EVALUATION OF SYSTEMIC ARTERIAL HYPERTENSION AS A RISK FACTOR FOR CEREBRAL VASCULAR ACCIDENT (CVA)

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Abstract: A stroke is when the vessels that supply blood to the brain obstruct or rupture, causing paralysis of the area of the brain that is left without blood circulation. In Brazil, the prevalence of stroke was estimated at 101,965 in 2019 and 102,812 in 2020, with a projection of 2,231,000 people affected by stroke and 568,000 disabled as a result. Point prevalence was recorded at 1.6% in men and 1.4% in women, with a higher prevalence among the elderly, individuals with less education and urban residents. Self-declared skin color showed no discernible differences in prevalence. In this context, the objective of this study was to compile the literature on the impact of stroke risk factors, to elucidate risk factors and possible interventions. Which was carried out on 530 patients, with an age group equal to or over 18 years old, with a male prevalence of approximately 49% and females 41%, depending on the general population, 19.6% showed a lack of knowledge about blood pressure. Factors that correlated with inadequate medication adherence included advanced age, male sex, rural residence, marriage, and smoking. There was no significant difference between stroke patients in knowledge about risk factors. This review corroborates that there is a benefit in some antihypertensives in reducing the event of a stroke, such as the use of ARBs and diuretics. However, advanced age, inadequate adherence to the treatment of systemic arterial hypertension, male gender and smoking are associated with risk factors. Therefore, it is necessary to more closely investigate the risk factors associated with drug classes to obtain a possible effective intervention.

Keywords: Stroke; Hypertension; Atherosclerosis.

INTRODUCTION

A cerebrovascular accident (CVA) is when vessels that carry blood to the brain clog or rupture, causing paralysis of the area of the brain that is left without blood circulation. One of the leading causes of lifelong disability, highlighting the urgent need for primary prevention of first stroke and secondary prevention of recurrent stroke. (BRASIL., 2023)

Regarding prevention, primary ischemic stroke requires changes in lifestyle, as well as dietary habits, control of risk factors such as hypertension, diabetes mellitus and lipid disorders and antiplatelet therapy for individuals at high vascular risk. (CIPOLLA; LIEBESKIND; CHAN, 2018)

Secondary prevention of ischemic stroke requires specific interventions such as carotid surgery or stent implantation in certain symptomatic patients, closure of patent foramen ovale post-cryptogenic stroke, control of insulin resistance, and improved medical management of intracranial stenosis. In terms of primary and secondary prevention of cerebral hemorrhage, effective strategies include treatment of hypertension, reduction of alcohol consumption, occlusion of the left atrial appendage in patients with atrial fibrillation, and permanent contraindications to oral anticoagulants. (DIENER; HANKEY, 2020).

In 2019, according to the Brazilian stroke society, it reported that 12.2 million new cases of stroke were documented, with 6.55 million deaths, according to the study group Global Burden of Diseases (GBD). Globally, stroke is the second leading cause of death, representing approximately 11% of all deaths. (GHEORGHE et al., 2018; HUANG et al., 2022) In Brazil, the prevalence of stroke was estimated at 101,965 in 2019 and 102,812 in 2020, with a projected 2,231,000 people affected by stroke and 568,000 disabled as a result. Point prevalence was recorded at 1.6% in men and 1.4% in women, with a higher prevalence among the elderly, individuals with less education and urban residents. Self-declared skin color showed no discernible differences in prevalence. (O'COLLINS et al., 2013)

Recently, research on vascular diseases in the general population has come to the fore. However, this review aims to highlight this process, as it supports the development of more effective actions and treatments aimed at communities. In this context, the objective of this study was to compile the literature on the impact of stroke risk factors, to elucidate risk factors and possible interventions.

METHODOLOGY

This is an integrative review study that was designed based on the criteria established in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guide, considering the flow diagram and the PRISMA checklist.

Thus, based on the guiding question: "Systemic arterial hypertension as a risk factor for cerebrovascular accident (CVA)?" The articles were searched.

Keywords were defined according to the PECOS model as follows:

1. Population: people with stroke;
2. Exposure: systemic arterial hypertension;
3. Results (variables): identify risk factors in the clinical picture of stroke;
4 Type of study: risk factors and controlled clinical trial

LITERATURE SEARCH

The search for articles was carried out in the following databases: Medline/VHL and Medline/Pubmed. The following descriptors and their combinations in Portuguese and English were used to search for articles: "Cerebral vascular accident AND Systemic arterial hypertension AND Treatment of Cerebral Vascular Accident AND Systemic arterial hypertension AND Treatment".

INCLUSION AND EXCLUSION CRITERIA

The selection of articles was guided by inclusion and exclusion criteria. The inclusion criteria defined for the selection of articles were: articles published in Portuguese, English; original articles in full that portray the theme related to the review and articles published and indexed in the aforementioned databases in the last 5 years.

The exclusion criteria defined for the selection of articles were non-original articles, dissertations and theses, articles that addressed the topic, but from a different point of view.

IDENTIFICATION AND SELECTION OF STUDIES

After applying the inclusion and exclusion criteria, the articles were identified. The screening of studies was carried out by reading and analyzing the titles and abstracts of all articles identified in each database, guided by the inclusion and exclusion criteria adopted. In the eligibility phase, after defining the articles to be included in each database, duplicate articles were excluded.

EXTRACTION OF DATA

Two independent researchers used custom spreadsheets to extract data from all included studies. After data extraction, data conferences, if discrepancies arise, use a third-party investigator.

The data extracted from the article are: (1) Study design; (2) Number Initial participants who participated in the study; (3) Number and characteristics of participants completing the intervention; (4) Results.

RESULTS

SELECTION OF STUDIES

A total of 26496 studies were identified according to our search strategy. Among them, two duplicate articles were presented. After applying the adopted inclusion and exclusion criteria, 3,196 studies were excluded from Medline/VHL reading and 24,193 studies from Medline/Pubmed, totaling 27,389 articles. Titles and abstracts were then read, 1,168 of the 1,293 references were excluded based on the eligibility criteria. Therefore, 4 references were selected for full text evaluation. Finally, four articles were eligible for qualitative evaluation. The selection process for identifying eligible studies is included in the review, shown in Figure 1.
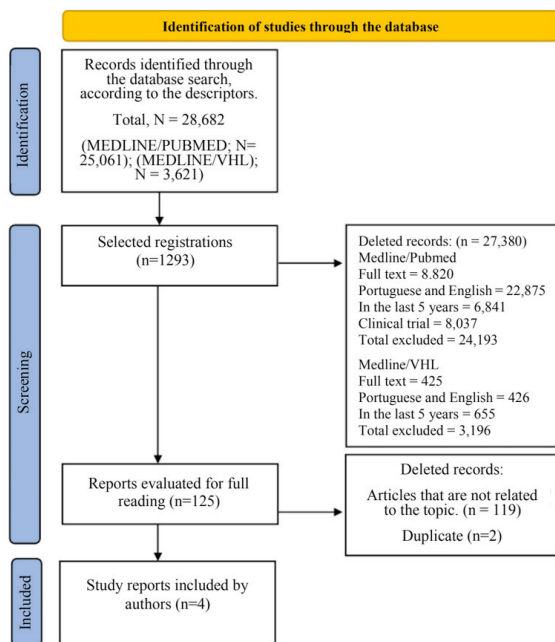
Figure 1: Flowchart for selection, identification, screening, eligibility and inclusion process.

The main characteristics of the included studies are described below. In the study by Joffe et al.1 (2014), which involved 2339 patients, the main characteristics of the included studies are described below. In the

study by Bawand et al. (2023), which was carried out on 530 patients, with an age group equal to or greater than 18 years, with an approximate male prevalence of 49% and a female prevalence of 41%, depending on the general population, 19.6% presented lack of knowledge about blood pressure (BP). Among users of antihypertensive medications, 31.8% had adherence problems, corresponding to 14.3% of the total population surveyed. Factors that correlated with inadequate medication adherence included advanced age, male sex, rural residence, marriage, and smoking. There was no significant difference between stroke patients in knowledge about risk factors.

It is also worth considering, in line with the study by Gang Wang et al. (2023), which involved 141,217 patients, compared different antihypertensive medications for the incidence of stroke events in patients with CVD. Antihypertensive medication significantly reduced stroke events in patients with CVD when compared to placebo, antihypertensive medication was placebo (3.0%), ACEI (2.4%), ARB (4.1%), CCB (1.8%), beta blocker (1.3%) and diuretic (3.6%).

In addition, according to Ohya et al. (2023), in which 12,171 people were selected for the study, with the mean and standard deviation of the age group: 70.3 (12.2) who were diagnosed with ischemic stroke. Sex, body mass index, hypertension and diabetes mellitus significantly modified the effect of age on the outcome, with the unfavorable effect of advanced age being greater in female patients with low body weight, while the protective effect of younger age it was lower in patients with hypertension or diabetes.

Finally, according to Lesley Steinman et al. (2023), which included 70 patients who had an ischemic cerebrovascular accident (CVA), active management strategies that varied according to the patient's characteristics included volume expansion and induced hypertension, used more frequently in atherosclerosis of large arteries and occlusion of small vessels, and rescue endovascular thrombectomy, more common in others (dissection), cardioembolism and atherosclerosis of large arteries. It can be seen that active management, carried out in two thirds of patients, was more often hemodynamic or antithrombotic and was associated with better functional results.

CONCLUSION

This review confirms that there is a benefit in some antihypertensives in reducing the event of a cerebrovascular accident (CVA), such as the use of ARBs and diuretics. However, advanced age, inadequate adherence to the treatment of systemic arterial hypertension, male gender and smoking are associated with risk factors. Therefore, it is necessary to more closely investigate the risk factors associated with drug classes to obtain a possible effective intervention.

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