Ronaldo Vegni[1], Gustavo Ferreira de Almeida[2], Fabricio Braga[3], Marcia Freitas[4], Luis Eduardo Drumond[5], Guilherme Penna[6], José Kezen[7], Gustavo Freitas Nobre[8], Marcelo Kalichsztein[9], André Miguel Japiassú[10]

Postoperative cardiac artery bypass graft complications in elderly patients

Complicações após cirurgia de revascularização miocárdica em pacientes idosos

1-9. Physician from the Intensive Care Unit of the Casa de Saúde São José, Rio de Janeiro (RJ), Brazil.
10. Physician from the Intensive Care Unit of the Casa de Saúde São José, Rio de Janeiro (RJ), Brasil. Clinical Research Institute Evandro Chagas –FIOCRUZ, Rio de Janeiro (RJ), Brazil.

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Address for correspondence:
Dr. André Miguel Japiassú, M.D.
Av. Brasil, 4365
21040-900 Rio de Janeiro, (RJ), Brazil.
E-mail: andrejapi@gmail.com

ABSTRACT

Purpose: Due to the increasing longevity of the and high prevalence of coronary heart disease in the aged, coronary artery bypass graft surgery has become frequent in older patients. The purpose of this study is to describe operative features, length of stay, complications and short term outcomes after coronary artery bypass graft in such patients.

Methods: From February 2005 to October 2007, 269 patients underwent coronary artery bypass graft. Demographic data, comorbidities, prognostic scores, coronary artery bypass graft elective versus urgent indication, intensive care unit length of stay, postoperative complications and intensive care unit mortality were recorded. Intra-operative characteristics, such as total surgery time, use of bypass device, on-pump time, urine output, fluid balance, use of blood products and number of grafts, were analyzed. Patients were divided in four age groups: group I (< 60 n = 68), II (60 to 69 n = 86), III (70 to 79 n = 93) IV and older than 80 years (n = 22).

Results: Group IV patients were more frequently submitted to coronary artery bypass graft combined with valve replacement, emergency surgery, and had longer stay in the intensive care unit ($p < 0.01$). The incidence of at least one postoperative complication was also higher among patients older than 80 ($p < 0.001$). Multivariate analysis identified age and on-pump time as independent risk factors for development of complications. Mortality increased in patients older than 70 years ($p = 0.03$).

Conclusions: Octogenarian patients undergoing coronary artery bypass graft have longer intensive care unit length of stay, incidence of complications and mortality. Age and on-pump time were independent risk factors associated with the incidence of postoperative complications.

Keywords: Coronary artery disease/surgery; Coronary artery bypass/adverse effects; Graft occlusion, vascular; Postoperative complications; Aged; Prognosis

INTRODUCTION

The population of the Western counties is getting older. In France for instance, the proportion of people over 60 years of age increased from 19% in 1990 to 20,5% in 2000 and the projection for 2020 is of 27%.[1] In Brazil, from 1991 to 2000, there was an almost 50% increment in the elderly population, with an estimated increase surpassing that of the other age brackets in the next three decades.[2] Increased life expectancy leads to a higher number of admissions, mainly due to cardiovascular disease. Arterial coronary disease is an important cause of morbidity and mortality in this population, with sub-

sequent increase of percutaneous or surgical cardiac artery bypass graft (CABG).[3-4] For socio-economical reasons studies to evaluate interventions in the elderly population are required.

In a 15 year retrospective observational study, mortality of octogenarians was higher for CABG as well as for other cardiac surgeries. Prospective Brazilian studies assessing cardiac surgeries in the aged, have also demonstrated a higher mortality in patients from 70 to 90 years of age. However, a high prevalence of urgent indication for CABG cardiac artery bypass graft and advanced heart failure were noteworthy.[5] There was a significant increase in the age of patients submitted to CABG during the last two decades, but with a decrease in the proportion of urgency indications and associated hospital mortality.[6] Incidence of postoperative complications was also higher in patients over 70 years old.[7] Nevertheless reasons associated to poorer performance of very old patients in the postoperative have not yet been analyzed.

The objective of this study was to assess incidence of complications and mortality of aged patients after cardiac artery bypass graft surgery, during stay in the intensive care unit (ICU) and establish the risk factors for the development of such complications.

METHODS

After approval by the Ethics in Research Commission and according to the Declaration of Helsinki, this study of a retrospective cohort in an ICU of a private hospital in Rio de Janeiro was carried out. Various surgery teams work at this hospital and are responsible for referral of patients to the ICU. All cardiac surgeries were analyzed in a consecutive mode by data collection using a form specific to the sector, by daily routine physicians and stored in a Microsoft Access® based program by a daily routine physician. Demographic data were collected: age, gender, current weight and height (to estimate the body mass index) and presence of comorbidities such as arterial hypertension (AHT), diabetes mellitus (DM - serum glycemia over 126mg/dl, fasting, in two consecutive exams), chronic obstructive pulmonary disease, previous stroke, presence of stable or unstable angina and previous acute myocardial infraction (AMI). Risk factors for arterial coronary disease were also recorded: familial history of coronary disease, dislipedemia, prolonged smoking (more than 20 packs/year), sedentarism (does not perform physical activities with more than 4 metabolic equivalent (METs) expenditure), obesity (classification of normal, overweight, mild, moderate and severe obesity) and former venous thrombosis. Previous renal dysfunction was defined as a creatinine serum level higher than 2 mg/dL. Former revascularizations, surgical as well as by percutaneous angioplasty and presence of coronary stents were assessed. Echocardiograms before CABG were reviewed for recovery of the ejection fraction by the Teicholz method.

The need for surgery was defined as elective or emergency (during the same hospital stay). Surgery characteristics that are risk factors for severity were also analyzed: reoperation and combined valve replacement. Data recorded from the intra-operative period were: total time of surgery, use of bypass device, on-pump time, urine output, fluid balance, use of blood products and number of grafts.

At postoperative period, the patient was immediately taken to the ICU, on mechanical ventilation with central venous pressure monitoring and invasive arterial line. Early extubation protocol is carried out in the sector and endeavors to limit, as much as possible, mechanical ventilation time (preferentially up to 4 hours) as long as the patient awakens adequately, has hemodynamic stability and in the absence of significant bleeding.[8] Mediastinal and pericardial drainage was monitored every hour to identify bleeding that would require use of blood products and/or surgical re-intervention. Use of beta-blocker and aspirin was begun as soon as clinical and laboratory parameters allowed (in general on the day following surgery). Postoperative complications were defined as significant thoracic bleeding (more than 500mL per day), reoperation, prolonged time of mechanical ventilation (more than 12 hours), pneumothorax, large pleural effusion (more than 500 mL estimated at imaging exam and/or that required thoracocentesis and/or draining) atrial fibrillation or flutter, ventricular dysrhythmia, AMI, peripheral arterial failure, nosocomial infections (present 48 hours after admission: pneumonia, urinary tract infection, bacteremia from a vascular catheter, esternal wound infection, mediastinitis), new stroke, tonic-clonic convulsive crisis, acute renal dysfunction (defined as an increase higher than 50% or more than 2.0 mg/dL of creatinine or urine output less than 0.5 mL/kg/hour and need of diuretics) and death during hospital stay.

Prognostic evaluation scores specific for cardiac surgery (Euroscore and Ontario score) were calculated with pre-operative data.[9-10]. *Acute Physiology and Chronic Health Evaluation II* (APACHE II) was done of each patient with an analysis of age, chronic diseases and values of physiological and laboratory data, in the first

24 hours after admission in the ICU.[11] The APACHE II score was also analyzed excluding the points for age (less than 44 years = 0 points; 45-54 = 2 points; 55-64 = 3 points; 65-74 = 5 points and more than 75 years = 6 points) so as to differentiate the severity of clinical, laboratory changes and of comorbidities among the age brackets (APACHE II – age).

Patients were divided into 4 groups according to age brackets I (up to 60 years); II (60-69 years); III (70-79 years) and IV (more than 80 years). Numerical values were expressed as mean ± standard deviation. Categorical and ordinal data were expressed as absolute values and percentages. Groups were compared by the ANOVA method for continuous variables and the Chi-square for categorical variables. There was a significant difference when p value vas less that 0.05. Patients that presented at least one complication were compared with those with no complications at postoperative period. The objective was to find variables that could influence the incidence of postoperative complications. The Student t test (Mann-Whitney) and the chi-square were applied whenever convenient. After survey of the pre- and intra-operative data that associated with the emergence of some complication, multivariate analysis was carried out to find factors independently associated to complications. The statistical program SPSS 11.0 for Windows (SPSS Inc., Chicago, IL, USA) was used.

RESULTS

From 343 patients submitted to cardiac surgery between February 2005 and October 2007, 74 were excluded who did not have cardiac artery bypass graft as the main surgery. Of the remaining 269, 68 patients (25.3%) were less than 60 years old (group I), 86 (32%) were 60 to 69 (group II), 93 (34.5%) were 70 to 79 (group III) and 22 (8.2%) were more than 80 years old (group IV) (Table 1). There was a lower prevalence of the male gender in the more aged groups (81% *versus* 76%, *versus* 63%, *versus* 50% respectively; p=0.01). The group of octogenarians presented a lower body mass index than the other groups. Elderly patients presented more severity, shown by the prognostic scores APACHE II, Euroscore and Ontario (p <0.001). When age points were excluded from the APACHE II score it was perceived that group IV was denoted by a significantly higher severity upon arrival at the ICU (5.8 *versus* 5.7, 7.3 and 11.1 points for groups I, II, III and IV, respectively; p< 0.001). Length of stay (LOS) at ICU varied among groups and was higher only in group IV (Figure 1a). Mortality was similar in age brackets up to 79 years (group I = 0, group II = 3.5% and group III = 5.4%). However octogenarians presented a significantly higher mortality (13.6%; p= 0.04) (Figure 1b).

Table 1 – Demographic characteristics, severity, length of stay and mortality in the intensive care unit

Variables	Age brackets				p value
	< 60 (n = 68)	60-69 (n = 86)	70-79 (n = 93)	> 80 (n = 22)	
Age (years)	53.3 ± 6.5	64.7 ± 2.9	74.4 ± 2.7	82.8 ± 2.7	-
Male gender	55 (81)	65 (76)	59 (63)*	11 (50)*	0.01
BMI	26.3 ± 5.1	26.8 ± 4.2	25.7 ± 3.9	23.5 ± 3.2*	0.03
APACHE II	8.3 ± 4.1	10.2 ± 4.8	12.8 ± 5*	17.1 ± 6.7†	< 0.001
APACHE II without age	5.8 ± 4	5.7 ± 4.8	7.3 ± 5	11.1 ± 6.7†	< 0.001
EF (%)	64.1 ± 12.2	65.9 ± 11.9	63.2 ± 13.3	61.1 ± 14.1	0.10
EF< 50%	8 (12%)	8 (9%)	15 (16%)	5 (23%)	0.31
Euroscore additive	1.8 ± 2.1	3.1 ± 2.3*	6.3 ± 2.8 †	8.8 ± 2.8†	< 0.001
Euroscore logistic (%)	2.2	3.1	8	14.6	-
Ontario score	1.1 ± 1.7	2.1 ± 1.9*	4.4 ± 2.2†	5.8 ± 2.2†	< 0.001
Probability of death Ontario (%)	1.3	2	5.3	7.9	-
Length of stay (days)	2.4 ± 0.7	3.7 ± 6.5	3.8 ± 5.8	5.1 ± 6.4†	< 0.001
Mortality	0	3 (3.5)	5 (5.4)	3 (13.6)*	0.04

BMI - body mass index; APACHE - Acute Physiology and Chronic Health Evaluation; EF - left ventricular ejection fraction. Results are expressed as mean± standard deviation or number(%). *p < 0.05; †p < 0.001

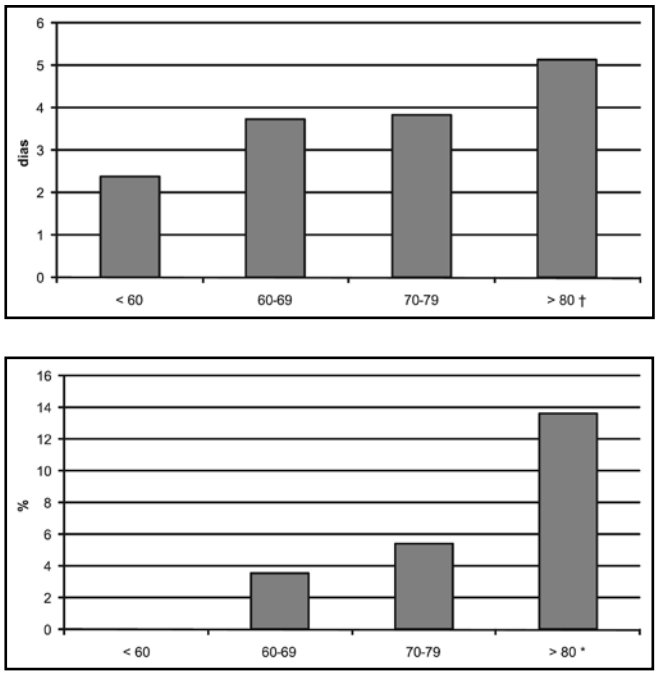

Figure 1 – Length of stay (a) and mortality in the intensive care unit (b) by age bracket. †p < 0.001; *p < 0.05

Some differences in the prevalence of certain comorbidities were observed. Arterial hypertension was less common in the non-aged group (up to 60 years, p=0.03). DM was more prevalent in groups II and III (p= 0.04). Fewer smokers were found among patients over 70 years old (p = 0.002), nevertheless chronic dysthrythmias (mainly atrial fibrillation) was present more often when compared to the remaining groups (p=0.03). However, no noticeable difference was perceived in the profile of comorbidities among the various age brackets, mainly in the history of risk factors for coronary disease. Previous revascularizations, whether surgical or percutaneous had a similar occurrence in all brackets.

There were differences among groups regarding characteristics of the surgeries and intra-operative period (Table 2). The combination of valve replacement with CABG was more prevalent in group IV (4% *versus* 2%, 10%, *and* 23% for Group I, II, III and IV, respectively, p< 0.001). In this same group there was a higher incidence of emergency surgeries (31%, 30%, 43% and 73% for Group 1, 2, 3 and 4, respectively, p = 0.001). Unstable angina, AMI and cardiogenic shock were indications for CABG in 33% of patients in the whole cohort. These indications were responsible for surgery in a heterogeneous manner among the age brackets: 29% (group I); 27% (II); 39% (III); and 45% (IV). Regarding intra-operative period, the elderly presented surgery duration and extracorporeal circulation (ECC) similar to the younger group, as well as the number of vascular grafts and fluid balance. However, the use of blood products was more frequent in patients over 70 years old. Septuagenarians and octogenarians were transfused in 53% and 77% of surgeries (p< 0.001).

One hundred and ten patients (41%) had at least one postoperative complication (Table 3). The more frequent were: atrial fibrillation, acute renal dysfunction, thoracic bleeding, need for blood transfusion and nosocomial infections. Elderly patients had a greater number of complications. Octogenarians presented

Table 2 – Characteristics of coronary artery bypass graft surgery by age bracket

Characteristics	Age brackets				
	< 60 (n = 68)	60-69 (n = 86)	70-79 (n = 93)	> 80 (n = 22)	p value
Isolated CABG	65 (95%)	84 (98%)	83 (89%)*	16 (73%)‡	< 0.001
Valve replacement	3 (4%)	2 (2%)	9 (10%)	5 (23%)†	< 0.01
Emergency character	21 (31%)	26 (30%)	40 (43%)	16 (73%)‡	0.001
On-pump Time (min)	80 ± 30.6	85 ± 27.1	88.9 ± 32	101.4 ± 38.8	0.15
Total time (h)	4.9 ± 0.8	5.2 ± 2.3	4.9 ± 1	5.4 ± 1.2	0.42
Fluid balance (mL)	2000 ± 1129	2194 ± 1089	2103 ± 982	2299 ± 1428	0.58
Urine output (mL)	1332 ± 555	1284 ± 588	1181 ± 616	1082 ± 551	0.19
Use of blood transfusion	11 (16%)	23 (27%)	49 (53%)	17 (77%)‡	< 0.001
Number of vascular grafts	4.2 ± 1.4	4.1 ± 1.2	4.4 ± 1.4	3.5 ± 1.7	0.24

CABG= Coronary artery bypass graft. Results are expressed as mean± standard deviation or number(%). *p < 0.05; †p < 0.01; ‡ p < 0.001

with at least one complication in nearly 73% of postoperative periods, followed by septuagenarian patients (50%). In relation to younger (group I) and less aged patients (group II), patients of group III presented a higher risk of developing at least one postoperative complication (odds ratio 3.2, 95% confidence interval 1.6-6.4). Patients of group IV presented an even higher risk of complications: 8 times OR= 8,0(CI 95%, 2.7-23.7), with emphasis on higher incidence of atrial fibrillation, atrioventricular block, left ventricular failure, thoracic bleeding, nosocomial infection (mainly pneumonia), severe sepsis and acute renal dysfunction. Although a higher frequency of prolonged time on mechanical ventilation was noted (longer than 12 hours) results were not statistically significant (7.3, 8.1, 15.0 and 22.7% for groups 1, 2, 3 and 4, respectively; p = 0.11). There were few dehiscences or infections of the sternal suture (2 cases) and mediastinitis (1 case), reflecting good surgical technique. Reoperation was necessary in 7 patients, most of them due to increase in the blood drainage output during the first hours in ICU. Although there also appears to be a relationship with increased age, the assigned rate is low to permit a more precise statistical analysis.

An analysis with the pre-and intra-operative risk factors was carried out to identify the most important determinants for development of complications in the postoperative period. Variables significantly associated with incidence of complications in univariate analysis, were: age, age bracket over 80 years, ejection fraction of the left ventricle, urgent need for CABG, on-pump time and use of blood products during intra-operative (Table 4). Also included were some comorbidities potentially associated to complications such as smoking, diabetes mellitus and previous AMI. In multivariate analysis, age (odds ratio 1.06, CI 95% 1.01 to 1.03) were independently associated with incidence of complications at postoperative period.

Table 3 – Postoperative complications by age bracket

Complications	Age brackets				
	< 60 (n = 68)	60-69 (n = 86)	70-79 (n = 93)	> 80 (n = 22)	p value
Atrial fibrillation	3(4.4%)	11(12.8%)	21(22%)*	6(27.2%)†	0.005
Atrioventricular block	2 (2.9%)	2 (2.3%)	2 (2.1%)	3 (13.7%)*	0.05
Cardiac arrest	0	0	2 (2.1%)	0	0.28
Low output syndrome	1 (1.5%)	1 (1.1%)	3 (3.2%)	1 (4.5%)	0.66
Left ventricular failure	0	0	3 (3.2%)	3 (13.7%)‡	< 0.001
Acute myocardial infraction	1 (1.5%)	1 (1.1%)	1 (1%)	2 (9%)	0.07
Hypertensive crisis	1 (1.5%)	5 (5.8%)	6 (6.4%)	3 (13.7%)	0.16
Thoracic bleeding	1 (1.5%)	6 (7%)	8 (8.6%)	5 (22.7%)*	0.02
Reoperation	0	1 (1.1%)	6 (6.4%)*	0	0.03
Sternal suture dehiscence	0	0	2 (2.1%)	0	0.28
Mediastinitis	0	0	1 (1%)	0	0.9
Nosocomial pneumonia	0	1 (1.1%)	6 (6.4%)	2 (9%)*	0.03
Severe sepsis	0	3 (3.5%)	4 (4.3%)	3 (13.7%)*	0.03
Other infections	0	1 (1.1%)	1 (1%)	2 (9%)*	0.02
Acute renal dysfunction	2 (3%)	6 (7%)	13 (14%)	6 (27%)†	0.004
Delirium	7 (10.3%)	4 (4.6%)	7 (7.5%)	4 (18%)	0.18
Convulsive crisis	0	1 (1.1%)	5 (5.4%)	0	0.08
Ischemic stroke	0	1 (1.1%)	5 (5.4%)	0	0.08
Pneumothorax	1 (1.5%)	1 (1.1%)	3 (3.2%)	1 (4.5%)	0.66
Large pleural effusion	1 (1.5%)	2 (2.3%)	3 (3.2%)	2 (9%)	0.31
Peripheral arterial failure	0	2 (2.3%)	4 (4.3%)	0	0.27
At least one complication	17 (25%)	31 (36%)	47 (50.5%)*	16 (72.7%)‡	<0.001

Results are expressed in number(%). *p < 0.05; †p < 0.01; ‡p < 0.001

Table 4 – Demographic data, risk factors and scores, operative variables and evolution of patients with and without complications

Characteristics	Without complication (n = 159)	With one or more complications (n = 110)	p value
Age (years)	64.3 ± 10.1	70.2 ± 9.7‡	< 0.001
Octogenarians	6 (3.7%)	16 (14.7%)†	0.002
Male gender	112 (70.4%)	77 (70.6%)	0.98
Arterial hypertension	128 (80.5)	89 (81.6)	0.81
Diabetes mellitus	47 (29.5)	34 (31.2)	0.77
Previous AMI	32 (20.1)	28 (25.7)	0.28
Dislipidemia	105 (66)	67 (61.5)	0.44
Smoking	27 (17)	10 (9.2)	0.07
Previous ischemic stroke	5 (3.1)	4 (3.6)	1.0
Peripheral arterial disease	7 (4.4)	6 (5.5)	0.68
EF (Teicholz. %)	66.1 ± 10.8	61.3 ± 14.5†	0.003
Emergency character	51 (32)	52 (47.7)*	0.01
On-pump time (min)	80.4 ± 22.7	100.7 ± 36.9‡	< 0.001
Intra-operative fluid balance (mL)	2063 ± 1030	2188 ± 1180	0.36
Intra-operative use of blood products	44 (27.7)	56 (51.4) ‡	< 0.001
Valve replacement	3 (1.9)	2 (1.8)	1.0
APACHE II	9.7 ± 4.2	13.4 ± 6.2 ‡	< 0.001
Euroscore	3.3 ± 2.7	5.9 ± 3.6 ‡	< 0.001
Ontario	2.2 ± 2.1	4.2 ± 2.7 ‡	< 0.001
ICU LOS (days)	2.4 ± 1	5.3 ± 8.1 ‡	< 0.001
ICU mortality	0	11(10)‡	< 0.001

AMI – acute myocardial infarction, APACHE - Acute Physiology and Chronic Health Evaluation; EF - left ventricular ejection fraction, ICU – intensive care unit, LOS – length of stay. Results are expressed as mean± standard deviation or number(%).*p < 0.05; †p < 0.01; ‡p < 0.001

DISCUSSION

Procedures of cardiac artery bypass grafting will be increasingly utilized in aged individuals and results may be satisfactory with a 5-year survival similar to younger patients.[12] Aged patients submitted to CABG surgery present a different performance of morbidity and mortality in the short term, depending on the age bracket and on pre- and intra-operative factors. In this study, an analysis was carried out of a specific type of cardiac surgery (CABG) with stratifications of groups of patients by age, affording an opportunity to compare relatively homogeneous groups. It is well known that those from 60 to 69 years behave in a way similar to the group of non-aged, reflecting an increased life expectancy and also of better quality. Those over 70 years of age and chiefly 80 years present a poorer performance in the ICU after CABG surgeries, with a higher incidence of complications, longer LOS and mortality. Age and on-pump time were independently associated with postoperative complications, based upon multivariate analysis of the risk factors.

Comorbidities associated to postoperative complications such as renal failure, ischemic stroke, ejection fraction lower than 40% and previous AMI were not confirmed in this study.[13]

Nevertheless, octogenarians are often analyzed with groups of much younger patients, without stratification into age brackets.

A study quite similar to this one showed that elderly with more than 80 years submitted to cardiac surgeries (CABG and others) presented longer ICU and hospital stay, as well as mortality when compared to another elderly group of lesser age (65 to 75 years).[14]

It also presents a higher incidence of postoperative complications such as atrial fibrillation, respiratory failure and low output syndrome. Other authors found a higher incidence of complications and ICU stay in octogenarians submitted to CABG surgeries and valve replacement.[15]

Some authors compared octogenarians with septuagenarians and younger patients. Other authors found LOS in the ICU, increased costs and mortality in patients over 70 years of age.[16] Such patients also presented worse morbidity and mortality, mainly when cardiac complications such as postoperative atrial fibrillation were analyzed.

However, emergency surgeries and incidence of complications such as stroke, thoracic bleeding and severe sepsis were significantly more frequent in the sub-group of aged over 80 years of age. In the study by others authors, the group of aged over 80 years presented similar characteristics to septuagenarians.[17] Thus, as disclosed by our groups, these authors also demonstrated that octogenarians have a longer ICU LOS and discretely higher hospital mortality.

The urgency need for CABG surgery influences prognosis of patients, mainly the elderly. We have shown that the population over 70 years of age presented peculiar characteristics such as higher incidence of emergency surgeries, admission due to acute coronary syndrome and CABG associated with valve replacement. In agreement with the present study, a retrospective Canadian study demonstrated that octogenarians were submitted to a larger number of emergency surgeries which may increase the probability of death up to seven times, mainly in those over 80 years of age.[18] However when electively operated, they presented a mortality similar to younger groups. This shows that it is possible to achieve better results for surgical coronary sick patients if the surgical intervention can be previously programmed. The emergency character of the surgery was also a risk factor for hospital mortality in another study with octogenarians submitted to cardiac surgeries.[19] However, such studies did not analyze risk factors for the occurrence of complications.

In addition to these factors, use of blood products was more common in aged patients, mainly octogenarians. Recent evidence showed a greater association of use of these products with emergence of nosocomial infections, acute pulmonary damage, LOS in ICU and mortality.[20] Time of storage of red cell concentrates recently became implicated with worse prognosis for patients submitted to CABG.[21] It was shown that more than half the patients over 70 years of age were submitted to blood transfusion during surgery, although this rate was quite lower for patients under this age bracket. It is difficult to directly relate the use of blood products with worsening of the complication and mortality rates in elderly patients, primarily because the study did not address the issue. Therefore it opens the field for future research related to use of these products with characteristics of on-pump time and levels of serum biomarkers.

On the other hand, the longer the on-pump time the greater its association with postoperative complications, as ratified in this work. On-pump time implies greater involvement of the immune system with consequent release of inflammatory mediators, which may bring about various organ dysfunctions.[22]

In this cohort the elderly patients present greater severity in the first 24 hours in the ICU, not only because of their advanced age (which weighs heavily in the points of the APACHE II score) but also because of a greater disorder of physiological and laboratory parameters in the first day of ICU stay. In addition to these traditional clinical changes, biomarkers might predict incidence of complications in the postoperative period. The association of common clinical and laboratory risk factors and biomarkers such as reactive C-protein and procalcitonine[23] has proven to be very helpful in the follow-up of patients with severe infections. Analysis of the current scores and new inflammation markers might be indicators of patients with higher probabilities of postoperative complications.[24]

The present work has some limitations. In general, patients referred for CABG surgery have an expectancy of recovering a good level of functional activity after the procedure. Thus, these patients were previously select and did not present severe and/or restrictive comorbidities. Patient selection may influence the low prevalence of associated diseases as in this study. Another restriction is that only admission in the ICU and the outcome of short term complications and mortality were analyzed. As the work was carried out in a private hospital, an eventual re-admission due to surgery complications or for another reason might have been in another hospital. It is known that results of CABG surgery in carefully selected aged patients increase survival in a 7 to 10 years follow-up.[3,17] Because of the mix of surgical teams in the hospital and only recent follow-up of the cohort, there still was not enough time to analyze the long term outcome.

CONCLUSION

In conclusion, older patients submitted to CABG surgery present higher morbidity and mortality, mainly due to a higher incidence of postoperative complications. In addition to age, on-pump time and probably other factors associated to inflammation may act upon such results.

RESUMO

Objetivos: Devido ao aumento de longevidade da população e a alta prevalência de doença coronariana em idosos, o procedimento de revascularização miocárdica se tornou mais freqüente nesta faixa etária. O objetivo deste estudo foi avaliar as características operatórias, tempo de internação, complicações e desfechos de curto prazo, observada nas cirurgias de revascularização miocárdica em idosos.

Métodos: Entre fevereiro de 2005 e outubro de 2007, 269 pacientes foram submetidos à revascularização miocárdica. Foram identificados dados demográficos, comorbidades, escores prognósticos (Euroscore, Ontário e APACHE II), caráter eletivo *versus* urgente da cirurgia, dados do intra-operatório, complicações no período pós-operatório e tempo de permanência e letalidade na unidade de terapia intensiva. Os pacientes foram divididos em 4 grupos de acordo com a faixa etária: grupo I (até 60 anos, n = 68), II (60-69, n = 86), III (70-79, n = 93) e IV (acima de 80, n = 22).

Resultados: Quando comparados a outros grupos etários, o grupo IV foi submetido a maior número de cirurgias combinadas com troca valvar e de caráter urgente, com maior tempo de unidade de terapia intensiva ($p < 0,01$). A incidência de pelo menos uma complicação pós-operatória foi significativamente maior no grupo com mais de 80 anos ($p < 0.001$). A análise multivariada demonstrou que idade e tempo de circulação extra-corpórea foram fatores associados independentemente com a ocorrência de complicações. A letalidade foi maior em pacientes com mais de 70 anos ($p = 0,03$).

Conclusões: Pacientes com mais de 80 anos submetidos à cirurgia de revascularização miocárdica apresentaram maior tempo de permanência na unidade de terapia intensiva , número de complicações e letalidade. Idade e tempo de circulação extracorpórea foram fatores de risco, independentemente associados com a incidência de complicações pós-operatórias.

Descritores: Doença da artéria coronariana/cirurgia; Ponte de artéria coronária/efeitos adversos; Oclusão de enxerto vascular; Complicações pós-operatórias; Idoso; Prognóstico

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