Research Article

EVALUATION OF EPIDEMIOLOGICAL FACTORS THAT PROMOTE HYPERTENSION IN ADULTS

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ABSTRACT

Introduction: Hypertension is considered a multifactorial clinical condition, in which some differences are perceived physiological and immunological between the genders. **Objective:** To evaluate the epidemiological aspects and risk factors that influence the emergence of Systemic Arterial Hypertension in adults. **Methodology:** It is a cross-sectional, retrospective, descriptive and quantitative research. A sample composed of 737 adults was used, in which 216 belonged to the male gender and 521 to the female gender, aged between 20 and 45 years. He used variables such as education, employment status, marital status, social class, body mass index and waist circumference. **Results:** Regarding schooling and the Body Mass Index, the risk factors for hypertension were considered in a general sample with p≤0.007 and p0.001, respectively. Marital status and waist circumference were significant for women with p≤0.01 and p0.005, respectively, and not for men. **Final considerations:** In the present study, it was noted that some of the variables studied could influence the diagnosis of systemic arterial hypertension in both men and adult women. It was also observed that there are physiological and immunological differences in the diagnosis of hypertension, suggesting that risk factors are different between genders and should be analyzed in isolation, respecting the particularities of each group.

INTRODUCTION

Systemic arterial hypertension (HBP) is responsible for a high burden of diseases, as well as cardiovascular morbidity and mortality, and may cause several impacts on public health, both in developed countries, as well as emerging ones[1]. It is considered a multifactorial clinical condition characterized by increased and sustained blood pressure (BP) levels[2]. The diagnosis is defined when systolic blood pressure (SBP) is ≥ 140 mmHg and / or diastolic blood pressure (DBP) is ≥ 90 mmHg[1].

Fis related to metabolic disturbances, functional and / or structural target organs[3]changes in, and changes in lifestyle[4]. The manifestations and severities are influenced by risk factors related to increased severity and progression of hypertension[5,6].

Among the risk factors, we can highlight: waist circumference (WC), body mass index (BMI), marital status, social class, work activity, schooling, gender and age[7,8].

The intrinsic mechanisms that regulate BP are similar between men and women; however, there are physiological and immunological differences that tend to influence the advent of the disease, its prevalence and response to treatment. It is emphasized that environmental factors, such as lifestyle habits can contribute to the individual's dysfunction in BP, causing hypertension[9].

Contrary to what one might imagine, studies show that most hypertensive patients do not show signs and symptoms in an evident way, that is, they are generally asymptomatic subjects. They are usually perceived in more advanced stages of the

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disease, being mediated by pharmacological treatment and changes in the habits of life, minimizing risks of diseases and their comorbidities[4].

According to what has been exposed the present article aims to evaluate the epidemiological aspects and risk factors that influence the onset of systemic arterial hypertension in adults.

METHODOLOGY

This is a cross-sectional, retrospective, descriptive and quantitative approach. The present manuscript is a fraction of the project titled "Epidemiological Profile of Chronic Diseases in Southwest Bahia." The data were collected between August 2016 and February 2018. Participants were informed about the study and the methods to be used for collection, in which they signed the Free and Informed Consent Form (TCLE), which contained pertinent data to ethical aspects, according to Resolution 466/12 (National Health Council).

The sample of our study consisted of 737, in which 216 belonged to the masculine gender and 521 to the feminine one. Among these subjects, they were considered men and women between the ages of 20 and 45 and excluded elderly individuals, children, bedridden and pregnant women. Anthropometric measurements were performed, including: a) weight, using a bio-impedance scale with a variability of 0.1 kg and holding up to 150 kg; b) height, using a portable stadiometer with a minimum measurement of 115 cm to 210 cm and a graduation of 1 mm; c) waist circumference (CC), with the aid of an inelastic tape measure.

and obesity, as recommended by the Brazilian Association for the Study of Obesity and Metabolic Syndrome (ABESO)[12,13].

Blood pressure was semi-automatic digital sphygmomanometer, measured using a measured after the subject remained seated for a period of 5 to 10 minutes, with the legs uncrossed, in a calm and quiet environment, at room temperature, sitting with the legs uncrossed, feet resting on the floor, trunk leaning against the chair and relaxed. In addition, it was oriented to position the right arm horizontally, leaning on the chair, with the palm of the hand facing upwards and elbow slightly flexed[14].

The respondents answered an IBGE questionnaire that contained information on socio-demographic aspects and socio economic such as: schooling (elementary education, high school, and higher education); marital status (single or married); social class (A, B, C, D and E); employment status (working or not working).

Statistical analysis was performed using the statistical software SPSS® version 25.0, and the Pearson chi-square test was performed, considering a significance level of p <0.005.

RESULTS

In the present study, 737 adults participated, of which 216 were men and 521 were women. Among those previously diagnosed with hypertension, 24.2% had completed only elementary school and 42.9% were male and 14.6% female.

Table 1 Association between the risk factors studied and the risk of developing hypertension

Variables		Male			Female			General sample		
		Normotensive	Hypertensive		Normotensive	Hypertensive		Normotensive	Hypertensive	
		n (%)	n (%)	p	n (%)	n (%)	p	n (%)	n (%)	p
Education	Fundamental	12 (57,1)	9 (42,9)		35 (85,4)	6 (14,6)		47 (75,8)	15 (24,2)	
	Mean	41 (80,4)	10 (19,6)	0,123	105 (92,9)	8 (7,1)	0,020*	146 (89)	18 (11)	0,007*
	Top	78 (74,3)	27 (25,7)		247 (96,1)	10 (3,9)		325 (89,8)	37 (10,2)	
Works	Yes	107 (74,3)	37 (25,7)	0,680	258 (93,5)	18 (6,5)	0,684	365 (86,9)	55 (13,1)	0,172
	No	31 (77,5)	9 (22,5)		137 (94,5)	8 (5,5)		168 (90,8)	17 (9,2)	
status	Marital Single	85 (75,2)	28 (24,8)	0,844	237 (96,3)	9 (3,7)	0,010*	322 (89,7)	37 (10,3)	0,129
	Married	51 (73,9)	18 (26,1)		157 (90,2)	17 (9,8)		208 (85,6)	35 (14,4)	
Social Class	B	11 (64,7)	6 (35,3)		17 (94,4)	1 (5,6)		28 (80)	7 (20)	
	C	44 (77,2)	13 (22,8)	0,758	106 (97,2)	3 (2,8)	0,074	150 (90,4)	16 (9,6)	0,218
	D	62 (75,6)	20 (24,4)		192 (94,6)	11 (5,4)		254 (89,1)	31 (10,9)	
	E	13 (72,2)	5 (27,8)		57 (87,7)	8 (12,3)		70 (84,3)	13 (15,7)	
BMI	Low Peso	4 (80)	1 (20)		99 (96,1)	4 (3,9)		103 (95,4)	5 (4,6)	
	Normal weight	61 (80)	15 (19,7)	0,475	221 (92,9)	17 (7,1)	0,715	282 (89,8)	32 (10,2)	0,001*
	Overweight	52 (69,3)	23 (30,7)		57 (93,4)	4 (6,6)		109 (80,1)	27 (19,9)	
	Obese	19 (73,1)	7 (26,9)		18 (94,7)	1 (5,3)		37 (82,2)	8 (17,8)	
CC	Ideal	112 (76,7)	34 (23,3)	0,252	259 (96,3)	10 (3,7)	0,005*	371 (89,4)	44 (10,6)	0,132
	Risk	25 (67,6)	12 (32,4)		135 (89,4)	16 (10,6)		160 (85,1)	28 (14,9)	

Source: NEPEdc Research, 2018.
CC - Waist Circumference; BMI - body mass index.
* significance, value of p≤0.05.

For the waist circumference classification, low prediction or risk prediction values were used according to gender[10,11].

The body mass index (BMI), obtained by body weight ratio, in kilograms, by height, in meters, squared (weight / height²) was used to define the condition of nutritional status among selected adults, considering how cut-off point for the individual's classification as low weight, eutrophic, overweight

Differently from the normotensive people who had their highest percentage in higher education with 89.8%.

Regarding the employment situation, it was noticed that 13.1% of hypertensive patients reported working, and the majority of them were men (25.7%). The marital status showed that being married or single does not have is a significant factor for the emergence of SAH in a general sample. However, there was

statistical significance with p≤0.010 in the female gender, suggesting that married women tend to be at higher risk of hypertension.

The most prevalent social class among hypertensive patients was class B, represented by 20%. When the relationship between social class and genders was analyzed separately, it was observed that 35.3% of the men concerned class B and 12.3% of the women to the class E.

Regarding BMI, we found that the highest percentage of hypertensive individuals was related to overweight or obese individuals, demonstrated by 19.9% and 17.8%, respectively. In this case, there was statistical significance with p≤0.001, suggesting that nutritional status has influence on the onset of the disease. There was no statistical significance in the general sample, but when analyzed separately the gender, it is perceived that women are at higher risk for developing hypertension than men, represented by p≤0.05.

DISCUSSION

Among the variables of the sample that obtained significance value is the educational level, observing that the prevalence of hypertension was higher among those who only had elementary education. This study was similar to that of LU *et al*. (2018)[15], both of which show that people with lower levels of schooling are at higher risk of developing hypertension than those with higher schooling[16]. Being the schooling considered a risk factor for the emergence of the studied disease.

There is an inverse relationship between educational level and prevalence of hypertension, and it is considered a protective factor, when the educational level is higher, for the appearance of chronic noncommunicable diseases (DCNTs), since the population with higher education has greater access to information and practices of promotion and prevention of health, medical care and greater adherence to treatment[17,18].
In men, it was found that preventive practices are not routine, be they structural and / or cultural. This indicates that the explanation of this phenomenon may be a gender issue, in which men and women, under the influence of distinct cultural elements, develop patterns of behavior in relation to self-care with health, in which it was verified that the marital status interferes in the diagnosis of hypertension in women, but not in men[19]. In the genus, the protective effect of marriage relative to mortality was more significant in men compared to women[20].
Some physiological variations that occur in people of opposite gender such as excess body fat and its distribution in the body, activation of the sympathetic nervous systems, can result in hypertension[21]. However, when the analysis was stratified for gender, BMI and CC lost significance in associations in relation to men, but remained in women, evidencing that this physiological difference should be considered, especially in relation to the distribution of body fat[22,23].

Elevated BMI was considered a significant risk factor for hypertension with the value of p≤0.001 in the general population, but no association was identified when confronted with isolating the genders. Overweight or obese people have a 2.5-fold increased risk of hypertension compared to those with normal BMI[24]. Suggesting that the nutritional status of the individual is an important factor for the onset of the disease.

Evidence indicates that education and income do not translate into the same level of financial opportunity[25]. Education was the strongest contributor to inequality, with lower levels of education increasing the predicted probability of hypertension among economically disadvantaged groups[26].

Final Considerations

In the present manuscript it was observed that the studied variables may influence the diagnosis of Systemic Arterial Hypertension (SAH) in adult men and women. In the general sample, schooling and BMI had significance as the risk for hypertension, suggesting that it is of paramount importance to health education policies.

When analyzed in an isolated way the schooling, marital status and waist circumference, there was a higher prevalence in the female gender when compared to the male. It was also realized that the higher the level of education of the individual, the greater his knowledge and knowledge about his health. Although waist circumference is not significant for men but for women, it remains a good predictor for the risk of cardiovascular disease in both genders.

It was verified that there are differences in the diagnosis of hypertension between men and women, which can be justified by the body composition and distribution of adipose tissue, physiological and immunological aspects. suggesting that risk factors should be suggested for both groups in isolation, respecting the particularities of each group.

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