



Coronary artery disease in patients undergoing coronary artery by pass grafting at a Cardiology Hospital in Paraíba

Renata Silva Cezar

E-mail: renata.cezarr11@gmail.com

Anna Vitória Paz Moreira

E-mail: annavitoriapaz2099@gmail.com

Dhiego Alves de Lacerda

E-mail: dhiegomedicina@gmail.com

Isabelle Lima Lustosa

E-mail: isabelle.lustosa@hotmail.com

Pedro Fechine Honorato

Centro Universitário Santa Maria - UNIFSM, Cajazeiras - PB

E-mail: hpedrofechine@gmail.com

Jalles Dantas de Lucena

Centro Universitário Santa Maria - UNIFSM, Cajazeiras - PB

E-mail: jallesdantas@gmail.com

ABSTRACT

The myocardium is a muscle with a high demand for oxygen and nutrients, and the coronary arteries are responsible for this supply (MOORE et al., 2018). There is a large coronary reserve for myocardial irrigation (PEGO-FERNANDES et al., 2008).

Keywords: Coronary artery disease, Cardiovascular diseases, Coronary artery bypass grafting.

1 INTRODUCTION

The myocardium is a muscle with a high demand for oxygen and nutrients, and the coronary arteries are responsible for this supply (MOORE et al., 2018). There is a large coronary reserve for myocardial irrigation (PEGO- FERNANDES et al., 2008).

The right and left coronary arteries originate from the right and left coronary sinuses from the aortic artery. The right coronary artery (RCA) is the vessel that supplies the free wall of the right ventricle and the right atrium. The left coronary artery (ACE) provides the anterior descending artery, which will irrigate part of the left ventricle and the anterior portion of the interventricular septum, and the circumflex artery, which will irrigate the other part of the left ventricle and the left margin of the heart (MOORE et al., 2018).

Cardiovascular diseases (CVD) represent one of the leading causes of global mortality and morbidity. An estimated 17.9 million people died from CVD in 2016, accounting for 31% of all global deaths. Of these deaths, 85% are due to heart attacks and strokes (PAHO, 2016). Of these deaths, about 7.4



million were due to coronary artery disease (CAD), considered the leading single cause of death in the world (WHO, 2016).

In Brazil, cardiovascular diseases follow a similar pattern, being the leading cause of death (MANSUR; FAVARATO, 2012; MUNIZ et al., 2012), and according to data from the Global Burden of Disease (GBD) 2017 study, the most comprehensive observational epidemiological study worldwide to date, the total prevalence of Coronary Artery Disease (CAD) was 1.75% in Brazilians > 20 years of age (GBD, 2018, a.b.c).

CAD is characterized by insufficient blood supply to the myocardium to the coronary arteries. It is directly related to the degree of obstruction of blood flow by atherosclerotic plaques, resulting in narrowing of the coronary arteries, decreasing the arrival of oxygen to the heart (WHO, 2016). The mechanisms involved in the cause of atherosclerotic disease are complex and involve several risk factors (SILVEIRA et al., 2018).

The clinical picture of coronary atherosclerotic obstruction is broad and the symptoms are quite diverse. This disease can be classified, in a simplified way, into acute and chronic coronary insufficiency, and in both forms the lack of blood to the myocardium is the cause of the disease. The treatment of coronary insufficiency can be clinical, through medications and changes in lifestyle habits, or surgical, through more invasive interventions of myocardial revascularization (GOLDMAN, 2005).

All modalities of myocardial revascularization have as their main objective the reestablishment of adequate blood supply to the myocardium and, for this, they will intervene on the coronary system of conduction to the myocardium (SOUZA et al., 1996).

This study aims to identify the prevalence of patients with CAD undergoing coronary artery bypass grafting in a cardiology hospital in Paraíba, Brazil.

2 MATERIALS AND METHODS

This is an observational, descriptive, analytical, qualitative-quantitative study. The research was carried out in a cardiology referral hospital, located in the city of João Pessoa-PB.

This study was carried out after approval by the Research Ethics Committee of the Nova Esperança School of Nursing and Medicine (FACENE) under CAAE: 63329722.8.0000.5179 and under opinion number: 5.754.784 and was waived from the Free and Informed Consent Form (ICF).

The study population consisted of adult and elderly patients affected by Coronary Artery Disease and/or other comorbidities, while the study sample consisted of 85 patients hospitalized in the Coronary Intensive Care Unit (ICU) who underwent cardiac surgeries, including Coronary Artery Bypass Grafting (CABG), patients analyzed over a period of one year. July 2021 to July 2022.



3 RESULTS AND DISCUSSION

This study was carried out at the Cardiology Referral Hospital in Paraíba, with a sample of 85 patients. Of which 67% of patients were men (57) and the other 33% were women (28). Regarding age, 92.8% of the patients were over 50 years of age (79).

A study conducted by Lisboa et al. (2018), in two large hospitals in the municipality of Passo Fundo/RS, with 93 patients who underwent cardiac surgeries, the mean age was 59.9 years. Another study conducted by Silveira et al. (2018) at the Cardiology Outpatient Clinic of the School Health Center (CSE) of the State University of Pará (UEPA), with 90 individuals who underwent cardiac surgeries, showed a mean age of 63.87 years. Thus, revealing a population with a tendency to present CAD at an early age, confirming the characteristic of prematurity of this disease in developing countries, such as Brazil (GAMA et al., 2011; FINEGOLD et al., 2013).

According to Finegold et al. (2013), premature mortality in CAD cases before the age of 60 years is high, and mortality rates in the economically active population are higher in underdeveloped and developing countries than in first-world countries, indicating that the management of CAD is a challenge especially in non-developed countries.

Regarding the age group, most cases were male (67%), like what was found in the study by Lisboa et al. (2018), but unlike most Brazilian studies, such as the studies by Silveira et al. (2018), this probably occurred due to the greater attendance of men at outpatient appointments, something that is usually more observed in women.

The most prevalent cardiovascular risk factor (CVRF) in this study was CAD with 80% of cases, followed by systemic arterial hypertension (SAH). Differing from the CVRF found in other studies that revealed SAH (GAMA et al., 2011; SILVEIRA et al., 2018). SAH is, in isolation, the most important CVRF for the development of Acute Myocardial Infarction (AMI) (PINHEIRO et al., 2013), in addition to explaining about 45% of CAD cases.

The study by Silveira et al. (2018) reveals that when analyzing knowledge about risk factors for coronary heart disease, 74.44% of patients stated that they knew about the conditions that predispose to CAD. Smoking (36.67%) and hypertension (34.44%) are the most well-known CVRF among the participants. On the other hand, the least mentioned risk factors were stress, alcoholism, family history, and sedentary lifestyle.

According to data from the GBD 2017 study, the total prevalence of CAD was 1.75% in Brazilians >20 years of age. Men had a higher prevalence compared to women, 2.33% and 1.19%, respectively. For individuals aged 50- 69 years, the estimated prevalence of CAD was 4.34% and, for those aged >70 years, 10.99% (GBD, 2018 a.b.c).



The same study also revealed a difference in the prevalence by age of CAD between the Brazilian regions, with higher numbers in the Southeast and South regions (state of São Paulo, 1,617 per 100 thousand inhabitants; Rio Grande do Sul, 1,642 per 100,000 inhabitants) and lower in the North and Midwest regions (Amazonas, 1,407 per 100,000 inhabitants; Federal District, 1,404 per 100,000 inhabitants). The Northeast region occupied an intermediate position, but with a tendency to increase the prevalence of CAD in recent decades (GBD, 2018 a.b.c).

Death rates remain high and may be due to the high prevalence and, at the same time, the low control of CVRF (MANSUR; FAVARATO, 2012). According to data submitted to the World Health Organization (WHO) and the World Bank, in 2015, there were 111,849 deaths from CAD in Brazil, about 50 per 100,000 individuals, making CAD the leading cause of mortality from 2010 to 2015 (NOWBAR et al., 2019).

The study also revealed that the surgical procedure most frequently performed by 63 patients (71.6%) was Coronary Artery Bypass Grafting (CABG), like that found in the study by Campagnucci et al. (2008) and Sasaki et al. (2011). Cardiac surgery is recommended when the likelihood of life-to-life survival is greater with surgical treatment than with medical treatment. Among cardiac surgeries, reconstructive surgery is more complex and time-consuming than simple repairs (GALDEANO et al., 2006).

According to Kouchoukos et al. (2003), surgical coronary artery bypass grafting should be indicated for those patients in whom medical treatment cannot control angina pectoris or for those who have a high degree of obstruction of the main coronary arteries, leading to life-threatening disease.

The results of surgical coronary artery bypass grafting are well known and improve the quality and life expectancy of patients (HUEB et al., 2007). The study by Takiuti et al. (2007) evaluated the quality of life after angioplasty, clinical treatment, or coronary artery bypass grafting, and observed improvement in physical and mental aspects at the end of the study, especially in patients undergoing cardiac surgery.

Gois et al. (2009) evaluated health-related quality of life before and six months after the coronary artery bypass graft procedure. In the study, four aspects were compromised in the preoperative period: physical aspects, emotional aspects, functional capacity and pain. On the other hand, in the evaluation carried out six months after the surgical procedure, a statistically significant improvement in quality of life was observed, especially in the physical and emotional aspects.

4 CONCLUSION

At the end of the study, it was possible to observe a high prevalence of patients affected by CAD in men, which differs from the specialized literature, in addition to a recurrent performance of CABG over a period of one year, which is the most indicated approach in cases of CAD.



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