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ORIGINAL

Risk factors for high blood pressure in older adults of the Provincial Directorate of the MIES of Santo Domingo de los Tsáchilas

Factores de riesgo de la hipertensión arterial en adultos mayores de la Dirección Provincial del MIES de Santo Domingo de los Tsáchilas

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ABSTRACT

Introduction: arterial hypertension is a disorder in which blood vessels have blood pressure above the limits above which cardiovascular risk increases, changes related to aging favor the increase in blood pressure.
Objective: to identify the risk factors for arterial hypertension in older adults of the Provincial Directorate of MIES of Santo Domingo de los Tsáchilas.
Method: a quantitative, observational, descriptive and prospective study was carried out on the risk factors for arterial hypertension in older adults of the Provincial Directorate of the MIES of Santo Domingo de los Tsáchilas during the year 2022. The population consisted of 90 older adults from whom a sample of 60 cases was selected
Results: 43,3 % of the participants are single, among the singles 25 % have a primary education level, 56,6 % are female, of which 30 % are within the age range of 71 to 80 years, 77 % of the sample studied did not present a family history of the disease, 93 % of the respondents do physical activity, 88 % of them report that they consume low-salt foods, 21,7 % are between the weight range of 63-75 kg, 53 % of the respondents are overweight, 95 % of respondents reported not smoking cigarettes, 93 % indicated not drinking alcohol at all.
Conclusions: It can be seen that there is a predominance of females and older adults between 70 and 80 years of age, family history, obesity, sedentary lifestyle, inadequate diets, stress, as well as toxic habits such as alcohol and cigarette consumption are shown as important risk factors in the suffering of the disease.

Keywords: High Blood Pressure; Older Adult; Risk Factors.

RESUMEN

Introducción: la hipertensión arterial es un trastorno en el cual los vasos sanguíneos tienen presión sanguínea por encima de los límites sobre los cuales aumenta el riesgo cardiovascular, los cambios relacionados con el envejecimiento favorecen el aumento de la presión arterial.
Objetivo: identificar los factores de riesgo de la hipertensión arterial de los adultos mayores de la Dirección Provincial del MIES de Santo Domingo de los Tsáchilas.
Método: se realizó un estudio cuantitativo, observacional, descriptiva y prospectiva los factores de riesgo de la hipertensión arterial de los adultos mayores de la Dirección Provincial del MIES de Santo Domingo de los Tsáchilas en el trascurso del año 2022. La población estuvo conformada por 90 adultos mayores de los cuales se seleccionó una muestra de 60 casos
Resultados: el 43,3 % de los participantes son solteros, de entre los solteros un 25 % tienen un nivel de instrucción de educación primaria, el 56,6 % corresponde al género femenino, del cual el 30 % está dentro del rango de edad de 71 a 80 años, el 77 % de la muestra estudiada no presento antecedentes familiares de

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la enfermedad, el 93 % de los encuestados si realiza actividad física, el 88 % de ellos refiere que consume alimentos bajos en sal, el 21,7 % están entre el rango de peso de 63-75 kg, el 53 % de los encuestados se encuentra en sobrepeso, el 95 % de los encuestados refieren que no consumen cigarrillo, el 93 % indican que no ingieren nada de alcohol,
Conclusiones: se puede apreciar que existe un predominio del sexo femenino y de los adultos mayores comprendidos entre los 70 y 80 años de edad, se muestran los antecedentes familiares, la obesidad, el sedentarismo, las dietas inadecuadas, el estrés, así como los hábitos tóxicos como el consumo de alcohol y de cigarro como factores de riesgo importantes en el padecimiento de la enfermedad.

Palabras clave: Hipertensión Arterial; Adulto Mayor; Factores de Riesgo.

INTRODUCTION

The World Health Organization states that hypertension is a disorder in which the blood vessels have high blood pressure. Blood is distributed through the blood vessels from the heart to the entire body. With each heartbeat, the heart pumps blood through the vessels. Blood pressure is created by the force of the blood pushing against the walls of the arteries as the heart pumps blood. The greater the pressure, the harder it is for the heart to pump.[1]

Aging-related changes favor an increase in blood pressure (BP). The physiological alterations the organism undergoes during aging are influenced by factors related to the individual's lifestyle, such as an incorrect diet throughout life, excessive salt consumption, harmful habits, alcohol consumption, smoking, level of physical activity, or weight control. All this causes great differences between individuals. These constant changes are then related to age, which causes BP to increase during aging gradually. Its origin lies in the changes that take place in the arterial walls, as well as in the neuroendocrine regulatory system. Therefore, the underlying mechanism causing the gradual increase in BP with age is the loss of elasticity and indistinguishability of the large and medium-sized arteries, with an increase in their stiffness and an increase in peripheral vascular resistance, known as atherosclerosis.[2]

Non-modifiable risk factors are those that, by nature, cannot be treated or modified; these will influence blood pressure factors, such as age, race, sex, and family history. Men are more predisposed to develop hypertension than women until women reach the age of menopause, after which the frequency in both sexes becomes equal. In most cases, hypertension does not depend on a single cause but is of polygenic and multifactorial origin. Cases of HT are caused by the mutation of a single gene, which is transmitted in the family following a Mendelian pattern.[3]

It should be noted that the modifiable risk factors for HT can be classified as behavioral, i.e., those that are linked to lifestyle, susceptible and subject to changes in the behavior of acquired habits, such as smoking, inadequate diet rich in calories or fat, poor consumption of vegetables and fruits, low physical activity, high sodium intake, stress, among others that could be involved with the risk for the development of associated diseases. Hypertensive disorders are problems of public health interest, causing cardiovascular alterations and increased morbimortality rates.[4]

It should be noted that hypertension is defined or diagnosed by measuring blood pressure for several days. In order to be diagnosed with hypertension, measurements should be constant at a systolic pressure equal to or higher than 140 mmHg and a diastolic pressure equal to or higher than 90 mmHg. Normal levels of both systolic and diastolic pressures are essential for the efficient functioning of vital organs such as the heart, brain, and kidneys, as well as general health and comfort. It is worth mentioning that there are two main types of hypertension, which are divided into primary or essential hypertension, which is the type of hypertension that occurs due to genetic causes in interaction with the environment, and which is related to advancing age, and secondary hypertension, which is caused by pathologies that mainly affect the kidneys, the brain or an electrolyte imbalance, and can lead to alterations in blood pressure figures.[5]

The prevalence of hypertension in older adults and associated factors such as aging substantially increases the incidence of this condition, thus having primary hypertension, which is the one in which no identifiable cause can be mentioned since there are associated factors. However, not with the cause and effect category, it can be associated with a family component, but a responsible gene is not yet defined. Secondary hypertension is due to an identifiable cause, generally associated with a pathology. If this disease is treated and health is restored, blood pressure improves.[6]

Arterial hypertension continues to be a subject of study for researchers since it has been shown that, in groups of people over 45 years of age, 90 % of cases develop essential or primary hypertension, and less than 10 % develop secondary hypertension. For this reason, it is important to know the traditional modifiable and non-modifiable risk factors that influence the development of the disease.[7]

Therefore, this article aims to identify the risk factors for arterial hypertension in older adults in the Provincial Directorate of the MIES of Santo Domingo de los Tsáchilas.

METHOD

A quantitative, observational, descriptive, and prospective study was conducted to identify the risk factors for arterial hypertension in older adults of the Provincial Directorate of the MIES of Santo Domingo de los Tsáchilas during the year 2022.

The population consisted of 90 older adults belonging to the Gerontological Center of the Ministry of Public and Social Health (MIES) belonging to the Provincial Directorate of Santo Domingo de las Tsáchilas located in the Urbanization Los Rosales, from which a sample of 60 cases was selected, the type of sampling was non-probabilistic. The sample was selected at the convenience of the researchers.

Inclusion criteria: Persons over 60 years of age, male and female, who are enrolled in the Gerontological Center of Santo Domingo de los Tsáchilas, who attend three to five times a week at the Gerontological Center, and who wish to participate voluntarily in the study.

Exclusion Criteria: Older adults with a diagnosis of serious mental illness, patients who, during the application of the instrument, decided to stop participating, people who were not present on the day of data collection, and who were under the established age range.

Two instruments were used to carry out the data collection which was the questionnaire on the risk factors of arterial hypertension, which was taken from the thesis of Salas (2018) for his study entitled "Risk Factors Associated with the Incidence of Arterial Hypertension in Patients aged 40 to 60 years attended at the CS Santiago de Surco, Lima-2016". [8] The second questionnaire applied was an adapted version of the Perceived Stress Questionnaire (PSQ) for its English acronym, developed by Levenstein S in 1993.[9]

Once all the data were obtained through the instruments applied, i.e., the questionnaires, a code was assigned to each of the answers for the analysis of the information, in which the office package was used in an Excel sheet, the data were grouped, which were then transformed into tables of results, to be subsequently interpreted using a descriptive analysis of the variables studied.

According to the ethical principles, each of the research participants should be treated with independence; it means that people with less autonomy have the power and the right to be protected; that is to say that each one should be treated with the respect they deserve for their dignity and value as persons, which is why the present investigation tried to apply these ethical principles in the study subjects, ensuring their confidentiality and integrity, applying the questionnaire anonymously, helping to clarify any doubts of the respondent, without asking aggressive questions or outside the margin of the study; using the appropriate material and equipment for data collection.

RESULTS

Table 1 shows that 43,3 % of the participants were single, 25 % of the singles had a primary education level. Of the widowed, 18,3 % have a primary school education.

Table 1. Distribution according to marital status and level of education

	Single		Married		Divorced		Widower		Total	
	N	%	N	%	N	%	N	%	N	%
No Studies	11	18,3	3	5	2	3,33	10	16,7	26	43,3
Primary Education	15	2	1	1,7	6	10	11	18,3	33	55
Secondary Education	0	0	1	1,7	0	0	0	0	1	1,7
Higher Education	0	0	0	0	0	0	0	0	0	0
Total	26	43,3	5	8,3	8	13,3	21	35	60	100

Table 2 shows the age ranges according to gender, 56,6 % corresponds to the female gender, of which 30 % is within the age range of 71 to 80 years.

Table 2. Distribution according to age and sex

	Female		Male		Total	
	N	%	N	%	N	%
60-70	8	13,3	4	6,7	12	20
71-80	18	30,0	12	20,0	30	50
80-91	8	13,3	10	16,7	18	30
Total	34	56,6	26	43,3	60	100

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Table 3 shows the gender and race, since the black race has a greater genetic predisposition to suffer arterial hypertension; of the participants, only 10 % are black and therefore present a greater risk. The 56,7 % correspond to the female gender, of which 35 % self-identify as mestizo.

Table 3. Distribution according to sex and race

	Female		Male		Total	
	N	%	N	%	N	%
White	11	18,3 %	10	16,7 %	21	35 %
Mongrel	21	35 %	12	20 %	33	55 %
Black	2	3,3 %	4	6,7 %	6	10 %
Total	34	56,7 %	26	43,3 %	60	100 %

Table 4 shows that 77 % of the sample studied had no family history of the disease.

Table 4. Distribution according to family history

	Yes		No		Total	
	N	%	N	%	N	%
Father	17	28	43	72	60	100
Mother	27	45	33	55	60	100
Siblings	23	38	37	62	60	100
Others	14	23	46	77	60	100

Table 5 shows that 93 % of the respondents do engage in physical activity.

Table 5. Distribution according to whether or not they do physical activity

You are physically active	N	%
Yes	56	93
No	4	7
Total	60	100

In table 6 concerning the type of physical activity performed and its duration that 42,9 % of the respondents walk for an estimated time of less than 30 minutes and 41,1 % perform dance therapy for an estimated time of more than 30 minutes.

Table 6. Distribution according to the type of physical activity and time of duration

		7 o 4 days		3 or less		Total	
		N	%	N	%	N	%
Walks	30 minutes or less	11	19,6	13	23,2	24	42,9
	more than 30 minutes	4	7,1	1	1,8	5	8,9
Dance Therapy	30 minutes or less	6	10,7	17	30,4	23	41,1
	more than 30 minutes	4	7,1	0	0	4	7,1
						56	100

Table 7 shows the level of salt consumption of the participants, 88 % of them refer that they consume foods low in salt.

Table 7. Distribution according to salt consumption

	N	%
Low salt foods	53	88
Salty foods	7	12
Total	60	100

In relation to salt consumption, Table 8 indicates that 72 % of the respondents never add additional salt to the food they eat.

Table 8. Distribution according to whether additional salt is added to food

Adding more salt to ready-made foods	N	%
Never	43	72
Almost never	17	28
Always	0	0
Almost always	0	0
Total	60	100

Table 9 shows the relationship between the consumption of fried foods and the frequency of this consumption, where 53,3 % of the participants do not consume fried foods.

Table 9. Distribution according to frequency of fried food consumption

	Yes		No		Total	
	N	%	N	%	N	%
Diary	0	0	0	0	0	0
Inter Daily	0	0	1	1,7	1	1,7
3 times per week	1	1,7	0	0	1	1,7
2 times per week	10	16,7	1	1,7	11	18,3
1 time per week	17	28,3	1	1,7	18	30
Never	0	0	29	48,3	29	48,3
Total	28	46,7	32	53,3	60	100

Table 10 shows the relationship between the participants who weigh themselves and the frequency with which they do it, with the result that 93,3 % of the participants weigh themselves and 31,7 % do it every two months,

Table 10. Distribution according to whether participants weigh themselves and how often they do it

	Yes		No		Total	
	N	%	N	%	N	%
Every week	3	5	0	0	3	5
Every 15 days	4	6,7	0	0,0	4	6,7
Each month	14	23,3	0	0	14	23,3
Every 2 months	19	31,7	0	0,0	19	31,7
Every 3 months	13	21,7	0	0	13	21,7
Every 6 months	1	1,7	0	0,0	1	1,7
Per year	2	3,3	0	0,0	2	3,3
Never	0	0,0	4	6,7	4	6,7
Total	56	93,3	4	6,7	60	100

Table 11 shows the weight range in relation to gender, 56 % corresponds to the female gender and 21,7 % are between the weight range of 63-75 kg.

Table 11. Distribution according to sex and body weight

	Female		Male		Total	
	N	%	N	%	N	%
50-62	10	16,7	4	6,67	14	23,3
63-75	13	21,7	8	13,3	21	35
76-88	11	18,3	14	23,3	25	41,7
Total	34	56,7	26	43,3	60	100

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Table 12 shows the body mass index, resulting in 53 % of the respondents being overweight.

Table 12. Distribution according to body mass index

BMI	N	%
Underweight	2	3
Normal	9	15
Overweight	32	53
Obesity type 1	17	28
Total	60	100

Table 13 shows that 95 % of the respondents report that they do not smoke cigarettes.

Table 13. Distribution according to cigarette consumption

You consume cigarettes	N	%
Yes	3	5
No	57	95
Only Sometimes	0	0
Total	60	100

With regard to tobacco consumption, table 14 indicates that 95 % of the participants report that they never smoke, 3 % of them smoke twice a week.

Table 14. Distribution according to frequency of cigarette consumption

How often do you smoke cigarettes	N	%
every day	0	0
1 time per week	1	2
2 times a week	2	3
3 times a week	0	0
never	57	95
Total	60	100

Table 15 shows the relationship between the participants who drink alcoholic beverages and the amount they consume, 93 % indicate that they do not drink alcohol at all, while 7 % do, of which 3,5 % drink 2 glasses per day, and another 3,5 % consume 3 glasses per day.

Table 15. Distribution according to consumption of alcoholic beverages

	Yes		No		Total	
	N	%	N	%	N	%
2 glasses daily	2	3,5	0	0	2	3,5
3 glasses daily	2	3,5	0	0	2	3,5
Nothing	0	0	56	93	56	93
Total	4	7	56	93	60	100

Table 16 shows that 100 % of the participants monitor their blood pressure, 46 % of them do it every week.

Table 16. Distribution according to frequency of blood pressure control

	Yes		No		Total	
	N	%	N	%	N	%
Diary	10	16,7	0	0	10	16,7
Per week	28	46,7	0	0	28	46,7
Every 15 days	14	23,3	0	0	14	23,3
Per month	8	13,3	0	0	8	13,3
Total	60	100	0	0	60	100

Table 17 shows the relationship according to the classification of blood pressure according to gender, 30 % of the participants have a blood pressure in the high normal range, of which the gender with the highest incidence corresponds to the female with 13,3 %.

Table 17. Distribution according to the range of blood pressure according to gender

	Optimum		Normal		Normal high		Hypertension		Total	
	N	%	N	%	N	%	N	%	N	%
Female	8	13,3	9	15	10	16,7	7	11,7	34	56,7
Male	3	5,0	6	10	8	13,3	9	15,0	26	43,3
Total	11	18,3	15	25	18	30	16	26,7	60	100

DISCUSSION

The level of education is a primary factor for well-being, whose purpose is to improve the quality of life and all aspects related to the knowledge, practices, and habits of the population; the same source also states that there is a strong association between low levels of education and worse health outcomes. It also emphasizes that a low level of education in health can represent a series of difficulties in maintaining health. Hence, the lack of education leads to a shortage of work options, which generates an inadequate diet, causing people's health to weaken and worsen over time.[1]

Villarreal E et al.[10] concluded that HT in fathers and mothers is a strong risk factor for having a hypertensive family. It was also found that there is a higher incidence of HT in males (15 %) compared to females (11,7 %). In their research project, Alvarez K et al.[11] found that 65,1 % of women had higher levels of HT in contrast to 34,9 % of men, even though research shows varied results.

The statistics showed that one out of every five men suffered from hypertension; on the contrary, one out of every ten women suffered from hypertension since the female gender has a physiological factor specific to their gender, which is the production of certain hormones until the menopause stage; which act as a protective factor; however, after this cycle, the figures change significantly. Therefore, it is generally concluded that men are more predisposed to suffer arterial hypertension.[6]

Age it is known that there is a high prevalence of hypertension in older adults since, over the years, the arteries and several vital organs have atrophied, resulting in a higher incidence of hypertension in this age group. Gualotuña C et al.[12], in their study, determined that the average age of their participants was between 74 years of age, with a greater predominance in women.

Abizanda Soler P et al.[13] stated that age is a risk factor for HT, sedentary lifestyle, diabetes, and other cardiovascular pathologies. It also states that it is important to take into account chronological age and biological age, as this directly influences life expectancy and the quality of life, and that age (>75 years) is a risk factor for cardiovascular diseases, including the main and best known, hypertension.

Regarding race, it has been determined that there is a greater predisposition to suffer HT in the descendants of the black race since they are more sensitive to salt than the white population; in addition, black individuals have low levels of plasma renin and angiotensin II, which means that activity in response to salt concentration is suppressed and, as is well known, high salt consumption is among the risk factors for HT.[14]

Bianchi C et al.[15] stated that 95 % of the participants also presented obesity, showing that the prevalent factors were related to other factors such as salt, saturated fat consumption, and physical inactivity. Abujieres Galeano CM et al.[16] where can see that in their results, the most predominant factors are the practice of an inadequate diet, a sedentary lifestyle, and obesity; these factors are considered elementary for the development of HT, which causes it to fall mainly on older adults.

Obesity is defined as an abnormal or excessive accumulation of fat that can be detrimental to health. A simple way to measure obesity is the body mass index (BMI); a person's weight is in kilograms divided by the square of the height in meters. One possible explanation for the increase in body weight is that a genetic association between the metabolic disorders causes the increase in these risk factors. Obesity has to be favored by weight control education. Decrease sodium intake to less than 100 mmol/day (6 g NaCl). Regular aerobic physical exercise of 30 to 40 minutes/day most of the week. Suspend the use of tobacco. Reduce the intake of polyunsaturated fat and foods rich in cholesterol.[17]

Pilar CA,[18] in her research where she argues that 57,14 % of older adults are in family neglect, also mentions that the impact of stress increases BP figures, stating that the family is one of the influential factors in the mood, which is essential for the proper management of stress and therefore in the fight against hypertension. In addition, they investigated stress and negative emotions in middle adults with essential hypertension and found that 63,3 % of the total respondents were vulnerable to stress.

These findings strengthen the theory of the relationship between stress as a factor associated with arterial hypertension, considering that the disease is a stressful situation given the multiple threats and challenges it poses to the sufferer.

Stress is considered a new risk factor for cardiovascular disease. It is also considered as the physiological and psychological response of the organism to adapt to internal and external pressures or demands for change. It should be noted that stress forces the heart to work harder, and the coronary arteries, which nourish the heart muscle, require more energy input. In addition, as we age, the blood thickens, the arteries become less reactive or elastic, and harmful substances accumulate on the walls of the blood vessels, making it more difficult for the blood to circulate. In turn, fibrinolysis, which is the defensive mechanism that destroys thrombi, loses effectiveness with age. Therefore, the cardiovascular system is vulnerable to any obstruction and acute or chronic thrombosis of the atherosclerotic plaque.[18]

CONCLUSIONS

It can be seen that there is a predominance of women and older adults between 70 and 80 years of age, family history, obesity, sedentary lifestyle, inadequate diets, stress, as well as toxic habits such as alcohol consumption and cigarette smoking as important risk factors in the development of the disease.

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CONFLICT OF INTEREST

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