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Original article

Strategies for monitoring and stratifying cardiovascular risk in patients with hypertension in primary care

Estratégias de acompanhamento e estratificação do risco cardiovascular em portadores de hipertensão arterial da atenção primária

Estrategias para la monitorización y estratificación del riesgo cardiovascular en pacientes con hipertensión arterial en atención primaria

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ABSTRACT

Objective: To develop an integrated and effective monitoring plan through active screening, nursing consultation, and cardiovascular risk stratification. **Methodology**: Quantitative study conducted within the Family Health Strategy (Estratégia da Saúde da Família) in a municipality in the Zona da Mata region of Minas Gerais. A cardiovascular risk monitoring and stratification program was implemented for individuals with systemic arterial hypertension. **Results**: The study analyzed 31 individuals with systemic arterial hypertension identified through active screening in the municipality. Cardiovascular risk stratification, based on the Framingham risk score, revealed 17 high-risk participants, 3 at high risk, 1 at moderate risk, and 10 at low risk, according to the calculations. **Conclusion:** The objective was achieved. Different levels of cardiovascular risk were identified and specific interventions were planned.

DESCRIPTORS:
Primary Health Care; Hypertension; Nursing Consultation; Heart Disease Risk Factors.

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RESUMO

Objetivo: Desenvolver um plano de acompanhamento integrado e eficaz, por meio de busca ativa, consulta de enfermagem e estratificação do risco cardiovascular. **Metodologia:** Estudo quantitativo realizado na Estratégia da Saúde da Família, em um município da zona da mata mineira. Implantou-se um programa de acompanhamento e estratificação de risco cardiovascular em portadores de hipertensão arterial sistêmica. **Resultados**: O estudo analisou 31 portadores de hipertensão arterial sistêmica, identificados por busca ativa no município. A estratificação de risco cardiovascular, baseada no escore de Framingham, revelou 17 participantes de alto risco, 3 com risco elevado, 1 com risco moderado e 10 com baixo risco, segundo os cálculos. **Conclusão**: O objetivo foi alcançado. Foi possível identificar diferentes níveis de risco cardiovascular e planejar intervenções específicas.

DESCRITORES:

Atenção Primária à Saúde; Hipertensão; Consulta de Enfermagem; Fatores de Risco Cardiovascular.

RESUMEN

Objetivo: Desarrollar un plan de monitoreo integrado y efectivo a través del cribado activo, consulta de enfermería y estratificación del riesgo cardiovascular. **Metodología:** Estudio cuantitativo realizado dentro de la Estrategia de Salud de la Familia (Estratégia da Saúde da Família) en un municipio de la región Zona da Mata de Minas Gerais. Se implementó un programa de monitoreo y estratificación del riesgo cardiovascular para individuos con hipertensión arterial sistémica. **Resultados:** El estudio analizó 31 individuos con hipertensión arterial sistémica identificados a través del cribado activo en el municipio. La estratificación del riesgo cardiovascular, basada en la puntuación de riesgo de Framingham, reveló 17 participantes de alto riesgo, 3 de alto riesgo, 1 de riesgo moderado y 10 de bajo riesgo, según los cálculos. **Conclusión**: Se logró el objetivo. Se identificaron diferentes niveles de riesgo cardiovascular y se planificaron intervenciones específicas.

DESCRIPTORES:

Atención Primaria de Salud; Hipertensión; Consulta de Enfermeira; Factores de Riesgo de Enfermedad Cardiaca.

INTRODUCTION

Systemic arterial hypertension (SAH) is a multifactorial clinical condition characterized by increased blood pressure (BP), diagnosed when levels are equal to or greater than 140 90 mmHg, as established by the 2020 Brazilian Guideline on Arterial Hypertension[1]. However, values between 120 and 139 mmHg of systolic blood pressure (SBP) and/or 80 and 89 mmHg of diastolic blood pressure (DBP) are already considered as high blood pressure according to the 2024 European Hypertension Directive[2]. This condition is associated with functional and/or structural changes in target organs, such as heart, brain, kidneys and blood vessels, and increases the risk of fatal and non-fatal cardiovascular events.

The risk of cardiovascular complications presents a linear relationship with the increase in BP, adding to other risk factors for ischemic heart disease, stroke (stroke), chronic kidney disease (CKD) and early mortality in both sexes, different ages and ethnic groups. In an analysis of observational studies, over 12.7 million person-years, a total of 56,000 deaths from coronary artery disease (CAD) or stroke

(AVE) were recorded[1].

SAH represents a serious challenge in terms of public health, both in Brazil and worldwide. It is estimated to affect approximately 32.5% of Brazilian adults, which corresponds to about 36 million people, and may be associated with approximately 50% of deaths from cardiovascular diseases (CVD) in the country[3]. This condition has a prevalence of 58% in the population aged over 65 years. In addition, cardiovascular conditions linked to hypertension represent 7.4% of hospital admissions and result in 13% of the SUS hospital costs, equivalent to 900 million BRL annually[4].

HAS stood out in the epidemiological data of the state of Minas Gerais as one of the main causes of death, totaling more than 40 thousand deaths, 21,352 among women and 20,345 among men. Among the seven main causes of hospitalization recorded in the state between 2011 and 2021, AVE, one of the complications of hypertension, took second place with 217,192 hospitalizations[5].

In primary care, SAH is a frequent and silent condition associated with modifiable factors such as obesity, a diet rich in carbohydrates and salt, and lack of physical activity. It is also linked to non-modifiable factors such as dyslipidemia, glucose intolerance and diabetes mellitus[6].

According to the Ministry of Health, primary care should promote initiatives aimed at people's health, individually and in groups, involving health promotion and protection, injury prevention, diagnosis, treatment, rehabilitation and health maintenance, in order to develop an integral care that has a positive impact on public health[7].

The nurse plays a crucial role in this scenario, being responsible for nursing consultation, risk stratification and preparation of the care plan according to the National Policy on Primary Care and with the assistance protocols[8,9]. To estimate cardiovascular risk, it is recommended to use the Framingham score, which allows calculating the probability of developing coronary artery disease in ten years, considering factors such as age, sex, BP, smoking and High Density Lipoprotein (HDL) levels and Low Density Lipoprotein (LDL)[10].

Recognizing the situation of CVD in Brazil and understanding that primary care is the main point of contact of users with the Brazilian Unified Health System is fundamental to develop actions for health promotion, prevention and care for these individuals. According to the cardiovascular health strategy, the objective of primary care is to implement CVD prevention and control measures, focusing on risk factors[11].

In practice, based on the identification of the risk, it is possible to select individuals with a higher probability of complications and direct them to more comprehensive interventions.

Thus, this work aimed to develop an integrated and effective follow-up plan for patients with systemic arterial hypertension. Specifically, it was sought to carry out an active search of patients with arterial hypertension in the city, submit them to the stratification of cardiovascular risk based on the

Framingham score, gather patients by risk group, record the score in the chart and develop a follow-up and care plan for risk groups, to reduce cardiovascular complications.

OBJECTIVE

To develop an integrated and effective follow-up plan for patients with arterial hypertension in a municipality in the forest zone of Minas Gerais.

METHODOLOGY

Type of study

This is a quantitative study, carried out in the Family Health Strategy in a municipality in the forest zone of Minas Gerais. A cardiovascular risk monitoring and stratification program was implemented in people with SAH, using the Framingham score, as recommended by the Ministry of Health's Note 37[1].

Research participants

After obtaining the consent of the health secretary and the nursing coordinator, the nurses of the unit were invited to participate in the development of the work, this allowed them to expand their knowledge and continue the proposed activities. The invitation was carried out personally in the unit, at which time the objectives of the work were presented and doubts clarified.

The initial stage of the work consisted of a conversation and educational lecture for HAS patients in the municipality, they were invited by the nurse responsible for the basic health unit to participate in a day D Arterial Hypertension, with: educational lecture on the subject, measurement of BP, capillary glycaemia, physical activity, nursing consultation and healthy coffee break.

D-Day was held on December 2 and 5, 2024, at the support post of the Basic Health Unit (BHU) and in the social center of the district of the municipality. In the conversation circle, the researchers provided information about SAH, modifiable and non-modifiable habits, treatment, follow-up and, at the end of the conversation circle and the educational lecture, the participants wrote their feedbacks on a paper.

The reports showed several positive points, participants reported having absorbed the information and clarified all their doubts. After this moment, they were formally invited to participate in the project of "Strategies for monitoring and stratification of cardiovascular risk in patients with arterial hypertension of primary care"; the objectives of the research, the benefits of participating, who could participate and how this participation would be.

Inclusion and exclusion criteria

Participants who met the following criteria were included in the survey: men and women aged between 30 and 74 years, interval established by the Framingham score; hypertensive with test results

regarding HDL and LDL levels performed at least in 2023; signature of the informed consent form (ICF).

They did not integrate the sample, users who did not meet at least one of the criteria defined above, however, still received the information from the conversation wheel and the educational lecture and the researchers were available for clarification of any doubts.

Data collection

The data collection was carried out in two stages: The first stage of the study was the nursing consultation performed by the researcher and coordinating nurse, with prior scheduling. The participant was welcomed and after all questions that arose were clarified, he was invited to answer a form, in a calm, safe and free of discomfort.

This form was created by the researcher and included: identification code, drugs in use, history, lifestyle, additional notes (observations), Framingham score for men and women, table to calculate cardiovascular risk. At the end, the global risk classification was performed.

The second phase of the research consisted in separating the participants according to the risks, as follows:

- Participants classified as high risk received a red folder containing the information gathered during the consultation. A follow-up and care plan was developed to reduce high risk by modifying modifiable aggravating factors.
- Participants classified as having average risk received a yellow folder, which also included the information gathered during the consultation. A follow-up and care plan was developed to reduce average risk by modifying aggravating factors.
- Participants classified as low risk received a green folder. This folder also included their consultation information. A follow-up and care plan was developed to reduce their low risk.

The results were recorded in patients' medical records by means of a label attached to the front of the document, ensuring the confidentiality of the medical history. The label contained the result of the stratification of cardiovascular risk according to the Framingham score and the color corresponding to the risk group.

The Framingham score was used to estimate the probability of coronary artery disease in ten years. For the calculation, the variables age, sex, systolic blood pressure, use of antihypertensive medication, smoking, total cholesterol and High Density Lipoprotein (HDL) and Low Density Lipoprotein (LDL) were considered. The cardiovascular risk classification followed the stratification in low (<10%), moderate (10-20%) and high (>20%).

When necessary, correction factors recommended by the Ministry of Health were applied: multiply the result by 1.5 in the presence of a family history of coronary artery disease in a first-degree

relative; by 2 when there was more than one first-degree relative affected; by 1.4 in individuals of South Asian descent; and by 1.3 in people with body mass index above 30 kg/m 2. Thus, it was possible to determine the overall cardiovascular risk of each participant, supporting the development of the follow-up plan.

Data analysis

The data obtained were organized in spreadsheets, following the form applied, and submitted to descriptive analysis. The stratification of cardiovascular risk was used to subsidize the construction of the individualized follow-up and care plan.

Ethical aspects

In compliance with the Resolution no. 466, of December 12, 2012, of the National Health Council, this research passed the approval of the Ethics Committee of the Dynamic Faculty of Vale do Piranga, registered under CAAE 79297124.9.0000.8063, all participants received the ICF for the beginning of the research.

RESULTS

62 patients with systemic arterial hypertension participated in the initial talk wheel. Of these, 31 met the inclusion criteria and composed the final sample, signing the ICF. Most were female (83.9%), aged between 39 and 78 years.

Sociodemographic and clinical characteristics are presented in table 1. It was observed that 17 participants were classified as high cardiovascular risk clinically and 3 had a high risk according to the Framingham score; 1 was considered moderate risk and 10 low risk.

Table 1. Characteristics of the sample of hypertensive participants. Ponte Nova, Minas Gerais, Brazil, 2024. (n=31)

Variable	Category	n (%)
Sex	Female	26 (83.9)
	Male	5 (16.1)
Age (years)	39–49	6 (19.3)
	50–59	7 (22.6)
	60–69	9 (29.0)
	≥70	9 (29.0)

Cardiovascular risk stratification	High risk (clinical)	17 (54.8)
	High risk (stone)	3(9.7)
	Moderate	1(3.2)
	Low	10(32.3)
High total cholesterol	Yes	12(38.7)
	No	19(61.3)
HDL below recommended	Yes	17(54.8)
	No	14(45.2)
Smoking	Yes	2(6.5)
	No	29(93.5)
Lifestyle	Sedentary lifestyle/poor diet	22(71.0)
	Active/Healthy diet	9(29.0)

In the lipid profile evaluation, 12 participants presented high total cholesterol and 17 exhibited HDL levels below recommended. Regarding lifestyle, 22 reported sedentary lifestyle associated with the absence of healthy eating, while only 9 reported adequate habits.

The 31 participants were invited to attend a pre-scheduled nursing consultation. During the care, they received guidance on healthy eating and physical exercise, as well as a complete physical examination. Based on the findings and risk stratification, each participant received an individualized follow-up plan.

Chart 1 presents a summary of the care plans developed according to the risk group.

Chart 1. Monitoring plan for hypertensive patients according to cardiovascular risk stratification. Ponte Nova, Minas Gerais, Brazil, 2024. (n=31)

Element of care	Low risk	Moderate risk	High risk
Consultations	Doctor, nurse, dentist and nutritionist - annual.	Doctor and nurse - every six months; dentist and nutritionist - every year.	Doctor and nurse - quarterly; dentist and nutritionist - half-yearly.
Exams	Complete blood count, electrocardiogram and annual eye exam.	Blood count, lipid profile, blood glucose, electrocardiogram and eye exam - every six months.	Complete blood count, lipid profile, blood glucose, electrocardiogram and eye exam - quarterly.

BP measurement	3 times/week in a chosen week each month at the health center.	3 times/week in a chosen week each month at the health center.	3 times/week in a chosen week each month at the health center.
Healthy Eating	Reduce salt and fat; avoid ultra-processed foods; increase fruits, vegetables and water.	Reduce salt and fat; avoid ultra-processed foods; increase fruits, vegetables and water.	Reduce salt and fat; avoid ultra-processed foods; increase fruits, vegetables and water.
Physical Activity	Walking 30-40 min, 5x/week.	Walking 30-40 min, 5x/week; supervised exercise when necessary.	Supervised walking and exercise, with multidisciplinary support.

Source: adapted from notebook 37 of the Ministry of Health.

During the nursing consultation, vital signs were measured (blood pressure in sitting and lying positions, peripheral oxygen saturation, heart rate and respiratory rate), in addition to the general physical assessment, considering skin, oral cavity, visual alterations, cardiopulmonary auscultation, abdominal palpation and inspection of lower limbs.

DISCUSSION

The distribution by gender (83.9% female and 16.1% male) may characterize the trend of greater demand for health care among women, since BP among women is usually higher and the prevalence of hypertension is higher[1]. In a similar study, using the Framingham score as a basis for calculating cardiovascular risk, the authors stated that the method is widely used, mainly to identify high risks and determine measures that allow a more personalized and effective approach to CVD prevention and treatment, which corroborates this study[12].

It is important to note that the Ministry of Health's notebook 37 states that people who have one of the following risk factors: smoking, SAH, obesity, sedentary lifestyle, male sex, family history of premature cardiovascular event (men <55 years and women <65 years) and age >65 years, are directly considered low/intermediate risk, even without the calculation[10]; however, this condition was not applied to this study because all participants had more than one of the above items.

The results showed an increase in the prevalence of dyslipidemia in the study population according to aging. The Brazilian Guideline on Arterial Hypertension mentions dyslipidemia as a modifiable risk factor for CVD, and adds that the evaluation of lipid profile is essential for stratification of cardiovascular risk. These findings reinforce the need to intensify the actions of screening and regular monitoring of lipids, especially in the elderly. In addition, they point to the importance of educational interventions and changes in lifestyle so that this factor is modified[1].

The prevalence of smoking found in this survey (6.5%) was lower than the national average, which, according to data from Vigitel Brasil, in 2023 was 9.1%. However, even with low prevalence,

smoking is one of the risk factors for chronic diseases[13]. Recent studies highlight that, even with the decline in prevalence in Brazil, smoking is still associated with increased cardiovascular mortality and should be the target of continuous cessation strategies[14].

In the study with federal public servants, carried out with 833 participants, SAH was significantly associated with various factors, among them, the crucial role of smoking was highlighted, which can aggravate the hypertensive condition. Therefore, it is essential that the health service implement measures such as support groups for smokers, counseling and drug therapy when necessary, distribution of educational materials and encouragement to simultaneously adopt healthy lifestyles[15].

Participants reported sedentary lifestyle and lack of healthy eating. This data comes against the new report of the World Health Organization (WHO) that highlights the strong correlation between sedentary lifestyle and the increase in chronic non-communicable diseases (DCNTs), especially heart disease, which can affect more than 500 million people by 2030[16].

The encouragement of healthy habits is aligned with the Brazilian Cardiology Guideline, which emphasizes patient health education on the importance of a healthy lifestyle for CVD prevention[17].

The follow-up measures are recommended in Notebook 37, which highlights the importance of the nursing consultation for the patient with hypertension, the multidisciplinary approach, in addition to the personalization of a follow-up plan, which is the third step of the Systematization of Nursing Care according to the patient's needs[10].

As recommended in Journal 37 of the Ministry of Health, the physical examination is not limited to the control of BP, but plays a crucial role in detecting lesions in target organs and identifying comorbidities that may hinder the treatment of patients with hypertension; In addition, the notebook advises that PA control should involve a multiprofessional approach, including complete clinical evaluation, adherence to drug treatment, regular practice of physical activity, healthy eating with reduced salt consumption, smoking cessation, weight control and continuous follow-up in primary care[10].

The individual follow-up plan proved to be a valuable tool in the care of people with high blood pressure, by allowing a more targeted approach to the specific needs of each participant. Among the positive points, the early identification of risk factors, the definition of personalized therapeutic goals and the strengthening of the bond between professional and patient were highlighted, which favored adherence to treatment, continuous monitoring and frequency of return to consultations. Similar findings have been described in recent studies that pointed out the importance of organizing primary care to ensure better control of hypertension[18,19].

However, challenges were also observed, such as the difficulty of adhesion by some participants and the limitation of resources of the participant and in primary care. Nevertheless, the findings of this study reinforced the importance of nursing consultation as a strategic moment for risk stratification,

construction of individualized plans and promotion of health education, essential pillars for the management of arterial hypertension in primary care.

Study Limitations

This study presented, as a main limitation, the reduced sample size, composed of only 31 participants, due to its realization in a single municipality with limited population. In addition, the short follow-up period of patients made it impossible to evaluate long-term clinical changes.

Contributions to the Field of Nursing, Health or Public Policy

The study contributed significantly to nursing by demonstrating the applicability of integrated strategies for cardiovascular risk monitoring and stratification in primary care. Strengthened the role of nurses as protagonists in nursing consultation, health education and construction of individualized care plans. The use of the Framingham score in health care practice allowed a more assertive approach, and promoted targeted and evidence-based interventions. In addition, the study highlighted the importance of interdisciplinary and continuous actions to reduce complications associated with hypertension, which strengthen the organization of care and contribute to the effectiveness of public health policies aimed at controlling chronic non-communicable diseases.

CONCLUSION

This study demonstrated the importance of implementing new follow-up strategies for SAH patients in primary care, focusing on risk stratification and individualized care. The stratification of cardiovascular risk among participants allowed to identify patients with greater vulnerability, enabled more specific interventions as there was the implementation of a structured follow-up plan and the elaboration of targeted interventions, in primary health care. The results suggested that it is relevant to implement a structured follow-up plan at this level of care.

It was observed, in this study, the high prevalence of high cardiovascular risk and modifiable risk factors such as sedentary lifestyle and dyslipidemia, which reinforced the importance of educational actions and health promotion, in addition to calling the attention of the multidisciplinary team to improve care, since the records were identified by a label with cardiovascular risk.

Despite the promising results obtained, the small sample size (31 participants), which was due to the fact that the study was carried out in a rural area of a municipality with a population of less than two thousand inhabitants, suggests the need for new studies with more participants and long-term follow-up in order to provide more comprehensive evidence on the effectiveness of the proposed intervention. The results obtained may contribute to improving the quality of care and reducing cardiovascular complications in this population.

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