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# Clinical and epidemiological profile of elderly patients seen in a hypertensive emergency at a public hospital in the state of Rio de Janeiro - Hypertensive emergency in the elderly

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## Abstract

Introduction: Hypertensive emergencies (HE) are clinical entities characterized by an acute and significant increase in blood pressure (BP) associated with severe symptoms that evidence target organ damage. Objective: To analyze the clinical and epidemiological profile of elderly patients treated in a hypertensive emergency at a public hospital in the state of Rio de Janeiro. Method: This study is prospective and descriptive. Information was collected from August to October, 2020 using medical records and processed using the Statistic Statsoft program. Pearson's test was performed for univariate analysis. Results: The sample consisted of 109 patients. The average age found was 73 years old, with a predominance of males (69.72%) and brown skin (36.69%). Approximately 72.48% of the patients had a history of Systemic Arterial Hypertension (SAH), however, (50.46%) reported that they did not regularly use antihypertensive medication. Target organ injuries were ischemic stroke (58.71%), followed by acute coronary syndrome (24.77%), hemorrhagic stroke (9.17%) and edema acute lung disease (7.33%). Regarding the BP values found at admission, the mean systolic pressure was 205.0 mmHg, while the mean diastolic pressure was 127.0 mmHg. Conclusion: Ischemic stroke was the most frequent HE in the sample. It is necessary to put in place measures to prevent risk factors associated with SAH, as well as to control blood pressure levels to reduce the number of consultations due to hypertensive emergencies and other complications of cardiovascular diseases.

**Keywords:** Emergency; Hypertension; Prevalence.

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## Introduction

Systemic arterial hypertension (SAH) is a multifactorial clinical condition characterized by a sustained increase in blood pressure levels ≥ 140 and/or 90 mmHg. It is often associated with metabolic disorders, functional and/or structural alterations of target organs, being aggravated by the presence of other risk factors (RF), such as dyslipidemia, abdominal obesity, glucose intolerance and diabetes mellitus (DM).[1,2]

Several cohort studies have shown that the increase in BP provides similar risks to those shown for CAD (coronary artery disease) and CVA (stroke) for the incidence of other cardiovascular outcomes. These include heart failure (HF), with and without preserved ejection fraction (EF), atrial fibrillation, valvular heart disease, peripheral arterial disease, chronic kidney disease (CKD), dementia, and Alzheimer's disease.[3]

Data on the prevalence of SAH in the country tend to vary according to the methodology and casuistry used. Considering the measured BP and the use of antihypertensive medication, the percentage of adults with BP greater than or equal to 140 per 90 mmHg reached 32.3% (95% CI 31.7-33.0). It was found that the prevalence of AH was higher among men, and, as expected, it increased with age by all criteria, reaching 71.7% for individuals over 70 years of age.[4]

The high prevalence leads to complications in target organs, fatal and non-fatal, such as: heart: coronary artery disease (CAD), heart failure (HF), atrial fibrillation (AF) and sudden death; brain: ischemic (EVA) or hemorrhagic (AVEH) cerebrovascular accident (CVA), dementia; kidneys: CKD that may progress to the need for dialysis therapy; and arterial system: peripheral arterial disease (PAD).[3]

Abrupt and severe elevation of AH, usually defined by diastolic pressure values above 120 mmHg characterizes the hypertensive crisis (HC).[5] This clinical condition is classified as hypertensive urgency (HU) when there is no damage to target organs and hypertensive emergency (EH) when there is a risk to the patient's life evidenced by target organ damage, and that is why the measures used to combat high blood

pressure levels must be immediate, in minutes or a few hours, requiring the use of fast-acting drugs and by the parenteral route.[6]

HC must be differentiated from hypertensive pseudocrisis, which is accompanied by a marked increase in BP, triggered, in most cases, by the abandonment of drug treatment in chronic hypertensive patients, but also by anxiety, pain, and exacerbated use of salt in food. The outstanding clinical evidence in hypertensive pseudocrisis is the absence of signs of rapid target organ deterioration. In this case, there is no need to use medications for rapid BP control, just the use of symptomatic medication and the introduction of chronic antihypertensive drugs, analgesics, tranquilizers or even rest.[7]

Recognizing the importance of the subject and considering its high incidence in urgent and emergency services, this study aimed to analyze the clinical and epidemiological profile of hypertensive emergencies in a hospital located in Nova Iguaçu, RJ, Brasil.

## Material and methods

The present study was approved by the Ethics and Research Committee of Universidade Iguaçu under CAAE number 14126119.4.0000.8044.

A prospective study was carried out to analyze the medical records of patients with elevated diastolic blood pressure levels > 120 mmHg and target organ lesions, treated at the emergency department of the General Hospital of Nova Iguaçu, in the city of Nova Iguaçu, RJ, Brazil, from August to October, 2020.

Patients over 60 years of age, of both genders, with or without prior comorbidities and diagnosed with HE were included in the study. Patients under 60 years of age and with HU were excluded from the study.

The prevalence of HS was estimated, as well as an analysis of variables: gender, age group, skin color, history of SAH, treatment performed, previous pathologies and symptoms. For this purpose, we performed a univariate analysis, using the Pearson test (X2) to observe possible associations between dependent and independent variables.

To identify factors associated with SAH, univariate logistic regression analyzes were performed, with associations considered statistically significant when $p \leq 0.05$. Statistical analysis was performed with the aid of the statistical application Statistic Statsoft.

## Results

The sample included 109 patients. The mean systolic BP was 205 mmHg, the mean diastolic was 127 mmHg.

From the outline of the epidemiological profile of the sample, shown in Table 1, the age group ranged from 60 to 90 years, with a predominance between 71-80 years (55.05%). It was found that the average age was 73 years.

Males became preponderant (69.72%) in relation to females (30.28%). It was noted that brown individuals had higher incidences of HE (36.69%), followed by black individuals (32.11%) and later white individuals (31.19%). It was found that 72.48% of the patients had a history of SAH, however, 50.46% of the sample did not undergo antihypertensive therapy, as shown in Table 1.

Among the patients who underwent antihypertensive treatment (49.54%), 48.14% were undergoing single drug therapy, while 51.85% were undergoing combined therapy. Of the drugs used as monotherapy, it was noted that 61.5% of the patients used drugs of the angiotensin II receptor antagonist (ARA), 19.23% diuretics, 11.53% angiotensin-converting enzyme inhibitors (ACEI) and 7.69% beta-blocker.

Complaints and symptoms presented by elderly patients on admission were shown in Table 2, and could be a sign mentioned more than once. The most prevalent signs and symptoms were: cecreased level of consciousness, hemiparesis and/or hemiplegia, aphasia and commissure deviation, configuring cerebrovascular manifestations as the most prevalent in the period (67.88%), followed by anginal pain and dyspnea, characterizing cardiovascular manifestations.

Regarding past pathological history, the most prevalent cited was SAH itself (72.48%), followed by diabetes mellitus (27.52%), ischemic and hemorrhagic stroke (19.26%) and acute myocardial infarction (AMI) (16.76%).

Target organ damage was diagnosed through clinical history and laboratory tests. 58.71% of the patients had ischemic stroke, 24.77% acute coronary syndrome, 9.17% hemorrhagic stroke and 7.33% acute lung edema.

## Discussion

The present study showed alarming data on the blood pressure control of the elderly with antihypertensive drugs, since most patients (50.46%) did not take drug therapy to control the disease, thus, we could raise the hypothesis that the poor AH control caused the patients to evolve with HS.

Checchi et al, reported that 30% of the patients in their sample did not adhere to antihypertensive treatment, either because of adherence to drug therapy, or because of inappropriate lifestyle or because

the culture of drug use is not yet fully disseminated in the elderly population.[8]

The main consequence of the lack of adherence to treatment is the lack of AH control and, therefore, the increase in target organ damage (LOA) and cardiovascular morbidity and mortality (CV). However, it is noteworthy that there was no significant association between the use or not of regular medication and risk for HE. Such analysis can be a data collection bias, as many patients may omit or not regularly use the medication.

AH is the most prevalent non-communicable chronic disease among the elderly.[9] There is a direct and linear relationship between BP and age, with the prevalence of AH being greater than 60% in the age group above 65 years.[10] The Framingham Study points out that 90% of individuals with normal BP up to 55 years of age will develop hypertension throughout their lives.[11] In Brazil, the prevalence of hypertension in individuals over 60 years of age is about 65%.[12]

It is noteworthy that in this study, care was more prevalent in males, however, for Franco and Faustino,[13] HC was more prevalent in females. In the literature, some articles report that among women older than 75 years the prevalence of SAH can reach 80%. Therefore, blood pressure values vary according to age and sex, in addition to being influenced by the medications used, associated chronic diseases and lifestyle changes.

The most predominant age group of HS cases was between 71 and 80 years, in self-declared brown or black individuals. It is known that black individuals are more susceptible to arterial hypertension, although such mechanisms are not fully elucidated. Studies conducted in the United States of America[14] show that the prevalence and incidence of HA is at least twice as high among blacks as among whites. These differences become even more marked with regard to the more severe forms and complications. Brazilian studies also show that the prevalence of AH is higher among blacks.[9,11,13]

With regard to therapy, combined therapy was predominant (50.93%), and when we analyzed monotherapy, the drug most used by the study population was the class of angiotensin II receptor antagonists, also observed in the study of Franco and Faustino,[13] who report that the preference of losartana potassium for captopril, as the latter causes more side effects, such as the well-known cough. Losartan Potassium is a more selective drug, with reduced side effects.[13,14]

Our data reveal that SAH and diabetes were the comorbidities most cited in the previous pathological history, these being the most prevalent chronic pathologies in Brazil in the elderly population,[10] and the overlap of the two pathologies is still a risk factor for cardiovascular diseases.[7] The profile The clinical spectrum of hypertensive emergency proved to be very well defined, with the vast majority of patients being admitted to the emergency room with neurological symptoms and final clinical diagnosis of ischemic stroke, also observed in other studies.[7,9-12]

## Conclusion

Our study reveals that the clinical-epidemiological profile of hypertensive emergencies in the elderly shows the black and male population as the most affected. Furthermore, the high number of patients who do not properly adhere to treatment substantially increases the demand for hospital service in the presence of a hypertensive emergency, highlighting the need for public policies aimed at preventing health problems related to non-control of SAH, which per hour increases the demand for hospital services even more, given the need to monitor sequelae caused by lesions in target organs.

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