



The Prevalence of Nutritional Risk Factors for Arterial Hypertension in Durrës City

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ABSTRACT

OBJECT: identification of the prevalence of nutritional risk factors in arterial hypertension in Durrës city.

METHODOLOGY: a representative sample of the adult population of Durrës from 18 to 80 years old . Data collection consisted of administration of a structured questionnaire as well as measurement of arterial blood pressure. Data analysis employed the statistic program SPSS-15.

RESULTS: This study included 870 persons, 448 female and 422 male.

The prevalence of arterial hypertension in Durres city was 23.4%. The HTA prevalence was 27.3% for males and 19.9% for females. There was a strong correlation between salt consumption and arterial hypertension as well as the consumption of fatty foods and arterial hypertension.

DISCUSSION: strong statistical connection between consumption of animal fats, salt and arterial hypertension.

CONCLUSION: Awareness of nutritional risk factor modification is a tool to influence better arterial hypertension control, as public health priority

KEYWORDS : arterial hypertension, nutritional risk factors

INTRODUCTION:

About 95% of all cases of hypertension have an unknown etiology. The Pickering definition of essential or primitive hypertension as a multi-factorial phenomenon where environmental and genetic factors are combined, is still valuable.

Recent data about this argument make the distinction between essential and secondary hypertension very fragile. For example, hypertension associated with obesity, a cause of essential hypertension, has both environmental and genetic influences. On the other hand, alcoholic hypertension is not associated with a familial history. In contrast, genetic factors are responsible for pheochromocytoma which is a secondary form of hypertension. The definition of what constitutes a high versus "normal" arterial pressure is controversial. (1)

So, a convenient clinical definition of hypertension might be a condition where arterial pressure is as high as constitutes a risk factor for cardiovascular disease.

Regarding our study, for a systolic pressure of 115 mm Hg and diastolic pressure of 75 mm Hg, (115/75mm Hg), the risk for cardiovascular disease (CVD) doubles for every rising 20/10 mm Hg (1).

For our purposes, arterial hypertension was defined when the systolic pressure was greater than 140mm Hg and diastolic pressure greater than 90 mm Hg. Actually there exist many classifications for arterial hypertension. The foremost two are:

The classification JNC-7 and that of the European Society of Hypertension (tab1).

The definition and classification of the levels of arterial pressure.

The aim of this study was to gain information about the epidemiological status of arterial hypertension and specifically to define the prevalence and risk factors connected with the nutritional health of the adult population of Durrës city. Through the results herein, it may be possible to undertake measures for the most effective and timely treatment of this disease. More importantly, preventative public health education can be instituted to halt the development of arterial hypertension in this important city of Albania.

OBJECTIVES:

The specific objectives of this paper are presented below:

The determination of arterial hypertension prevalence in the adult population of Durres city. The determination of the prevalence of nutritional risk factors for arterial hypertension. The correlation of arterial hypertension with nutritional habits of the subjects of the study (the consumption of animal fats, salt and the quantity of daily calories).

METHODOLOGY:Type of study: Transverse (cross-sectional)

Study population: This study included a representative sample of the adult population of Durres from 18 to 80 years old. To gather subjects we used the list of the last population census as per INSTAT data for residents of Durres city. A random sample of 870 subjects was taken from this list, which included all administrative units of Durres municipality. Persons were interviewed in different areas of the city.

DATA COLLECTION:

Data collection consisted of administration of a structured questionnaire as well as the measurement of arterial blood pressure for each subject. The questionnaire included the following components: Demographic characteristics (gender, age, ethnicity, religion), factors connected with lifestyle: nutrition was evaluated as per subject reports according to animal fat consumption, carbohydrates and the quantity of salt used in the daily diet. The evaluation was realized by taking into consideration the frequency of daily use.(2,3)

MEASUREMENT OF ARTERIAL PRESSURE:

During the questionnaire administration we measured arterial pressure as well. These measurements aimed to estimate the prevalence of the high blood pressure in the Durres population. They did not aim to establish a clinical diagnosis of the disease. The results are considered only as a statistical description of the population being studied. They are valuable as an epidemiological study only. The measurement of arterial pressure was realized with an electronic sphygmomanometer with automatic compression and decompression of the arm. During the study interview we performed three measurements of systolic and diastolic blood pressure (measured in mm mercury) with approximately 5 minute intervals between measurements in the seated position. The averages of the second and third measurements were used to classify persons as having hypertension by following the internationally recommended categories.(2)

The persons were classified with hypertension when the systolic blood pressure was above 140 mm Hg or when diastolic blood pressure was over 90 mm Hg. The raised blood pressure was classified as

mild, moderate or severe according to the criteria recommended by the National Institute of Health (1997).

Hypertension level	Systolic	Diastolic
Stage 1, mildly increased	140-159	90-99
Faza 2, moderately increased	160-179	100-109
Faza 3, severely increased	≥180	≥110

Stage 1 is mildly increased, stage 2 is moderately increased and stage 3 is severely increased.

DATA ANALYSIS:

For numeric variables, we reported the arithmetic average and standard deviation. The fid logistic regression model was used for evaluation of associations among socioeconomic, demographic characteristics and factors connected with lifestyle, anthropometric indicators, nutritional elements and all other risk factors for arterial hypertension.. The first models were adjusted only for age and gender. In both cases, a P value of <0.05 was considered statistically significant.

All statistical analyses of the data were realized in SPSS (Statistical Package for Social Sciences, version 15.0, Chicago IL),29, Systolic 140-159, 160-179, >180

Diastolic 90-99, 100-109, >110

RESULTS:

The description of the demographic characteristics of the population included in the study:

Mean Age of subjects included in study

Men (N=422)		Women (N=448)		
Age (year)	Average	SD	Av	SD
	47.9	2.1	46.7	2.3

Graphic no 2 shows the distribution of population as per age, group and gender.

The distribution of population as per age group and gender.

2. The description of the prevalence of HTA in the studied population. (4,5)

According to our study results, HTA prevalence (during arterial pressure measurement) in Durres city was 23.4%. While HTA prevalence according to self reports of the interviewed subjects was 21.2%.

The HTA prevalence. The HTA prevalence as per gender resulted in 27.3% for males and 19.9% for females.

3. The description of the nutritional factors that affected the appearance of HTA

Concerning calories from food 230 (26.4%) declared that the level of consumed calories was low. 265 (30.5%) were consuming an average level of calories and 375 (43.1%) were consuming a high level of daily calories.

Concerning daily quantity of animal fats consumed, 625 (71.8%) declared a consumption of a low or medium level of fats against 245 (28.9%) that consumed foods with a high level of animal fats.

For the consumption of carbohydrates, the subjects were asked how many slices of bread was their daily consumption. 565 (64.9%) declared the consumption of 2 to 4 slices per day and 305 (35.1%) declared more than 5 slices per day

For the daily consumption of dietary salt the subjects were asked if they used table salt during the meal. 589 (67.7%) of them declared a low or medium consumption of salt and did not use table salt during

the meal. 281 (32.3%) declared a high consumption of salt during the meal, almost all table salt.

4. the description of the distribution of HTA as per nutritional factors

a) the description of the distribution of HTA as per animal fat consumption, in the group of persons with HTA 62,4% of them were using more animal fats against 43.4% of persons that belong to the group without HTA that used them. This data had a strong statistical connection (p<0.001)

b)Regarding salt consumption and the appearance of HTA, 89.2% of persons with HTA were using a lot of salt during the meal, compared to 14.9% of those of the group without HTA . This is a result with a strong statistical connection.(p<0.01)

c)The description of the distribution of HTA as per daily calorie consumption

HTA is frequent in persons who consume a small quantity of calories (25%) or average quantity (27%) compared to those who consume a large quantity of calories. This data is not statistically significant (p=0.109).

5. The evaluation of the association of HTA with nutritional factors

a) The connection between HTA and daily calories

Subjects who consumed too many calories had lesser incidence of suffering from HTA, compared to those who consumed a medium level of calories, but this result was not statistically significant: OR=0.77, 95%, CI=0.51-1.15; P=0,199;

It must be stressed as well that the consumption of calories is also related to and counterbalanced by physical activity. So the interpretation of total daily calories must be done very carefully.

b) The connection between HTA and fats consumption as per the fid logistic regression model, controlled by age (age-adjusted models).

The subjects that consumed too many animal fats had a higher probability of suffering from HTA compared to those who consumed a little or a medium quantity of fats: OR=6.49, 95%CI=3.42-9.13, (Tab 5). This result was statistically very strong. (P<0.001)

c) The connection between HTA and salt consumption as per the fid logistic regression model controlled per age (age-adjusted models)

The subject that consumed a considerable amount of salt had more probability of suffering from HTA compared to those who consume a low or medium quantity: OR=7.8, 95%CI=4.5-14.1 (tab 6). This result was statistically very strong (P<0,001)

DISCUSSION:

Our study discovered a prevalence of arterial hypertension of 23.4%. According to gender the prevalence was 27.3% for males and 19.9% for females. These figures are comparable with other studies realized in Albania like DHS (2008-2009) which reported that HTA prevalence in Albania was 20% for females and 28% for males (3). Also, the HTA prevalence in Durres city is comparable to the prevalence in Tirana city. (22.5%) according to a study realized from M. Tase et al (4,7).

Recently, our HTA prevalence corresponded also with HTA values in Europe.

A study which compared the national data from many countries of the world brought to light interesting facts about international importance of hypertension. Kearney and his colleagues reported that the average prevalence standardized by age was 30% or higher in industrialized countries and those former socialist ones and in Latin America and Caribbean as well. (5).In China, India, Middle East and in Sub-Saharan Africa the medium level of prevalence was 20-30%. The result was lower (20%) in Continental Asia and also in some islands of Asia. One of the most interesting results of this study was the strong statistical connection that exists between high consumption of animal fats, salt and arterial hypertension. So the high level of dietary animal fats, resulted as a strong risk factor of HTA. The study

showed that persons with HTA consumed a lot of animal fats in their daily diet. So the HTA prevalence was higher in those persons that consumed a lot of fat (62.4%) compared to those who used a little or a medium quantity (37.6%) This result was comparable with a lot of epidemiological studies in the world.

The high quantity of salt in the daily diet resulted as an important risk factor of HTA. This statistically strong connection is comparable with a lot of previous studies in the world.(6-8). Many studies performed in populations that have different access to salt have shown a significant positive connection of the salt taken through diet and arterial pressure (9-10).Even from an international study (INTERSALT) a strong connection resulted between salt and rising arterial pressure that correlate with age.

It is reported that a rise of daily salt intake of 6g/d by an adult more than 30 years old is associated with a rise of 9 mm Hg of arterial pressure. The hypothesis of consuming too much salt has a correlation with pathogenesis of HTA. The opinion of many researchers is essential. This can be realized through the rise in the circulatory volume, cardiac debit, peripheral circulation, decrease of renal function and calcium level.(11-12) Study results show that:

In those populations that use too much salt, the HTA prevalence is very high. The diets that have a limited use of salt lead to lower figures of HTA and vice versa. Hypertension can activate a lot of pressure mechanisms like an increase in intracellular calcium and a decrease insulin resistance.The existence of a different sensitivity of arterial pressure toward salt shows us that heritage and the interaction of many environmental factors may be included. (8)

Finally we can say that the results of our study correlate with those of the other international studies because HTA prevalence was higher in those persons that consume a lot of salt compared to those who have a low or medium level of salt consumption.

CONCLUSION:

In Albania, as well as in developed countries, arterial hypertension is an important health problem ranked as a high priority for Public Health. The association of arterial hypertension with risks factors in the population of Durres city imitates the models reported in the literature in studies led by European countries and others countries as well. (9)

Arterial hypertension in Durres city is more frequent in males compared to females.

The prevalence of arterial hypertension in Durres is higher in persons who consume too many animal fats.

The prevalence of arterial hypertension is higher in those persons who consume a lot of salt.

RECOMMENDATIONS:

Arterial hypertension is a condition that can be treated and prevented.

For this reason, preventive measures to include modification of improper nutrition is an important means to control and prevent it.

Programs of health promotion must be focused on these factors associated with lifestyle and must be oriented and presented directly to the community.

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