Prevalence and Sociodemographic Factors in a Hypertensive Population in São José do Rio Preto, São Paulo, Brazil

Claudia B. Cesarino, José Paulo Cipullo, José Fernando Vilela Martin, Luiz Alberto Ciorlia, Maria Regina P. de Godoy, José Antonio Cordeiro, Isabela C. Rodrigues
Faculdade de Medicina de São José do Rio Preto (FAMERP), São José do Rio Preto, SP - Brazil

Summary

Background: Systemic arterial hypertension (SAH) is one of the greatest problems of public health in Brazil. Its detection and early treatment should be a priority to reduce the morbimortality of the cardiovascular diseases.

Objective: This study aimed at assessing the prevalence of SAH and the sociodemographic factors in a population of hypertensive individuals from São José do Rio Preto, São Paulo, Brazil.

Methods: A cross-sectional study was carried out in a stratified sample of 1,717 people, representative of the urban adult population from the city of São José do Rio Preto, between 2004 and 2005.

Results: The sample consisted of 1,717 people, with 762 of them (25.2%) being characterized as hypertensive. The following results were observed: 54.6% were women; 78.4% were caucasian; 66.1% were illiterate or had not finished Elementary School; 63.9% were married, 40.9% belonged to social classes D and E; 37.9% were self-employed or wage earners.

Conclusion: The results of study on SAH in the city of São José do Rio Preto shows the need for early-onset continuous educational interventions. (Arq Bras Cardiol 2008;91(1):29-33)

Key words: Hypertension, ethnology, prevention & control, prevalence.

Introduction

The data from the Ministry of Health in Brazil show that cardiovascular diseases are the main cause of mortality in the country, representing 30.8% of the deaths, with systemic arterial hypertension (SAH) being one of the main risk factors. In Brazil, the disease affects around 17 million individuals, with one million only in the state of São Paulo1.

SAH is a clinical condition, characterized by elevated and sustained blood pressure (BP) levels. The chosen threshold, clinically established to define SAH in individuals older than 18 years, is when blood pressure levels are ≥ 140 mmHg x 90 mmHg. When assessing the disease, the presence of risk factors, comorbidities and target-organ lesions must also be considered in addition to blood pressure levels2. SAH is usually asymptomatic, determined by several associated genetic (age, ethnicity, sex, family history) and risk factors (smoking, obesity, alcohol consumption, sedentarism, stress and excess salt consumption)2.

The adherence of an individual with SAH to treatment is a challenge to the public health, as its control requires the patient’s cooperation; a means to obtain this adherence is to facilitate the access to information about arterial hypertension and detect hypertensive individuals, in order to increase the number of subjects with blood pressure control and healthy lifestyle, thus improving the prevention of cardiovascular diseases3.

Therefore, the aim of the present study was to estimate the prevalence of SAH in the population and the sociodemographic factors of the hypertensive individuals in the city of São José do Rio Preto, state of São Paulo, Brazil.

Methods

A transversal study was carried out in 2004/2005 with a sample of 1,717 individuals stratified by age range, representative of the urban adult population (≥ 18 years) of the city of São José do Rio Preto, state of São Paulo, Brazil, which has a population of 370,000 inhabitants4.

When calculating the sample size, the number of inhabitants, expected prevalence of SAH at each range, maximum allowed error and 95% confidence interval were considered. The age ranges assessed were the following: 18 to 39 years; 40 to 49; 50 to 59; 60 to 69 and > 70 years.

The city was divided in five regions, according to the proportionality of the population. A district, street, household

Mailing address: Claudia Bernardi Cesarino • Rua Jamil Barbar Cury, 511, Tarraf II, 15.092-530, São José do Rio Preto, SP - Brazil
E-mail: claudiacesarino@famerp.br
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and one adult individual living there for more than 6 months were selected by drawing lots for each region. In case of refusal to participate, one individual from the nearest neighbor household was selected and after the first visit, the side of the street was alternated, skipping two households. The exclusion criteria were: pregnancy, consumptive diseases and severe psychiatric diseases, mental deficit or retardation and bedridden patients.

The interviewers were adequately trained and supervised by a field coordinator. The participants answered a standardized and codified questionnaire, which included personal data, socioeconomic status, level of schooling, lifestyle, personal and family medical history, whether the individual knew he or she had SAH and medications used. Subsequently, the physicians assessed the interviews and measured BP, heart rate and anthropometric data, and the participants were advised to fast and have a 12-hour urine collection for the biochemical analyses.

The BP measurement technique was the one standardized by the VII Joint National Committee7. The mean of three BP measurements taken in the sitting position after 5 to 10 minutes of rest was calculated. The criterion adopted for SAH diagnosis was systolic BP ≥ 140mmHg and/or diastolic BP ≥ 90mmHg or the use of anti-hypertensive medication. The individuals were classified as normotensive or hypertensive.

The classification of the socioeconomic levels adopted the criterion of social classes A-B-C-D-E based on family income and material assets; level of schooling was based on the number of years of school attendance and the sample was divided in three groups: $S_1$ from 0 to 8 years, $S_2$ from 9 to 11 years and $S_3$ more than 11 years of schooling or full College/University education8.

Regarding the ethnicity, it was chosen to classify the individuals as caucasian or non-caucasian (Black, Mulatto, Asian or Brazilian Native), even though we were aware of possible failures, as it depends on the observer’s criterion.

This study was approved by the Ethical Committee in Research of the School of Medicine of São José do Rio Preto and the participants were informed about the results and received information.

The statistical analysis was carried out by the Minitab software version 12.22, Maple 9.03, R 2.4.1. The estimate of percentages (with 95% confidence intervals) in the adult hypertensive population were calculated based on the frequencies at each age range and the means and standard deviations were calculated by the bootstrap method with an adjustment, considering the size of the strata in the population. The adjustment was based on the fact that the probability of an event in the population is decomposed in the summation, in relation to the age strata, of the probability of the event in the stratum multiplied by the fraction of the stratum in the population; the fractions of the strata were obtained from the IBGE (Brazilian Institute of Geography and Statistics) reports regarding the time of data collection. The level of significance was set at $p=0.05$ and the multiple paired comparisons were carried out with Bonferroni’s correction for the level of significance, i.e., the differences between pairs of variable categories with their $K$ were considered significant if the $p$-value < 0.05/K9.

Results

Of the 1,717 individuals that comprised the sample, 762 were characterized as hypertensive, which was the aim of this study that estimates a total of 25.2% (95% CI: 22.7% to 27.7%) of hypertensive individuals in the city of São José do Rio Preto. The hypertensive individuals were characterized at the time as: 54.6% of women (95%CI: 49.2% to 60.0%), aged 18 to 93 years, with a mean age of m 53.8 years (SD=4.3 yrs) and 78.4% of caucasian individuals (95%CI: 73.2% to 83.5%). Level of schooling was estimated as: 66.1% (95%CI: 60.7% to 71.5%) with 0 to 8 years of schooling; 63.9% (95%CI: 58.5% to 69.3%) were married, and the predominant social classes were C (40.5% (95%CI: 35.1% to 45.9%)) and D-E (40.9% (95%CI: 35.5% to 46.3%)). Regarding the occupation with associated categories, 37.9% (95%CI: 32.5% to 42.2%) were active in the labor market, as self-employed individuals or wage-earners (Table 1).

Discussion

The population is aging and an increasing number of individuals are reaching their eight decade of life10. It is known that blood pressure increases with age, reaching more than 60% at the age range of 65 years, which can be explained by the characteristic age-related alterations that make the individual more prone to the development of SAH; the most prevalent chronic disease identified in epidemiological studies11-16. However, in the present study carried out in São José do Rio Preto, the mean age was 53.8 years and it is likely that SAH is a severe public health problem in the studied population, affecting people who are economically active, presaging an epidemiological worsening and cardiovascular consequences.

Currently, the estimated world mean SAH prevalence is 26.4%, with a broad range of variation according to the population studied, being 21.0% in the USA and Canada, 33.5 to 39.7% in European countries, 15 to 21.7% in African and Asian countries and around 40% in Latin American countries17-19. The prevalence of SAH in Brazilian studies varies from 24.8 to 44.4%20,21, due to the different classification criteria and age limits used in the studies. The estimated prevalence of SAH in the studied population was 25.2%, which corroborates the aforementioned studies.

World rates indicate that the difference in the prevalence of SAH between the genders is small, probably due to a higher prevalence among younger men and elderly women12. In Brazil, women are more aware of their hypertensive condition than the men13-14, which corroborates the study that states that women recognize their health problems more often than men and seek healthcare services more frequently than men, as well15.

A study carried out with employees from a University hospital verified a higher prevalence of SAH in individuals of the male sex, with 10 years of schooling and older than 50 years; however, this study with hypertensive adult individuals
Although the study found a higher prevalence of SAH among non-caucasians, this association was even more pronounced among women, with 32.8% of women aged 12 years or more having completed college compared to 13.6% of women with 8 to 11 years of schooling (p-value = 0.028). There was also a higher prevalence of SAH among the married population, with 54% of the population married or living with a partner, compared to 58% of the married population in the same situation (p-value = 0.028). In our sample, there was a higher prevalence of married hypertensive individuals (63.9%) compared to those in the single category (9.8%), which is due to the predominance of young individuals in the studied population and, among the married ones, the degree of family responsibilities could represent a risk factor for SAH.

The socioeconomic differences have an important role in health conditions due to several factors, such as access to the healthcare system, level of information, problem comprehension and treatment adherence. In several studies, the assessment of the socioeconomic level is based on the type of occupation and level of schooling, with higher rates of CVD being observed in the lower socioeconomic levels. No significant difference regarding the prevalence of SAH was observed among the social classes, in spite of a higher prevalence among classes C and D-E.

Regarding the three levels of schooling, it was observed that hypertensive individuals with lower levels of schooling presented a higher prevalence of SAH in all age ranges in comparison with the intermediate and higher levels; this was corroborated by the NHANES, which has shown a higher prevalence of SAH among individuals with the lower levels of schooling in the last 30 years. When comparing the prevalence of SAH among the three levels of schooling, it was observed that individuals with lower levels of schooling presented a higher prevalence of SAH among classes C and D-E.

The social class of the studied sample was characterized as being middle to low-class, being compatible with the economic situation of the majority of the Brazilian population. The prevalence of SAH is also related to the individuals’ occupations and the physical characteristics of their work.
such as lack of autonomy, working under strict supervision, repetitive nature of the work, job instability, continuous exposition to noise, vibrations and extreme temperatures, can result in blood pressure elevation. The present study did not demonstrate any evidence of difference between the percentages of occupation categories, which is in disagreement with the current literature.

Conclusions

The prevalence of SAH in the city of São José do Rio Preto, state of São Paulo, Brazil (25.2%) is in agreement with other Brazilian studies. It was verified that the hypertensive individuals are adults in the economically active age range, caucasians, married, with low level of schooling that belong to the middle-low and low social classes. The prevalence of these sociodemographic factors among the hypertensive individuals can be especially negative for the population of São José do Rio Preto SP, Brazil which, in addition to hindering treatment, increases the risk of cardiovascular complications.

The data obtained from the present study show the need for higher public investments with the objective of planning public policies aiming at the necessity of early-onset continuous educational interventions.

Potential Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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Study Association

This study is not associated with any graduation program.

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