

Ischemic heart disease in diabetic patients in Cuba, its epidemiology and the usefulness of myocardial perfusion

Introduction

Cardiovascular diseases are an important public health problem in today's society, due to their high prevalence, high levels of morbidity and mortality, high individual, social and economic costs, decreased quality of life, absenteeism at work and increased expenses in public health because of the need for complementary studies and complex therapeutic procedures.¹

Currently one of the three main causes of years of life lost is ischemic heart disease. In developed societies, aging, obesity and unhealthy lifestyles are leading to a gradual increase in cardiovascular diseases² as is the case in Spain.^{1,3} Specifically, ischemic heart disease is considered to be one of the most frequent causes of disability and mortality in Western countries, and continuous efforts are being made to improve the identification of patients at high risk for an acute coronary event.⁴

Diabetes mellitus is in the fifteenth place as the cause of the years of life lost.⁵ In the last 15 years, the number of cardiac patients with diabetes has doubled, revealing the close relationship between this disease and cardiovascular health.⁶ However, the mechanism by which diabetes induces coronary disease is not fully known today.⁷

In Cuba, too, coronary disease is one of the main causes of morbidity and mortality, according to data published by the National Directorate of Medical and Statistical Records of Health. 67% of deaths from this disease occur specifically due to ischemic diseases, of which 43% are due to acute myocardial infarction.⁸ In 2015, there were 16 774 deaths, higher than in the rest of the years.⁸⁻¹³

Heart disease in the last five years have been among the first and second place as a cause of mortality in Cuba, fluctuating between 22234 and 24497 deaths due to this cause. In the year 2015 culminated leading with respect to the rest of the causes. On the other hand, diabetes mellitus occupied the eighth cause of national mortality during the last 5 years, where the deaths due to this cause are between 2206 and 2284.⁸⁻¹³

Early diagnosis of ischemic heart disease leads to more effective treatment and a reduction in complications and mortality.¹⁴ On the other hand, the timely identification, classification and treatment of patients who come to the emergency room with possible cardiovascular accidents remain a major concern.¹⁵

According to results of Fernandez 2013 the average cost per patient suffering from coronary disease is 14,069 euros, 87% due to direct costs and 13% loss of productivity. Costs were calculated over 2 years of follow-up. The costs of primary care represented 20% and those of specialized care 67%. Hospitalization costs were 63% of the total. The costs of patients with more than one event were 22,750 euros compared to 12,380 euros with a single event.¹⁶

The life expectancy of a patient diagnosed with type 2 diabetes is reduced by 30%. Cardiovascular disease is the leading cause of death

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in these patients. Diabetics are three to five times more likely to have ischemic heart disease than non-diabetic individuals. They are at high risk for a series of limiting complications and premature death.¹⁴

One of the possible non-invasive techniques to use today, to detect silent myocardial ischemia in diabetic patients is myocardial perfusion. Myocardial perfusion studies play an important role in the diagnosis of ischemia, which is not yet clinically evidenced and does not have specific manifestations in other tests such as the electrocardiogram and the stress test.

In the majority of recent international nuclear cardiology events, the need to perform the study of myocardial perfusion parameters in special populations, such as women, the elderly and patients with diabetes mellitus has been raised. These groups of patients have characteristics that could influence and vary the prognosis of a patient, regardless of the numerical value of a certain parameter.

However, there is little published research linking myocardial perfusion studies as a prognostic tool for ischemic heart disease in the diabetic patient. Likewise, the Single Photon Emission Computed Tomography is not widely used as a resource for this prognosis. There is no consensus in clinical practice about the application of some of the variables that this technique contributes.

The incorporation of the radioactive isotope study into the diagnostic protocol for chest pain in the emergency department has proven to be useful from a cost-benefit point of view. Compared to the usual strategy, by identifying more accurately and safely the patients that should be admitted and those who can be discharged *casás* found a decrease of up to 50% in length of hospital stay in patients.¹⁷

For these reasons, we intend to conduct a descriptive, longitudinal and cohort study with patients who come to the Clinical Research Directorate of CENTIS, with the objective of evaluating the prognostic value for ischemic heart disease of the myocardial perfusion parameters, in diabetic and non-diabetic patients. In this

center, although the majority of the patients come from institutions of the city of Havana, patients from the cardiology offices of the whole country are also studied reason why information will be obtained in relation to the subject in the Cuban population.

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Conflict of interest

Authors declare there is no conflict of interest in composing this manuscript.

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