Original Article

Variability Among Cardiologists in the Management of Patients Under Secondary Prevention of Ischemic Heart Disease

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Objective

To compare the management of patients with ischemic heart disease being followed up in a general cardiology outpatient clinic with that of patients being followed up in an outpatient clinic specific for ischemic heart disease, emphasizing the lipid profile and the pharmacological treatment prescribed.

Methods

Data were collected from the medical records of 52 patients consecutively treated in the outpatient clinic for ischemic heart disease (group I) and of 43 patients treated in the general cardiology outpatient clinic (group II), the anatomical diagnosis of ischemic heart disease being the basic condition for their inclusion in the study. The criteria for dyslipidemia were as follows: total cholesterol ≥ 200 mg/dL or LDL-cholesterol > 100 mg/dL, or both, in patients using or not lipid-lowering drugs, and the use of lipid-lowering drugs, even when the total cholesterol or LDL-cholesterol levels were < 200 mg/dL and 100 mg/dL, respectively, or both. The Fisher exact test was used for comparing the variables, and a 2-tailed $p < 0.05$ was accepted as significant.

Results

Demographic characteristics, risk factors for ischemic heart disease, prevalence of previous myocardial infarction, and previous revascularization procedures showed no significant differences between the patients in groups I and II. In group I, 98% of the patients received aspirin, while, in group II, 83% of the patients received that drug ($p=0.02$). In regard to the use of lipid-lowering drugs, the prevalences were 60% in group I and 19% in group II ($p=0.001$). The lipid profile examination was requested for 98% of group I individuals and 79% of group II individuals ($p=0.003$).

Conclusion

In regard to new medical evidence, mainly prescription of aspirin and lipid-lowering drugs, the management was more reliable in the outpatient clinic specifically aimed at treating ischemic heart disease.

Key words

ischemic heart disease, secondary prevention, outpatient care cohort

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The high risk of morbidity and mortality subsequent to the manifestation of ischemic heart disease requires the institution of effective preventive regimens as part of the general management of patients with coronary artery disease. Approximately 8% of those surviving an acute myocardial infarction die during the first year of follow-up. After an acute event, from the second year onwards, mortality rates range from 2 to 4% per year[1]. It is worth noting that an additional proportion of patients has a new infarction or death as the first manifestation; therefore, the use of medications or nonpharmacological interventions is justified, including for patients with asymptomatic disease [2]. These measures of secondary prevention include control of the coronary risk factors, physical exercise, use of medications, such as beta-blockers, ACE inhibitors, lipid-lowering drugs, and antiplatelet agents, and, when indicated, myocardial revascularization procedures [3].

Despite the evidence of the clinical benefit of these pharmacological interventions, significant variations in the therapeutic management prescribed for atherosclerotic disease are observed. Some drugs that are formally indicated for the treatment of coronary artery disease seem to be underused. In addition, in other circumstances, when these drugs are prescribed, the dosages used are lower than those tested and approved in clinical trials. Therefore, the existence of a gap between the treatment based on better scientific evidence, with confirmed efficacy in clinical trials, and the usual clinical practice seems clear [4]. Recent studies [5-7] conducted in other countries point to differences in the management of ischemic heart disease among cardiologists and generalists, with an impact on morbidity and mortality of these patients. The differences reported among specialists may result from the medical formation, infrastructure, and motivators for the medical practice or cultural factors. However, it is not clear which is the predominating factor, and whether these findings may be extrapolated to our country.

This study aimed at comparing the management of patients with ischemic heart disease treated by cardiologists in a general cardiology outpatient clinic with that provided in an outpatient clinic specializing in ischemic heart disease. The quality of treatment provided in both models applied within a tertiary referral center in the city of Porto Alegre was assessed.

Methods

From April to September 2002, 95 patients diagnosed with ischemic heart disease were consecutively treated. For the purpose

of this study, an individual with cardiac catheterization showing an atherosclerotic lesion with luminal stenosis > 50% in at least 1 coronary artery (anatomic diagnosis) was considered as having ischemic heart disease. These patients, depending on the group they belonged to, were treated in 1 of 2 outpatient care groups of the cardiology unit of the Hospital de Clínicas of Porto Alegre (HCPA): an outpatient clinic specialized in ischemic heart disease and a general cardiology outpatient clinic.

By use of a cross-sectional retrospective study, data from the patients' medical records were collected in a standardized way. The HCPA is a public tertiary hospital, which predominantly treats patients of the Sistema Único de Saúde (Brazilian Public Health System). Six previously trained medical students reviewed the medical records and collected data about the prescriptions contained in the last outpatient clinic visit. Fifty-two patients were treated in the ischemic heart disease outpatient clinic, comprising group I; the other 43 were treated in the general cardiology outpatient clinic, comprising group II. In the ischemic heart disease outpatient clinic, the patients were examined by medical students and students from the postgraduate program of the Universidade Federal do Rio Grande do Sul (UFRGS), under the supervision of masters and PhD physicians in cardiology. In the general cardiology outpatient clinic, the treatment was provided by residents under the supervision of cardiologists and professors at the HCPA.

Demographic data, clinical history, laboratory examinations, and previous procedures were collected, emphasizing the lipid profile and pharmacological treatment prescribed. In the present study, the following criteria were adopted for dyslipidemia: total cholesterol ≥ 200mg/dL or LDL-cholesterol > 100 mg/dL, or both, in patients using or not lipid-lowering drugs. The use of lipid-lowering drugs, even when the total cholesterol or LDL-cholesterol levels were < 200 mg/dL and 100 mg/dL, respectively, or both, was also used as a criterion for dyslipidemia.

Data for both groups were compared, and the Fisher exact test was used to determine the statistical differences between them. A 2-tailed *p* value < 0.05 was considered significant.

Results

The demographic characteristics, the risk factors for ischemic heart disease, prevalence of previous myocardial infarction, and previous revascularization procedures showed no significant differences between the patients treated in the ischemic heart disease outpatient clinic (group I) and in the general cardiology outpatient clinic (group II) (tab. I). It is worth noting that, specifically, no significant difference was found between the two groups in regard to lipid profile data (tab. II).

Drug prescription in both was compared, and no significant difference was observed in regard to the use of beta-blockers, ACE inhibitors, nitrates, and calcium antagonists. Patients treated in the specialized ischemic heart disease outpatient clinic had more prescription of aspirin as compared with those treated in the general cardiology outpatient clinic (tab. III).

During the study, lipid profile was more frequently assessed in group I patients than in group II patients. Among patients with dyslipidemia (n=51), statins were more often prescribed for group I patients than for group II patients (tab. III).

Table I - Demographic characteristics and risk factors for coronary artery disease in the groups assessed

	Group I n = 52	Group II n = 43	*p*
Age (years)	62	62	NS
Male sex	67	67	NS
Hypertension	65	77	NS
Diabetes mellitus	82	77	NS
Dyslipidemia	65	39	NS
Smoking	63	78	NS
Previous infarction	61	69	NS
PCI	31	21	NS
MRS	27	28	NS

PCI - percutaneous coronary intervention; MRS - myocardial revascularization surgery.

Table II - Means of lipid profile and percentage of individuals with optimum levels of LDL-cholesterol

	Group I n= 52 (SD)	Group II n= 43 (SD)	*p*
Total cholesterol	216 (24)	226 (28)	NS
LDL-cholesterol	142 (12)	152 (15)	NS
HDL-cholesterol	38 (6)	37 (5)	NS
Triglycerides	180 (22)	187 (18)	NS
Adequate levels of LDL-cholesterol (%)	37	30	NS

SD - standard deviation; total LDL - and HDL- cholesterol levels expressed as mg/dL.

Table III - Differences in the prescriptions of drugs used in ischemic heart disease

	Group I n = 52(%)	Group II n = 43(%)	*p*
Beta-blocker	58	51	NS
ACE-I	40	39	NS
Nitrate	52	35	NS
Calcium antagonists	50	26	NS
Statin	60	19	0.001
Aspirin	98	84	0.02

Discussion

In recent years, great emphasis has been placed on the identification of treatments causing an impact on morbidity and mortality due to ischemic heart disease. However, scientific evidence is not always adopted for clinical practice in many institutions. In this retrospective cross-sectional study, some differences were found in the control of risk factors for ischemic heart disease and in its treatment in the outpatient clinics studied. A lipid profile was more frequently requested in the specific ischemic heart disease outpatient clinic, and, consequently, the use of lipid-lowering drugs in that outpatient clinic was significantly greater. Although aspirin was significantly more frequently prescribed in that group, no statistical difference was observed in regard to the use of beta-blockers, ACE inhibitors, nitrates, and calcium antagonists.

The prevalence of the demographic characteristics and risk factors for coronary artery disease found (tab. I) is similar to that observed in the general population, a fact evidenced by data reported in the EUROASPIRE I and II trials [8,9].

The EUROASPIRE II was a study conducted in 15 countries in Europe, and its major aim was to assess whether the recommen-

dations established for secondary prevention of coronary artery disease in the EUROASPIRE I were being adopted in clinical practice after a few years. Our data are similar to the European data. The use of statins in the EUROASPIRE II was 61% and, in our group I, it was 60%. In the European multicenter study, the use of aspirin was also similar to that in our group I, being 86% in the EUROASPIRE II and 98% in our group treated in the specific ischemic heart disease outpatient clinic. In our group II, the use of aspirin was 84%.

The use of aspirin was associated with a 17 to 30% reduction in mortality in secondary prevention. It reduces the occlusion in approximately 50% of bypass grafts after myocardial revascularization surgery, in addition to decreasing the acute occlusive complications after percutaneous transluminal coronary angioplasty (PTCA) [10,11]. Furthermore, aspirin is an inexpensive drug of easy administration (single daily dose). Thus, the adequacy of aspirin indication in secondary prevention is very important, reflected in the high prevalence of its use, especially in specialized outpatient clinics.

Epidemiological studies point towards a positive association between the elevated serum levels of cholesterol and the incidence of atherosclerotic disease. It is known that a significant reduction in morbidity and mortality due to coronary artery disease occurs with the use of lipid-lowering drugs, mainly HMG-CoA reductase inhibitors (statins). It is important to emphasize the benefit of the use of statins even in individuals with normal or low levels of LDL-cholesterol, or both, as long as they are classified as high risk [12-14]. In secondary prevention, the use of statins causes a 42% reduction in the risk of cardiovascular mortality, with an absolute benefit after 6 years of 4 lives saved, 7 infarctions prevented, and 6 myocardial revascularization surgeries avoided in 100 patients treated [15]. In this great clinical trials, the number of patients treated necessary to save one life (NNT) was 25. In addition, like aspirin, the statins are also administered in a single dose, which facilitates the patient's adherence to treatment; their high cost, however, may be a limiting factor in adherence to treatment.

The clinical results related to management by cardiologists are believed to be more effective than those originating from management by generalists, specifically regarding the management of patients with cardiac diseases, such as ischemic heart disease. Following this line of thinking, we suggest that the therapy provided by subspecialists in ischemic heart disease is better than that provided by general cardiologists. This may be due to the deeper knowledge of the specialty in question or a greater adherence to the guidelines provided. A study carried out in Philadelphia[5] compared the management provided by family medicine, generalists, self-proclaimed cardiologists, and cardiologists with the title of specialist in the treatment of acute myocardial infarction. The results showed that lower mortality was associated with the treatment provided by cardiologists who had treated a greater number of patients with acute myocardial infarction, had graduated more recently, and had the title of specialist. Another study [6] carried out in Boston, focusing on the difference in management of prevention of cardiovascular diseases, reported that cardiologists are more prone to follow strategies of primary prevention, such as cholesterol tests, dietary and physical exercise prescription, in addition to measurement of body weight. On the other hand, the management provided by generalists varied largely in regard to primary prevention. In another study on secondary prevention carried out in California[7], a population of dyslipidemic patients prost infarction received twice as many prescriptions of lipid-lowering drugs when treated by cardiologists than other similar patients treated by generalists. A study published at the end of the 1990s showed that beta-blockers are underused in outpatient clinics for the treatment of patients with ischemic heart disease, mainly by family doctors and generalists[16].

Our findings point to a greater efficacy in the treatment of patients with coronary artery disease in the ischemic heart disease outpatient clinic as compared with that in the general cardiology outpatient clinic, in regard to achieving better control of risk factors, which is shown by the trend observed in table III (difference in the prescription of drugs that modify the natural history of coronary artery disease. However, this study has same limitations. Because it has a prospective cross-sectional design, assessment of the adequacy of risk factor control cannot be the focus of this experiment. In accordance with that which has already been said, we emphasize that the mean follow-up time in our sample, over the entire period studied, was very short, which does not also allow an adequate assessment of the effectiveness of risk factor control.

Data recently reported by our group[17], based on research with a robust outpatient cohort, showed a significant improvement in risk factor control among individuals followed up for 21 months in an outpatient clinic specialized in ischemic heart disease.

It is worth noting that differences in the quality of data recording may have occurred in the general cardiology outpatient clinic, considering that, in places such as that, protocols specifically for the collection and storage of data are not followed, causing biases of measurement in any direction.

In conclusion, observation evidence from other countries has suggested that the more specialized the attending physician, the more adequate the treatment provided. Our study strengthens the hypothesis that the follow-up of patients with ischemic heart disease by cardiologists specialized in this syndrome is an element with therapeutic impact and effectiveness in the implementation of guidelines based on the best evidence available.

Strategies for spreading and applying these guidelines may include the following: specialized outpatient clinics with multidisciplinary teams, programs for training generalists, and easy access to physician consults. Therefore, our data suggest that the treatment in an outpatient clinic specializing in ischemic heart disease is more effective than that provided by the general cardiologist treating a patient with ischemic heart disease.

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