

Survey on Cardiovascular Risk Factors in Bariloche

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SUMMARY

Background

The development and evaluation of health policies and program planning requires timely and accurate information about risk factors, the presence of chronic diseases, their distribution and trends. The self-reported prevalence of cardiovascular risk factors in a population, together with anthropometric measurements and blood tests are necessary, according to the Pan American Health Organization, to know the real prevalence of these factors.

Objective

To determine the prevalence, knowledge, treatment and control of cardiovascular risk factors (CRFs) in a representative sample of the population of San Carlos de Bariloche; to compare the outcomes obtained with those of the 2005 National Survey of Risk Factors and to estimate the overall cardiovascular risk.

Material and Methods

We conducted a cross-sectional study, using a two-stage probability and stratified sampling (census block, household). In each household, subjects aged 18 years and older were surveyed after signing informed consent form. The instrument used was the National Survey of Risk Factors together with a translated adaptation of the psychosocial stress score of the INTERHEART study. Anthropometric measurements were performed and total cholesterol, HDL-cholesterol, blood sugar and creatinine levels were measured. The following conditions were defined: hypertension (HT) $\geq 140/90$ mm Hg or under treatment; hypercholesterolemia (HC): ≥ 240 mg/dl or under treatment; low HDL: < 40 mg/dl, and diabetes mellitus (DM): ≥ 126 mg/dl or under treatment.

Results

A total of 902 surveys were conducted, with a response survey rate of 87.4%. Average age was 43.2 years (range 18-88) and 52% were women. The average measurements were: blood pressure 119/75 mm Hg; cholesterol level: 188 mg/dl; HDL-C: 51 mg/dl and glycemia 90 mg/dl. The prevalence of CRFs was: low physical activity 52.7%; smoking habits 31.7%; overweight and obesity 42.7% and 21.9% %, respectively; HT 31.6%; hypercholesterolemia 36.2% and diabetes 7.3%. The rate of population at moderate-high risk (≥ 2 major CRF) ($\geq 10\%$) was 17%.

Conclusions

In a representative sampling in the city of San Carlos de Bariloche, the prevalence of the traditional risk factors was high, with inadequate levels of knowledge and control. There was greater prevalence of hypercholesterolemia, sedentary life, overweight and obesity compared to the national data. The population with lower socioeconomic status was at greater cardiovascular risk. It is essential to develop campaigns for health promotion and cardiovascular prevention to reduce the prevalence of risk factors or cardiovascular diseases, the main cause of mortality.

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Key words > Cardiovascular Prevention - Epidemiology - Hypertension

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Abbreviations

HDL-C:	High density lipoprotein cholesterol	BMI:	Body mass index
DLP:	Dyslipidemia	INDEC:	National Institute of Statistics and Census (Instituto Nacional de Estadística y Censos)
DM:	Diabetes mellitus	WHO:	World Health Organization
NSRF:	National Survey of Risk Factors	PAHO:	Pan American Health Organization
CRF:	Cardiovascular risk factor	BP:	Blood pressure
HC:	Hypercholesterolemia		
HBP:	High Blood Pressure		

INTRODUCTION

Cardiovascular diseases are the leading cause of disability and death in our country, Argentina. In 2007, 30.2% out of 315,852 deaths were of cardiovascular origin. (1)

For more than fifty years, risk factors that identified subgroups of apparently healthy individuals more likely to have a cardiovascular event have been described. (2, 3) The main risk factors cause, in whole, about 80% of the deaths due to heart disease and stroke. Although different prevention strategies are used, the prevalence of the main chronic diseases in the world is increasing, and most of them occur in developing countries. (4)

Timely and accurate information about risk factors, the occurrence of chronic diseases, and their distribution and trends are essential to design health policies, and to plan and evaluate the programs. (5)

The World Health Organization (WHO) has encouraged the integration of core data sources so that all the available information can be accessed, in order to determine the situation of chronic diseases; the WHO has also provided an instrument for research and epidemiological surveillance called the STEPS approach.

This “step by step” approach (STEPwise Approach) provides a reference point for low and middle income countries to get started on chronic disease surveillance activities. The purpose of including the eight main risk factors in the STEPS surveillance is that: 1) they have greatest impact on chronic disease mortality and morbidity rates, 2) change is possible through effective prevention, 3) the validity of measuring risk factors has been demonstrated, and 4) determinations can be obtained on the basis of appropriate ethical standards. (6)

Epidemiological research suggested by this approach can be performed at different depth levels: Step 1, self-report measures of behavior; Step 2, physical measurements (blood pressure, weight, height, etc.), and Step 3, biochemical measurements (blood sugar, cholesterol levels, etc.). (6)

Recently, two surveys that involved tens of thousands of Argentine volunteers tried to set the prevalence of risk factors in our country: the National Survey of Risk Factors (NSRS), a large-scale epidemiological study (50,000 surveys) representative of the country’s geography, and the CARMELA study, a continental-scale study, although in our country it only included the Autonomous City of Buenos Aires. (7, 8) While both studies were carried out with population samplings, the difference between the prevalence of risk factors in the various regions analyzed was significant. This variability has encouraged the elaboration of epidemiological registries with the instrument suggested by the WHO in different areas of our country, in order to obtain our own data to undertake preventive actions based on the specific

characteristics of each population. (9) These surveys have reported significant differences of the local values in some risk variables concerning the country’s average prevalences. (10, 11) As an example, in the NSRF, major prevalence of diabetes and smoking and minor prevalence of high cholesterol were reported in Patagonia, and a study carried out in the town of Tres Lomas revealed substantial differences in the prevalences of smoking, diabetes, and obesity on the average for the rest of the country.

A survey on risk factors was conducted in our city; as most local surveys in Argentina, sampling was inadequate, because it was based on the spontaneous access of individuals to the registration desks located in different places of the city, generating an inclusion bias impossible to quantify. (12, 13) Furthermore, no other indispensable measurements to determine cardiovascular risk were objectified, such as plasma HDL cholesterol.

These are the fundamentals of this study, whose objectives are:

1. To determine the demographic, socio-economic profile and prevalence of traditional cardiovascular risk factors (CRFs) in a representative sample of the population of San Carlos de Bariloche.
2. To compare its outcomes with similar epidemiological studies conducted in other cities and with national registries, in order to verify if populations are comparable.
3. To determine the relationship of demographic and socio-economic variables with cardiovascular risk factors.

MATERIAL AND METHODS

Study design

A cross-sectional study on a representative sampling of adult population of San Carlos de Bariloche.

Sampling design

A two-stage probability and stratified sampling (census block, household) was conducted, taken from the Urban Sampling Frame of the National Institute of Statistics and Census (*Instituto Nacional de Estadística y Censos, INDEC*), and from demographic data of the Statistics Directorate of the Province of Río Negro (*Dirección de Estadística de la Provincia de Río Negro*). At first, the sample was stratified by census fractions (according to socio-economic status), then census blocks were selected by probability proportional to size, and finally, households by systematic sampling. In each selected household, homes were identified and its head was surveyed to obtain data about the family and the household; afterwards, subjects aged 18 and older were surveyed in each home, who replied to the individual questionnaire. All the surveyed individuals signed two independent informed consents: one for the survey and another one for the blood collection. No household replacements were accepted.

Instrument selection

The basis used were the modules about personal information and household, employment status and educational level, accessibility and coverage, general health, body weight, height and abdominal circumference, eating habits, smoking, diabetes, physical activity, blood pressure, and cholesterol, from the National Survey of Risk Factors. A module on psychosocial data from the INTERHEART study was added, which included variables adapted from traumatic events, depression and stress score. (14) This survey was conducted by surveyors, while in subsequent visits to the same household, nurses obtained the objective variables: 12-hour fasting blood samples to measure total cholesterol, HDL-cholesterol, blood sugar, and creatinine in the Central Laboratory of the Hospital Zonal; measurement of abdominal circumference with a non-stretch tape measure, height and weight on a calibrated scale, and blood pressure with mercury sphygmomanometers.

Field work

A coordinator of surveyors was designated for operational tasks during the field work (travelling coordination, designation of sectors, time checking, distribution and control of materials, data control, link to the laboratory, etc.). The staff of surveyors were trained in survey techniques, and in blood pressure measurement based on the norms for epidemiological studies suggested by the Pan American Health Organization (PAHO). (15)

Two weeks before starting, there was an awareness process supported by the Office of the Press Secretary of the Province of Rio Negro, which consisted of a press conference, a broadcast campaign with spots on television, information in local news programs, participation in radio programs and written press, in addition to posters placed in different sectors of the city.

A pilot study with 50 individuals was conducted.

Definitions

The definitions were hypertension (HT): measurement of BP \leq 140/90 mm Hg or treated with diet or drugs; hypercholesterolemia (HC): \leq 200 mg/dl or treated with diet or drugs; low HDL-cholesterol: $<$ 40 mg/dl; dyslipidemia (DLP): presence of HC and/or low HDL-cholesterol; pre-diabetes: $>$ 110 and $<$ 126 mg/dl and diabetes (DM): \leq 126 mg/dl or treated with diet or drugs; overweight: body mass index (BMI) between 25 and 29, and obesity, a BMI $>$ 29. For surveying physical activity, the IPAQ (International physical activity questionnaire) was used, which defines a low level of physical activity as an intense activity of less than 3 weekly sessions of 20 minutes each, and less than 5 weekly sessions of 30 minutes of moderate activity or walking. (16) Fruit and vegetables intake of less than five times per week was defined as low. Classification of individuals with moderate to high global risk was performed based on the NSRF criterium (adapted, in turn, from the ATP III), in order to allow comparison of outcomes. (7)

Statistical analysis

Estimations of expected prevalences for major risk factors (HBP, dyslipidemia, smoking) close to 30% with an absolute error of \pm 4% and a design effect (DEFF) of 1.7 were calculated for the sample; a global non-response rate of 20% was expected. The necessary sample size was 1,062 individuals. Data were presented as percentages, media \pm standard deviation, range or confidence interval of 95%,

according to their characteristics and distribution. The hypothesis contrast was performed with the chi square test for the discrete variables, and with the T test or ANOVA for the continuous variables. Contingency tables were used to compare our data with the prevalence of risk factors in the NSRF. Epi Info 2000® and Stata/SE 10® were the programs used for the multiple logistic regression analyses, performed to assess the association of different risk factors with age, sex, socio-economic variables and other risk factors. P values $<$ 0.05 were considered significant.

RESULTS

A total of 581 households were visited. The response rate of households was 92.9% (540).

The population surveyed was 902 over 958 eligible subjects, with an individual response rate of 94.1%. The overall response rate was 84.9%. The average number of visits to each household was 2.1 (median of 2, range of 1 to 5). A total of 601 subjects accepted physical measurements, and 532 signed the informed consent for blood collection.

Socio-demographic characteristics

Average age was 43.2 years (range 18-88), and 52% were women. The distribution of the level of education, health coverage, and quality of life is shown in Table 1. The stable employment rate (at least 2 hours/day) was 60%, and 11.9% had poor housing conditions (shanty houses, no running water, no bathroom or latrine). A total of 57.6% of the surveyed individuals lived as a couple (married or in union). A 17.0% had a foreign identity card (Documento Nacional de Identidad, DNI).

Regarding the individual general health perception, it was worse in older individuals, in smokers, and in those who had two or more psychosocial factors.

Physical activity

A total of 52.7% (CI 95%: 49.3-56.0%) of the population was sedentary. Sedentarism was more prevalent in individuals who live as a couple (56.7% vs. 46.9%; $p <$ 0.01), in those with health coverage (58% with coverage vs. 49.1% with no coverage; $p <$ 0.02), and in those who live in unprecarious households (56% vs. 40% with precarious households; $p <$ 0.01). Substantial differences were observed according to the fraction of the city analyzed: more prevalence was observed in high socio-economic areas (68.6% vs. 47% ($p <$ 0.00001). Sedentary individuals had a higher BMI (media: 27.1 ± 4.8 sedentary individuals vs. 26.2 ± 4.4 non-sedentary individuals; $p =$ 0.04). No differences were found in physical activity related with age, sex (49.5% male subjects vs. 54.4% female subjects; $p =$ 0.08), employment status, the presence of other CRFs and psychosocial risk factors. Regarding the NSRF, the prevalence of low physical activity in our city was significantly high (52.6% vs. 46.2% ($p <$ 0.0001).

Body weight and abdominal circumference

As for body weight related to height (BMI), 42.7% of overweight and 21.9% of obesity were found in the

Table 1. Distribution of the level of education, health coverage, and quality of life

Level of education	n	%
Primary (2)	385	42.7
Junior High School (3)	1	0.1
High School (4)	415	46.0
Tertiary (6)	51	5.7
University (7)	40	4.4
Postgraduate University Degree (9)	5	0.5
Coverage		
Health Insurance Plan	511	56.7
Pre-paid	95	10.5
Public Health Insurance	9	1.0
Emergency Service	1	0.1
None	266	29.5
DK/NA	19	2.1
General Health Perception		
Excellent	51	5.6
Very good	165	18.3
Good	482	53.4
Fair	190	21.1
Poor	14	1.6

people surveyed. Significant differences were found in both weight categories when compared with the NSRF (which reported 34.5% of overweight and 14.6% of obesity). An average abdominal circumference of 95.2 ± 15.4 cm was observed in male subjects, and a 38.8% of them had an abdominal circumference > 102 cm. In women, the average was 91.2 ± 13.2 cm, and 51.1% of them had an abdominal circumference > 88 cm.

Eating habits

The prevalence of low intake of fruit and vegetables was 40.2% (CI 95%: 37.6-44.1%), with no significant differences between men and women. Low intake of fruit and vegetables was associated with younger age (mean 44.2 ± 17 vs. 41.5 ± 16 years; p < 0.01), incomplete primary level of education (41.6% vs. 33.9%; p = 0.03), and not living as a couple (46.7% vs. 36.6%; (p = 0.03). There was no association between low intake of fruit and vegetables and other CRFs, such as HBP, smoking, body mass index, DM, or dyslipidemia. Regarding the NSRF, the prevalence of low intake of fruit and vegetables in our city was significantly higher (40.2% vs. 35.3%; (p < 0.01).

Smoking

A total of 31.7% of surveyed individuals smoked (CI 95%: 27.7-35.7%); they reported an average consumption of 10.3 cigarettes/day. A 25.3% smoked on a daily basis, and a 6.4% were occasional smokers. There were no significant differences between the prevalence of smoking according to sex (32.9% in women vs. 30.5% in men; p = 0.72).

The (median) age of initiation was 16 years, with no substantial differences based on sex, level of education or health coverage. A 61% of the smokers expressed their intention to give up smoking, and a 15% looked forward to giving it up in the next three months. A 45.9% were exposed to second-hand tobacco smoke, and 33% of them were exposed to it at least 5 days a week. A higher rate of smoking in women (p < 0.05) was observed in Bariloche, when compared with the NSRF.

High blood pressure

A total of 601 individuals were analyzed, who accepted to be measured their blood pressure (BP). The mean value of systolic and diastolic blood pressure was 119/75 mm Hg. Prevalence of HBP was 31.6% (27.9-35.5%). In 78% of the cases, hypertense population was made up from individuals with direct measurements > 140/90 mm Hg, and the remaining 22%, even with normal BP values, were treated with drugs (92.7%) and only with non-pharmacologic therapy (7.3%).

A 68.4% of hypertensive subjects reported to know their condition (Table 2), and 75.2% of them were under some treatment, although 36.2% admitted they still added salt to food. Of the patients under treatment, only 65.4% were controlled with measured BP values < 140/90 mm Hg, which translates into 33.6% controlled hypertensive patients.

No differences were found when comparing with the prevalence published in NSRF, both whether HBP is defined by self-report (33.4% in Bariloche and 34.4% in the NSRF; p = ns) or obtained with objective measurements (31.6% vs. 34.4%; (p = ns). In a multivariate analysis that included socio-economic and psychosocial data, age, overweight, and low level of education were associated with HBP (data not shown).

Figure 1 shows the prevalence, knowledge, treatment, and control of HBP according to age groups.

Dyslipidemia

A total of 67.5% of the surveyed individuals had had their cholesterol measured over the past year. A 14.9%

Variable	Cm	Lm	Cf	Lf
HBP	31.6%	68.4%	75.2%	33.6%
DM	7.3%	76.9%	84.6%	26.7%
HC	36.2%	33.3%	26.7%	30.8%

Table2. Prevalence, knowledge, treatment, and control of risk factors

* Difference with (1): p = ns. † Difference with (1): p < 0.0001.

(CI 12.6-17.5%) of the overall population answered that they had ever been told that their cholesterol level was high, but only 36.1% of them were under some form of treatment, 33.3% were under non-pharmacological treatment, and the remaining 66.6% took medication.

The analysis of the 532 subjects for blood collection showed that the average cholesterol was 188 mg/dl (± 42.7) and the HDL-cholesterol, 50.8 mg/dl (± 11.6). A 36.2% (CI 95%: 32.2-40.5%) of them had hypercholesterolemia (93.7% with cholesterol measurements ≥ 200 mg/dl, and the remaining 6.3%—although their cholesterol was < 200 mg/dl— were under treatment), only 33.3% of which were aware of their condition (see Table 2). Only 26.7% of the subjects with high cholesterol levels were treated, and 30.8% of them had a cholesterol level < 200 mg/dl.

The national prevalence reported in the NSRF was 27.8%, with significant differences compared with the prevalence of this registry ($p < 0.0001$).

Plasma HDL was also measured, and it showed that 20.6% (CI 95%: 17.3-24.3%) had values < 40 mg/dl. Prevalence of DLP was 50.9% (CI 95%: 46.6-55.3%). higher DLP rate was associated with older age (mean DLP: 48.6 ± 16 years of age vs. no DLP 42.9 ± 17 years of age; $p = 0.0001$), female subjects (men 40.6% vs. women 28.9%; $p < 0.01$), HBP (57.8% in hypertensive subjects vs. 25.9% in normotensive patients; $p < 0.0001$), overweight (39.5% vs. normal weight 39.5%; $p < 0.01$), education (below primary level 41.1% vs. above primary level 27.5%; $p < 0.001$), and diabetes (61.5% vs. non-diabetics 30.8%; $p < 0.0001$). No other relationship with other socio-economic markers, depression, or stress was found. In the multivariate analysis, only older age, female gender, and overweight were related with a higher prevalence of DLP.

Diabetes

Mean value of glycemia in the population was 89.4 mg/dl (± 35.3). Prevalence of pre-diabetes was 3.9% (CI 95%: 2.5-6.1%), and of DM was 7.3% (CI 95%: 5.3-10%), with no significant differences between both sexes. A similar prevalence to that reported in the

NSRF (8%; $p = ns$) was observed. A 76.9% of these individuals were aware of their disease (see Table 2), and 84.6% of them were under treatment: non-pharmacological therapy, 21.2% (glycemia, median: 92 mg/dl), pharmacological therapy, 51.5% (glycemia, median: 153 mg/dl), and both therapies, the remaining 27.3% (glycemia, median: 188 mg/dl). The mean glucose level in diabetics was 179 mg/dl (± 78.9), and only 17.9% of them had a fasting glucose < 120 mg/dl. A 22.9% of the diabetics had not had their glucose checked in the past year. Diabetics were older (54.7 ± 15.9 vs. 44.0 ± 16 years; $p < 0.001$), had increased BMI (29.4 vs. 26.5; $p = 0.001$), greater prevalence of HBP (73.3% vs. 27.8%; $p < 0.0001$) than non-diabetics, and greater prevalence of dyslipidemia (71.8% vs. 49.3% ($p < 0.0001$)). There were no differences according to socio-economic or psychosocial indicators.

Global risk

The rate of population with moderate-high risk defined by the presence of two or more major cardiovascular risk factors was 17.1%. The risk was higher in unemployed subjects and in those with no health care coverage, and it was directly proportional to age.

DISCUSSION

This is the first study carried out on a representative sample of our city, in order to determine the prevalence of cardiovascular risk factors and their association with other demographic and socio-economic variables. The registry showed that the prevalence of cardiovascular risk factors was high, in many cases similar to the national figures, that the degree of knowledge of factors is inappropriate (especially in HBP and DLP), and that the level of control is, in general, lower than 40%.

The rates of HBP, HC, and DM were very similar to those published in the CARMELA study in the city of Buenos Aires, and it can be explained by the similar methodology used and by the fact that both registries were limited to a urban population.

However, by comparing our study with the NSRF, our city has worse eating habits and higher prevalence of sedentary life than those reported at national level, which could explain the higher rate of overweight and obesity. While different prevalences for risk factors have been published in different regions of our country, sometimes the reasons for those differences are not simple to explain. (10, 11) In our case, the higher prevalence of sedentarism and overweight may be attributed to the high proportion of immigrants with different eating habits, to geographical factors (mountainous area which difficulties aerobic activity) and climatic factors (longer winters).

The analysis of the socio-economic variables related to cardiovascular risk factors confirmed, as in ENFR, that the population segment with highest risk in Bariloche is that with lowest socio-economic level and lowest degree of medical coverage. These individuals

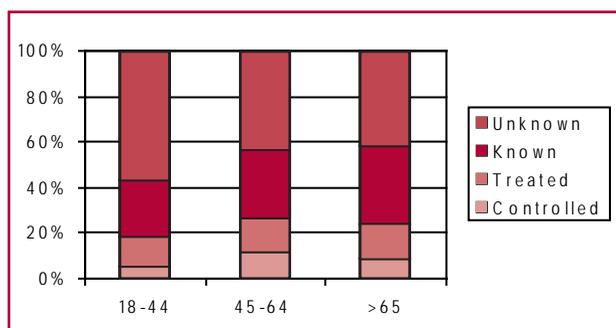


Fig. 1. Prevalence, knowledge, treatment, and control of HBP according to age groups

showed poor nutrition, high BP and dyslipidemia rates, and high global risk, whereas individuals with higher socio-economic status presented higher physical inactivity but lower global risk.

The study was performed with the three levels of complexity required by the PHO: survey, physical measurements, and lab tests. This allowed for objective knowledge of risk factors, which varied between 77% for DM and 33% for HC –far below desired levels. Individuals with risk factors had a low percentage of appropriate control.

This study adds to other epidemiological works conducted in our country which demonstrated that knowledge, treatment, and control of cardiovascular risk factors are unacceptable for a society seeking to improve its life expectancy over time. Recent projections indicate that the rate of obesity in Argentina could even get worse. (17) However, these worrying data may be changed. In an editorial published in this Journal, epidemiology in our country was admitted to be going through a maturity process. (18) It would be interesting to start an intervention period, considering that one in three Argentine individuals die for some cardiovascular disease. Public Health authorities should take urgent note of the information generated in this area in recent years, and begin active population policies of prevention, as other countries have done. The example of the North Karelia Project should be inspiring, since it managed to achieve a 79% cardiovascular mortality rate reduction in 30 years by changing risk factors through a community-based effort that involved the actors of primary health care, voluntary organizations, the food industry and supermarkets, the media, local governments and schools, through programs that combined the participation of the community and policies based on environmental actions. (19) It has been suggested that the implementation of these health policies should be adapted for each environment in particular. (20)

Limitations

It was not possible to perform objective measurements to all the population surveyed. To optimize this percentage, measurements and collections were performed in their own homes, rather than leaving them to the respondents' decision to go to the health center. The average of home visits was greater than 2, and in certain cases it reached up to 5 attempts to obtain the measurements. While this course of action doubled the response rate obtained in the NSRF pilot study in the province of Tierra del Fuego, which was 39%, (21) it was not achieved with the whole population surveyed. It is likely that more resources could have improved this response; other surveys in other countries provided a better return by delivering personalized results, financially encouraging nurses and participants, using the services of health promotion agents, etc.

Regarding the diagnosis of diabetes, a single

glucose test may overestimate the true prevalence, similarly to what happens when measuring blood pressure in a single day.

CONCLUSIONS

In a representative sampling of our city, the prevalence of cardiovascular risk factors was high. A low level of awareness was observed in all the CRFs measured, with a stress in HBP and DLP, and the control level is, in general, lower than 40%. Compared with the national data, more prevalence of HBP, sedentarism, overweight and obesity was found. The population with higher cardiovascular risk was the one with lowest socio-economic status. Since these risk factors are the main cause of mortality, it is essential that health promotion and cardiovascular prevention campaigns be carried out to improve these rates.

RESUMEN

Relevamiento de factores de riesgo cardiovascular en Bariloche

Introducción

La información oportuna y precisa sobre los factores de riesgo, la aparición de las enfermedades crónicas, su distribución y sus tendencias es esencial para la formulación de políticas de salud, la planificación de los programas y su evaluación. Para conocer la prevalencia de los principales factores de riesgo de enfermedades cardiovasculares en una población, la Organización Panamericana de la Salud recomienda, además de la autorreferencia, complementar los cuestionarios con mediciones físicas y de laboratorio.

Objetivo

Determinar la prevalencia, el conocimiento, el tratamiento y el control de los factores de riesgo cardiovascular (FRC) en una muestra representativa de la población de San Carlos de Bariloche, comparar los resultados obtenidos con la Encuesta Nacional de Factores de Riesgo 2005 (ENFR) y estimar el riesgo cardiovascular global.

Material y métodos

El presente es un estudio de corte transversal. El muestreo fue probabilístico, estratificado y de dos etapas (radio censal, vivienda). En cada hogar se entrevistaron todos los individuos de 18 años o más que firmaron consentimiento. El instrumento utilizado fue la Encuesta Nacional de Factores de Riesgo, a la que se le agregó una adaptación traducida del puntaje de estrés psicosocial del estudio INTERHEART. Se realizaron mediciones antropométricas y dosajes de colesterol total, C-HDL, glucemia y creatinina. Se definieron hipertensión arterial (HTA): $\geq 140/90$ mm Hg o tratados; hipercolesterolemia (HC): ≥ 240 mg/dl o tratados; HDL bajo: < 40 mg/dl y diabetes (DM): ≥ 126 mg/dl o tratados.

Resultados

Se realizaron 902 encuestas, con una tasa de respuesta del 87,4%. La edad promedio fue de 43,2 años (rango

18-88) y el 52% eran mujeres. Las prevalencias de los FRC fueron: baja actividad física 52,7%, tabaquismo 31,7%, sobrepeso y obesidad 42,7% y 21,9%, respectivamente.

Los valores promedio fueron: tensión arterial: 119/75 mm Hg; colesterolemia: 188 mg/dl; C-HDL: 51 mg/dl y glucemia: 90 mg/dl. La prevalencia, el conocimiento, el tratamiento y el control fueron, respectivamente: HTA: 31,6%, 68,4%, 75,2% y 33,6%; HC: 36,2%, 33,3%, 26,7% y 30,8%; DM: 7,3%, 76,9%, 84,6% y 26,7%. La tasa de población con riesgo moderado-alto (2 o más FRC mayores) ($\geq 10\%$) fue del 17%.

Conclusiones

En un muestreo representativo de la ciudad de San Carlos de Bariloche, las prevalencias de los factores de riesgo tradicionales fueron elevadas y con niveles inadecuados de conocimiento y control. En comparación con los datos comunicados a nivel nacional, se halló mayor prevalencia de hipercolesterolemia, sedentarismo, sobrepeso y obesidad. La población con mayor riesgo cardiovascular fue la de menor nivel socioeconómico. Al ser estos los factores de riesgo de la principal causa de mortalidad, resulta primordial que se lleven a cabo campañas de promoción de la salud y de prevención cardiovascular para mejorar estos índices.

Palabras clave > Prevención cardiovascular - Epidemiología - Hipertensión

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