Coronary artery bypass grafting in women and its impacts

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ABSTRACT
Myocardial revascularization, a crucial surgical procedure for patients with obstructive coronary artery disease, has a significant impact on public health, especially in Brazil. Although historically most patients have been men, women are increasingly requiring this procedure, due to factors such as hormonal changes and specific cardiovascular risk. Studies indicate that women have higher mortality rates after surgery, which underscores the importance of specialized monitoring and a personalized approach. Understanding the specific risks and promoting healthy habits are essential to improve outcomes in women undergoing coronary artery bypass grafting.

Keywords: Myocardial revascularization, Cardiovascular health, Women.

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INTRODUCTION

Coronary artery bypass grafting, also known as coronary artery bypass surgery, is a surgical procedure performed to restore blood flow to the heart in patients with obstructive coronary artery disease. This intervention is indicated primarily for patients who have multiple narrowings in the coronary arteries, left main coronary artery obstruction, or persistent myocardial ischemia that does not respond to other forms of treatment. Since its introduction in 1967, myocardial revascularization has been an essential therapeutic option, especially for diabetic patients, the elderly, and those with low left ventricular ejection fraction, significantly improving the quality of life and prolonging the survival of these individuals.

Epidemiologically, myocardial revascularization is a procedure widely performed in Brazil and worldwide, with thousands of surgeries being conducted annually. This surgery has become one of the leading approaches in the treatment of cardiovascular disease, which continues to be one of the leading causes of death and disability worldwide.

The socioeconomic and public health impact of myocardial revascularization in Brazil is significant. Many people face difficulties in adhering to health promotion activities, which contributes to the development of chronic non-communicable diseases, which have a substantial impact on cardiovascular health. As a result, the ability to perform daily activities is progressively reduced, which increases morbidity and mortality. Cardiac surgery, such as myocardial revascularization, can positively alter the individual's health trajectory, improving the quality of life in the physical, social, and emotional dimensions. In addition, by allowing patients to return to the Primary Health Care system after treatment and reintegrate into the labor market, myocardial revascularization contributes to the reduction of health costs and generates economic benefits for society.

In the specific context of women, the importance of coronary artery bypass grafting is accentuated for several reasons. Women tend to have atypical symptoms of cardiovascular disease and are often diagnosed and treated late. In addition, biological and hormonal differences between men and women influence treatment response and post-surgical recovery. Myocardial revascularization in women, therefore, requires special attention due to its importance in improving health outcomes and reducing gender disparities in the treatment of cardiovascular diseases. Proper management of these patients not only improves their quality of life, but also decreases mortality rates, contributing to a positive impact on public health.

METHODOLOGY

The present study is a narrative review. The search began with the definition of descriptors and the choice and consultation of search platforms. A search was carried out in the PUBMED,

LILACS, and SCIELO online databases from January to July 2024. The following descriptors were used: "Adenomatous polyposis"; "Conduct"; "Management" with the Boolean operator "AND", which were obtained through the Decs/MeSH platform as health descriptors. Data analysis was conducted in a standardized manner, based on the following inclusion criteria: time frame from January 2014 to February 2024; English and Portuguese language and full text available.

The articles were selected from the analysis of two evaluators, in which the studies were mapped independently, discussing the results and continuously updating the data graph form in order to elaborate an iterative process. The titles were sequentially evaluated, and then abstracts of all publications identified by the searches for potentially relevant articles. Divergences regarding the selection of articles and data extraction by consensus and discussion with a third reviewer, if necessary. In addition, studies were included in manual searches of journals, based on the search for citations, and searches for gray literature.

RESULTS

The search resulted in 494 publications, of which only 18 publications met the objectives proposed in the study from the application of the inclusion and exclusion criteria, as well as from the reading of titles and abstracts.

On the Pubmed platform, using the descriptors present in the title and abstract, 215 articles were found from 1964 to 2024. A time restriction of 10 years (2014 to 2024) was defined, and 85 articles were found. With the inclusion criteria, Portuguese and English were used, 35 studies were excluded, resulting in 50. Only papers available in full text were selected, resulting in 115.

On the Lilacs platform, using the descriptors present in the title and abstract, 115 articles were found from 1964 to 2024. A time restriction of 10 years (2014 to 2024) was defined, and 75 articles were found. With the inclusion criteria used in Portuguese and English, 22 studies were excluded, resulting in 53.

On the Scielo platform, using the descriptors present in the title and abstract, 215 articles were found from 1964 to 2024. A time restriction of 10 years (2014 to 2024) was defined, and 80 articles were found. With the inclusion criteria, Portuguese and English were used, 52 studies were excluded, resulting in 28. Only papers available in full (FULL TEXT) were selected, resulting in 28.

Among the selected articles, the duplication of papers was checked, resulting in 196, with 52 duplications. The next analysis criterion comprised the reading of the titles in the double-blind format with two evaluators, in which the selected materials were only those approved twice, resulting in 36 studies. Subsequently, the abstracts were read by the same evaluators, resulting in 15 studies.

DISCUSSION

By understanding the importance and impact of risk factors for the need for myocardial revascularization, it is clear that the gender factor is one of the most highlighted in the main studies. In the study by Cadore (2007) at the São Lucas Hospital of PUC-RS, 11 predictors of death in myocardial revascularization surgeries were identified, including age ≥ 60 years and surgery in women. Mortality was higher in women (11.9%) compared to men (9%), being an independent risk factor for hospital death.

In addition, obesity is twice as prevalent in women with atherosclerotic disease (BRUNORI EHFR et al., 2014). This factor is directly related to the eating and living habits of a large part of the population, evidencing the risks associated with a sedentary lifestyle and its impacts on the lifestyle habits of patients.

Risk factors for the development of coronary artery disease (CAD) include systemic arterial hypertension (SAH), smoking, dyslipidemias, obesity, diabetes mellitus (DM), family history, and sedentary lifestyle. In women, some of these factors have a more pronounced effect. In addition, women are subject to specific causes, such as hypertension in the pregnancy cycle, gestational diabetes, and preterm birth, which increase long-term cardiovascular risk.

The study "Clinical profile of women undergoing revascularization surgery" showed that patients undergoing coronary artery bypass grafting and valve replacement surgery were predominantly female (33.8%) and elderly (60.89 years). This result is unusual in the literature, which generally points to the predominance of males and the elderly in coronary artery bypass graft surgeries (GUTIERRES, 2020).

Another relevant aspect is that diabetic women have more coronary lesions compared to non-diabetic women. Studies indicate that women with diabetes mellitus have worse results than men after revascularization, due to pathophysiological changes at the vascular level, decreased protective effect of estrogens after menopause, and smaller caliber of the arteries. Anterior descending artery revascularization in diabetic women is associated with a higher incidence of adverse outcomes in the short and medium term (MOTA, 2015).

Therefore, it is essential to monitor women's health from adulthood, with guidance for healthy lifestyle habits and specialized monitoring during the climacteric, to maintain a better quality of life and reduce mortality rates related to atherosclerotic diseases and the need for myocardial revascularization.

CONCLUSION

Therefore, it is crucial to understand this change in panorama, because historically, patients who required myocardial revascularization were predominantly men. This profile is constantly

changing due to several risk factors, especially the physiological changes associated with aging. Thus, monitoring women's health from adulthood, with guidance on healthy lifestyle habits and specialized monitoring during the climacteric, is essential to maintain a better quality of life and reduce mortality rates related to atherosclerotic diseases and the need for myocardial revascularization.

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