Demographic Characteristics of the Population Undergoing Cine Coronary Angiography at the Instituto do Coração of the Medical School of USP from 1986 to 1995

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Objective – *To obtain information about the profile and behavior of a population with ischemic heart disease undergoing cine coronary angiography and to determine disease severity.*

Methods – *Retrospective study assessing patients hospitalized at InCor from 1986 to 1995, in which the variables age, sex, and number of major coronary arteries with obstruction degree ≥ 40% were analyzed.*

Results – *We studied 18,221 patients and observed a significant increase in the number of females (22.8% to 25.2%, P=0.001) and an increase in age (57.1±29.3 to 60.4±10.7 years, P=0.0001). A significant increase in the incidence of multivessel disease was observed, which was more frequent among males (69.2% and 64.5%) and among the older patients (59.8±9.8 and 56.8±10.7 years, P=0.0001). A reduction in the incidence of single-vessel disease was also observed (66.2% vs 69.2% and 33.8% vs 30.5%, respectively, P<0.0001).*

Conclusion – *A change in the profile of the population studied was observed as follows: patients undergoing cine coronary angiography at InCor were older, had a greater number of impaired major coronary arteries, and the number of females affected increased, leading to indices suggestive of a poorer prognosis.*

Keywords: acute myocardial infarction, coronary artery disease, cine coronary angiography.

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Recent studies have shown changes in the incidence of and in the mortality due to ischemic heart disease [1,2].

In Brazil, similar results have been found with a reduction in the risk of death and an increase in the prevalence of ischemic heart disease in younger age groups [3,4]. These changes may modify the profile of the ill population, and, once the changes are identified, insights may be gained into improved prevention and treatment of ischemic heart disease.

Cine coronary angiography provides major information for characterizing the profile of patients with ischemic heart disease. Patterns of the severity of the disease, as well as the strategies of patient management and treatment, have been established based on cine coronary angiography [5].

However, no information about the clinical and angiographic characteristics of a certain Brazilian population diagnosed with ischemic heart disease undergoing cine coronary angiography exists. We believe that knowing data about the population affected by the disease is important because they reflect the spectrum of one of the major causes of mortality in our country with great implications for the Brazilian Public Health System (Sistema Único de Saúde), in addition to providing knowledge about our national circumstances.

This study aimed at determining the demographic characteristics of the population undergoing cine coronary angiography at InCor of the Medical School of the University of São Paulo, and the severity of ischemic heart disease in that population.

Methods

The patients undergoing cine coronary angiography at InCor from 1986 to 1995 were retrospectively assessed. Patients younger than 20 years and those who did not have significant obstructions of at least 1 major epicardial coronary artery were excluded from the study.

The variables analyzed were age, sex, and the number of major coronary arteries with a degree of obstruction ≥ 40%, which classified the disease as single- or multivessel [6]. Information was obtained from the reports of the databank that compiles the examinations performed by the hemodynamics laboratory at InCor.

The variables, such as the number of arteries with significant obstruction, were analyzed in their absolute and relative frequencies. An initial exploratory analysis allowed a division into 2 periods according to the years in which modifications in frequencies were observed (1986-1990 and 1991-1995). The proportions were compared with the chi-square test to discriminate the differences between the periods. Age, a continuous variable, was analyzed in regard to the means, standard deviations, minimum and maximum values. The means were compared with the Student *t* test. The significance level adopted was 0.05.

Results

The study comprised 18,221 patients. The division by periods is shown in figure 1, where a significant increase in the frequency of female patients is seen from the 1986-1990 period to the 1991-1995 period (P=0.001).

A significant increase in the age of the patients from the 1986-1990 period (57.8 years) to the 1991-1995 period (59.9 years, P=0.0001) occurred (fig.2).

The analysis of the relation between the variables age and sex revealed that females were older than males (61.3 ± 10 vs. 58.1 ± 10.2 years, P=0.0001).

In regard to the number of major arteries with an obstruction degree ≥ 40%, a significant increase in the incidence of multivessel disease was observed from 1986-1990 to 1991-1995 (P<0.0001) (fig. 3). Multivessel disease was more frequent among males (69.2% vs. 64.5%, P=0.0001), while single-vessel disease was more frequent among females (35.5% vs. 30.8%, P=0.0001). The analysis of the relation between the variables obstruction greater than 40% and age revealed that a significant difference in age exists, patients with multivessel disease being older than those with single-vessel disease (59.8 vs. 56.8 years, P=0.0001).

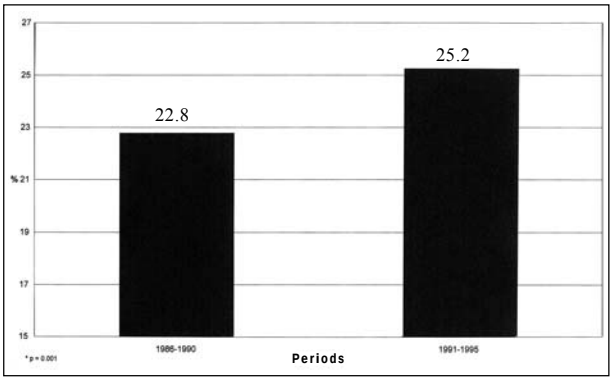

Fig. 1 - Relative frequency of women in the different periods.

Discussion

This study showed a significant increase in age, in the frequency of female patients, and in the frequency of multivessel obstructions among patients undergoing cine coronary angiography. In addition, it showed that multivessel disease is more frequent in male patients, while single-vessel disease is more frequent in female patients, and confirmed the findings of previous studies, in which females with ischemic heart disease were older than males with the same disease [6-8].

The behavior of the population undergoing cine coronary angiography in our study was similar to that of the populations with the acute and chronic forms of the disease, stressing the idea that significant changes are actually occurring in the characteristics of the population diagnosed with ischemic heart disease treated at InCor [9].

In an observational longitudinal study with 5,117 patients carried out by Roger et al [10] in Minnesota, between the years 1979 and 1994, similarly to our study's findings, the incidence of acute myocardial infarction decreased in males,

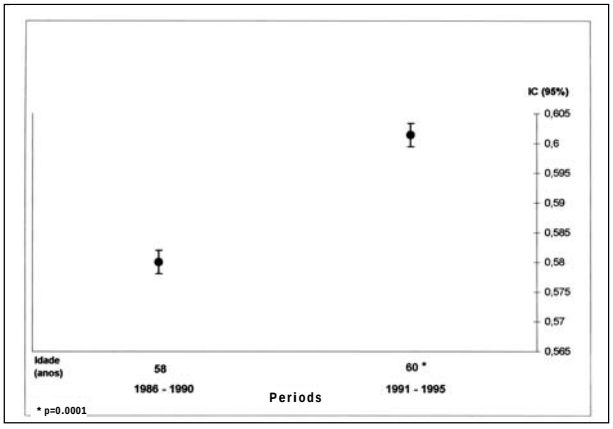

Fig. 2 – Mean age and confidence intevals of the different periods.

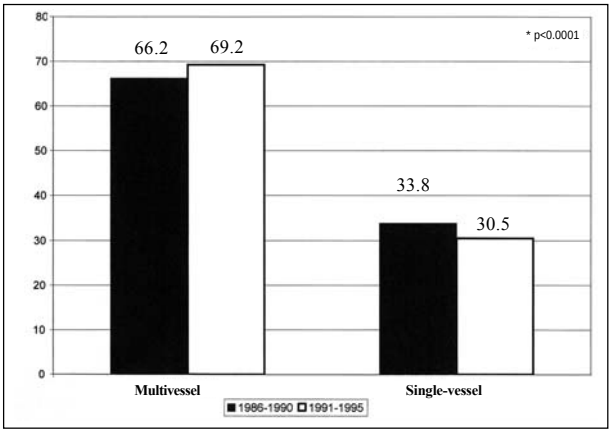

Fig. 3 – Relative frequency of multivessel and single-vessel patients in different periods.

but increased in females and in the elderly. In the same period, however, the incidence of acute myocardial infarction adjusted for age decreased by 8% in males (CI, 23% to 10%) and increased by 36% in females (CI, 9% to 70%). Likewise, a 31% decrease in the incidence of acute myocardial infarction was observed over the years in males < 40 years of age, and a 49% increase in females > 80 years. These data suggest the occurrence of a change in the profile of the population with ischemic heart disease in the United States, with a higher prevalence in females and in the elderly.

The findings in our study can be explained by the changes in the demographic characteristics, ie, the population aging caused by the increase in life expectancy and derived from the reduction in mortality due to ischemic heart disease [3-11,12]. Therefore, older patients more often have multivessel disease. The greater incidence of single-vessel disease in females, although they are older, can be explained by the fact that they have the disease at a more advanced age, because the natural history of ischemic heart disease among females begins later.

In conclusion, this study suggests a change in the profile of the population with ischemic heart disease treated at InCor as follows: the patients are older, a greater number of major coronary arteries are affected, and the incidence among females has increased, all of which are indices suggestive of a poorer prognosis.

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