



IJS

International Journal of Sciences

Published online 05 31, 2022
ISSN 2763-5392



Systemic arterial hypertension and its correlation with smoking in a basic health unit of Passira/PE/Brazil

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To cite this article:

Moura, G.A.; Barbosa, J.A.; Barbosa, K.M.N.E.; Barbosa, A.D.X.; Medeiros, M.S.; Silva, T.A.; Silva, D.G.M.; Santana, J.H.; Silva, W.F.P.; Santos, M.E.S.; Lira, G.C.S.; Souza, E.O.S.; Souza, A.C.A.; Costa, S.L.A. **Systemic arterial hypertension and its correlation with smoking in a basic health unit of Passira/PE/Brazil**. *International Journal of Sciences*. Vol. 3, No. 3, 2022, pp.09-15. ISSN 2763-5392.

Received: 04 19, 2022; **Accepted:** 04 20, 2022; **Published:** 05 31, 2022

Abstract: The study aims to identify the relationship of Systemic Arterial Hypertension with smoking in patients of the basic health unit of Passira/PE. This is a quantitative cross-sectional cohort survey, conducted through a semi-structured questionnaire with patients registered and accompanied by HIPERDIA, which is a program aimed at affected by hypertension and diabetes diseases. Patients diagnosed with SAH and smoking history were included and those diagnosed with Diabetes only, without a smoking history and who do not attend consultations were excluded. The results show that women by age group up to 65 years

have greater contact with cigarettes, and above 65 years the number of smokers is higher in males. It was concluded that the sample was significant, observing a total of approximately 30%, identifying that smoking has interfered in the balance of the organism, being an important factor for the emergence of SAH.

Keywords: Systemic Arterial Hypertension. Smoking. Cardiovascular Diseases. Public Health

1. Introduction

On January 3, 2002, the HiperDia program regulated by ordinance 16 was created. With the implementation, the system of registration and follow-up of Hypertensive and Diabetic patients was initiated, to which those affected by these pathologies are assisted by primary health care, being possible to minimize the biopsychosocial consequences, with emphasis on the prevention of health problems (BRASIL, 2009; WESCHENFELDER; GUE, 2012).

Systemic Arterial Hypertension (SAH) is a chronic condition, caused by intrinsic (genetic) and extrinsic (smoking, alcohol consumption, sedentary lifestyle, obesity, sodium-rich diet, among others), so that the consequences of life habits vary from one individual to another according to progressive exposure (SILVA; WAR, 2011; NASCENTE *et al.*, 2010).

As a result of smoking, imbalances occur in the body resulting from the presence of cigarette components that cause decreased viscoelastic properties, hardened vascular walls, vasoconstriction by the increased release of vasopressin, adrenaline and catecholamines, which increase heart rate. The increase in blood pressure levels may be associated with nicotine from tobacco, which promotes activation of the sympathetic system with hypertensive effect in the exposed substances (INCA, 2009; NILSON, 2011; VARELLA; GARDEN, 2009).

Thus, both active and passive smokers may present an acute increase in blood pressure and hemodynamic effects may last with greater intensity in smokers and hypertensive patients compared to no hypertensive individuals (DELGADO; SILVA, 2011).

To this end, health education actions are envisaged in combating the new tobacco initiations. As soon as awareness of the harm is the best treatment to avoid aggravating and consequently death (INCA, 2009).

In view of the whole context, the data approach is justified to better demonstrate evidence resulting from chronic diseases SAH and smoking on the population (GAMA; MUSSI; GUIMARÃES, 2010). The aim of this article is to present the relationship between SAH and smoking in patients registered and followed by HiperDia in the basic family health unit of the municipality of Passira/PE.

2. Methodology

This is a descriptive, cross-sectional cohort study and quantitative approach, conducted in the Basic Health Unit (UBS) of Alto da Esperança in the municipality of Passira/PE. In view of those registered and accompanied by the HiperDia program, of which 551 are hypertensive.

As inclusion criteria, patients enrolled in HiperDia with diagnosis of SAH and history of smoking and those excluding patients enrolled in HiperDia diagnosed only with Diabetes, without a history of smoking and who do not frequent the consultations are included.

The patients were invited to participate in the research through the Informed Consent Form (TCLE), after signing authorizing the participation, a semi-structured questionnaire on tobacco use, socioeconomic and epidemiological profile was applied.

As a database, the Spreadsheet of the Microsoft EXCEL Program was used, and after the percentile was calculated. The research was appreciated by The Guararapes Memorial Hospital - CAAE no. 55983316.6.0000.5199. In which, it was only conducted by approval of the Research Ethics Committee, according to resolution no.466/2012 of the National Health Council.

3. Results and Discussion

The data initially bring the characterization of the subjects surveyed regarding socioeconomic and demographic aspects, and then with the analysis of lifestyle related to tobacco consumption and health conditions.

Table 1 - Socioeconomic and demographic profile of the interviewees. Passira-PE, 2016.

Sex	Frequency (n)	Percentage
Female	91	56%
Male	72	44%
Total	163	100%

Age	Frequency (n)	Percentage
25-35	9	6%
36-45	5	3%
46-55	33	20%
56-65	45	28%
>65 years old	71	43%
Total	163	100%

Race	Frequency (n)	Percentage
White	34	21%
Black	27	16%
Brown	102	63%
Total	163	100%

Profession	Frequency (n)	Percentage
Farmer	130	80%
Domestic	8	5%
Public Server	8	5%
Other	17	10%
Total	163	100%

Source : Moura, G.A. ; Barbosa, J.A., 2016.

According to the research, it was evidenced that 56% (n=91) of the people surveyed are female. In another study conducted in 2014 by Rocha-Brischiliari and colleagues, they also point to women as the majority in the study on chronic noncommunicable diseases (NCDs), in which ash was one of the main variables.

According to the age group of the surveyed, the majority of participants over 65 years of age, with a percentage of 43% (n=71). The other age groups showed 28% for the ages of 56 to 65 years, 20% between those aged 46 to 55 years and 3% for the ages between 36 and 45 years. The minimum age group surveyed between 25 and 35 years, with a percentile of 6% of respondents. The prevalence of the elderly or those with older age has been appearing in several studies, so that they may be associated with physiological changes of vascular stiffening with increasing age or even because this population was more exposed to smoking problems (NASCENTE *et al.*, 2010; PINOTTI; MANTOVANI; GIACOMOZZI, 2008).

In the race of the questionnaire, the sample collected presented a percentage of 63% (n=102) for brown samples. From this perspective in 2009 Giroto, *et al.* and Longo, *et al.* presented in both studies that white skin color was predominant, which differs from this study, perhaps this fact occurred due to the characteristic of the population in which the studies bring with them populations in southern Brazil.

Regarding occupation, 80% (n=130) claimed to be farmers, being significant in all age groups. The retired or beneficiary were 62% (n=101), and the prevalent income was 1 to 3 salaries with 84% (n=137) of the interviewees, of which most revealed to be retired. The research conducted by Pinotti; Mantovani; Giacomozzi in 2008 corroborates the present study on the predominance of retirees associated with income from 1 to 3 salaries, having in common domestic and farmer occupations as the main representatives.

Regarding the level of education, it was observed that there is a greater number of people who attended only incomplete 1st grade with a 48% percentile (n=78), it was also identified that 39% (n=63) make up the group of non-literates.

Several studies indicate that low schooling influences indirectly the index of cardiovascular diseases and complications, due to the lack of self-care due to lack of knowledge about the problem and treatment (SBC, 2010; DANTAS, 2011).

Still within the profile of the individuals approached, regarding marital status, it was shown that 46% (n=75) are married. Rocha-Brischiliari, *et al.*, in 2014 brought similarity as most of the subjects being married.

Finally, in view of the question about religion that they usually gather, three categories were identified: Catholic with 78% (n=129), evangelical with 17% (n=29) and those who do not have religion 5% (n=10). Lucchetti's study, *et al.*, in 2010 points out that there is a relationship between religiosity and spirituality, where it showed that blood pressure (BP) decreased according to greater faith or religiosity. Weekly religious frequency was associated with a decrease in SAH compared to those who did not attend religious services, a fact explained by cortisol reduction (known as stress hormone and

responsible for maintaining BP).

Table 2 - Characterization of the interviewees' relationship regarding smoking. Passira-PE, 2016.

Smoker / Ex-Smoker	Frequency	Percentage
Smoker	39	24%
Former Smoker <5 years	21	13%
Ex-Smoker 5-10 years	18	11%
Ex-Smoker 11-15 years	17	10%
Ex-Smoker 16-20 years	13	8%
Ex-Smoker 21-25 years	23	14%
Ex-Smoker 26-30 years	16	10%
Former Smoker >30 years	16	10%
Total	163	100%

Smoking Time	Frequency	Percentage
1 - 10 years	44	27%
11 - 20 years	22	13%
21 - 30 years	27	17%
> 30 years	70	43%
Total	163	100%

Cigarette quantity/day	Frequency	Percentage
1 - 5 Cigarettes	73	45%
6 - 10 Cigarettes	33	20%
11 - 20 Cigarettes	28	17%
> of 20 Cigarettes	29	18%
Total	163	100%

It was observed that 24% (n=39) of the interviewees are still using tobacco at the time of the study. Among those who stopped smoking in an interval of 21 to 35 years, 14% (n=23) were attributed and the sum of the other time intervals of smoking abolition was 62% (n=101). Similar data were found in several authors regarding smoking history, which validate the findings in the present study, in several studies bring a strong relationship of smoking as a risk factor for SAH, other cardiovascular diseases and NCDs. These presenting affinity between the greater presence of ex-smokers who currently smoke, in addition, demonstrate that NCDs and SAH include so much higher number of smokers and former smokers, compared to those who never smoked (CASTRO; ITEMI; NUNES, 2010 and ROCHA- BRISCHILIARI, *et al.*, 2014).

In a 2009 Giroto survey and collaborators brought that smoking is an important risk factor in a UBS of Maringá/PR,

where in the sampling there is a smoking history greater than 40%, that is, higher than the sample found in the present study, another difference between these were regarding genders, in the study of these authors male gender prevailed in response to exposure to the disease. For this in the qualitative study on quality of life in SAH, in 2008, Pinotti, Mantovani, Giacomozzi showed that of the 6 interviewees, 3 were smokers at the time and 2 previously smoked.

However, the only studies found that do not agree with the above-mentioned studies were those of Coqueiro, *et al.*, in 2008; and long, *et al.*, in 2009, which indicated 16.2% for former smokers and 29.8% for current smokers, for a total of 54.1% who never smoked; non-smokers and 46.2% for smokers, however this differs from the other ones, since the percentage of former smokers was not evaluated.

Regarding the time of tobacco consumption, 27% (n=44) of the interviewees stated that it corresponds to an interval of 1 to 10 years, it was also noted that a percentage of 13% (n=22) reported that the time of use is between 11 and 20 years, another 17% (n=27) of people point to a period of 21 to 30 years and those with a time longer than 30 years obtained a percentile of 43% (n=70). Castro and taxpayers (2010) cited that the mean age of smoking in smokers was between 14-16 years, supporting the data found in the present study that pointed out in most a time interval of consumption greater than 30 years, being found with a greater number of those who started the habit in adolescence.

It was seen that 45% (n=73) of the participants ensured that the daily amount of tobacco used was from 1 to 5 cigarettes, while the sample of 6 to 10 cigarettes appeared in 20% of the interviewees, while 17% represented those who used 11 to 20 cigarettes, 18% reported the use of cigarettes higher than 20 units corresponding to more than one cigarette wallet per day. A significant relationship was shown in those who had a series of comorbidities associated with the prolonged time of exposure to the chemical components of cigarettes and the greater daily amount of smoking use.

Although the largest number of people interviewed reported prolonged smoking, it was observed that most use small doses of cigarettes/day (1-5 units), however, many have a medium to very high degree of dependence as in the 2010 study in which Castro, Tiemi and Nunes pointed out among patients at a smoking treatment and approach center a smoking dependence score between 5.86-6.04 for the Fagerstöm test, which is equivalent to a degree of dependence of medium to high.

Table 3 - Relationship of hypertension diagnosis x smoking. Passira-PE, 2016.

HAS Before or after smoking	Frequency (n)	Percentage
Before	00	0%
After	163	100%
Total	163	100%

It is noted that in the table 3 all respondents stated that they discovered the hypertension after a few years that were using tobacco or even after having aborted the practice of smoking. This brings an even more decisive relationship between smoking and the involvement of hypertension. The interviewees stated that they discovered SAH after medical diagnosis and follow-up in HIPERDIA to which they are registered in the proper UBS in the Alto da Esperança neighborhood of the municipality of Passira-PE.

Table 4 - About the desire to quit smoking. Passira-PE, 2016.

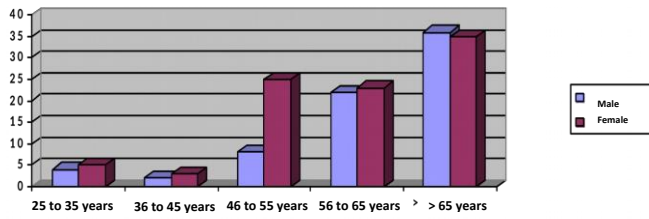
Provision for tobacco abandonment	Frequency (n)	Percentage
Yes	154	94%
No	9	6%

Table 4 shows the data verified in the face of the question regarding the desire to abandon smoking, and 94% (n=154) of the interviewees are told that they want to quit smoking for those who fall as smokers at the time of the interview and for those who had already quit smoking.

It was possible to corroborate this information in view of the smoking cessation groups performed at the UBS, in which the research participants reported participation in the group and others at the time of the interview expressed the desire to participate in this. With this those who could not stop smoking on their own added willpower and pharmacological treatments achieved the goal, and those who had not yet abandoned tobacco presented the following reasons for not being able to stop: increased anxiety/stress after trying to quit smoking, weight gain, lack of family incentive, among others. It was induced that 6% (n=9) of the interviewees stated that they did not want to quit smoking, by advanced age, others by personal decision or because they believe that tobacco does not promote any harm to them.

In the studies by Castro, Tiemi, and Nunes (2010) and Lima and Viegas (2011) they bring that anxiety is an important factor offered by smoking, and it is also found that the degree of motivation regarding smoking cessation in men was lower than in women. Apparently, the cigarette brings loss of appetite that causes weight loss, feeling of euphoria and decreased stress, however the harms of the substances often come in the long run, so many of the users of smoking are accommodated with the "false benefits", and believe that this will not have consequences for them (VARELLA; GARDEN, 2009).

Graph 1 - Relationship between men and women by age group who had or have contact with cigarettes. Passira-PE, 2016. UBS of Alto da Esperança.

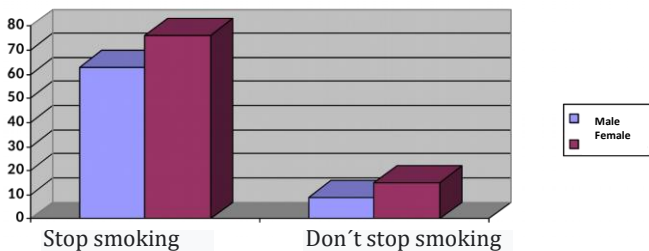


It is observed in the graph, a relationship between men and women by age group where it is perceived that women stand out in all age groups, except in the ages over 65 years, in which the male gender prevails.

There is a greater disparity in the age group between 46 and 55 years, to which the number of women who have had contact with cigarettes or who still have is more than three times that of men. In percentage terms reaching a mark of 15% compared to 5% of men, this related to the total of 163 survey participants who designated these age groups.

In 2011 Lima and Viegas analyzed that tobacco users with anxiety and depression were in the age group of 41-50 years which is suggestive of a particular cycle of women's lives, marked by relevant hormonal changes (on the influence of menopause), this study is consistent with the age group found and can indicate that the prevalence in this age group is a kind of consolation in depression and anxiety.

Graph 2 - Relationship between men and women who have quit smoking or not. Passira- PE, 2016. UBS High of Hope.

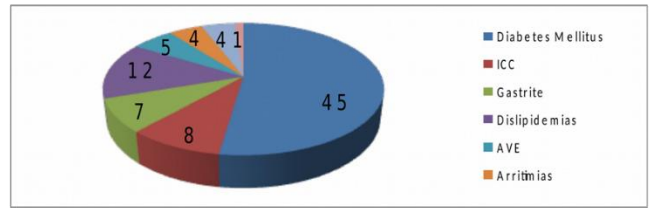


Graph 2 shows the relationship between those who quit smoking and those who did not quit smoking, compared to graph 1, women also stood out in the two variables of this item, but one coming to bring a positive number of women who stopped smoking, being encouraging since in the previous graph appeared as the main consumers of cigarettes. However, the female gender continues with the highest number of those who did not stop smoking and this corroborates the above in graph 1, that women were the ones who had the most contact with cigarettes over the age groups.

Thus, through a questionnaire it was seen that of the 24 people who did not quit smoking, there were 9 men and 15 women. Of the 9 8 men cannot stop smoking, but have an immense desire to quit and only 1 claimed not to want to leave the habit of smoking or with help. Among the 15 women, the number of 9 wish to stop smoking but do not get help and 6 do

not wish to quit smoking or have help to do so.

Graph 3 - List of patients with other morbidities, besides SAH.



Graph 3 shows the number of respondents who claimed to have more than SAH and smoking habits, other diseases of which Diabetes was found in 45 participants, 12 had dyslipidemias, those with Congestive Heart Failure were 8, another 7 said they had Gastritis, those with stroke historic were 5, Cardiac Arrhythmia and Prostatic Hyperplasia were reported for 4 each and 1 reported having Hepatic Sclerosis. Thus, obtaining a total of 86 individuals who indicate other morbidities, the remaining 77 reported having no disease other than SAH.

In 2010, Castro *et al.* showed that the number of hospitalized people was higher in smokers than in non-smokers, where the following diseases were verified : Diabetes, SAH, Peptic Ulcer, Heart and Respiratory Diseases, thus tobacco consumption is associated with early mortality due to chronic and high-cost disease economical.

4. Conclusions

In a statement, it is concluded that there was a significant sample of hypertensive patients with a smoking history, where a total of approximately 30% of those registered and monitored by the unit was found. Thus, it is a risk factor of paramount importance for studies, because it was observed that smoking associated with SAH brings severe and systemic complications in the body, triggering a non-control of homeostasis.

It is understood that there is a great need to strengthen the information of this risk factor, in addition to the execution of a more effective planning of health education about SAH in all its dimension. It is valid to develop strategies to abolish smoking, in addition to those existing smoking cessation groups, recommending coverage and expansion of this risk group.

For this, prevention is still the best strategy to combat the new initiations of smoking and therefore needs actions aimed at young people who have proven to be a worrying group regarding the involvement of SAH and the use of cigarette.

5. Acknowledgments

We thank God that it is our refuge, our parents, bridegroom/spouse, and family members who have supported us in the face of challenges. To our advisors who with zeal and dedication made possible this moment of

conquest. And to everyone on the UBS team of Alto da Esperança for their welcome, collaboration and support.

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