data, we can help develop strategies at the hospital and outpatient level to improve care for this clientele.

Clinical and sociodemographic variables compatible with other national studies in this area were identified.

This study emphasizes the importance of profile of patients the underwent cardiac surgery at the institution contribute to the intensification of educational actions and prevention of health. subsidizing strategies for adherence treatment and control of complications. It is also observed the need for new studies to examine the association between length of hospital stay and sociodemographic and clinical variables of patients undergoing cardiac surgery.

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