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Epidemiological Profile of Emergency Hospital Care for Cerebrovascular Diseases: A Regional Analysis of ABC Paulista

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ABSTRACT

Introduction: The mortality rate for cerebrovascular diseases is high, and survivors can suffer from strokes. This has a huge impact on society as a whole, both in terms of the loss of the economically active population and the cost of treatment for society. Among cerebrovascular diseases, Cerebral Vascular Accident (CVA) stands out, being a very prevalent disease, due to the multiplicity of risk factors, such as sedentary lifestyle, diabetes, use of oral contraceptives, excessive alcohol consumption, smoking, cholesterol changes, gender, history of hypertension and other previous cardiovascular diseases. Objectives: The study aimed to carry out a descriptive analysis of the prevalence of hospitalizations for cerebrovascular diseases in the ABC region of São Paulo at the beginning of 2023. Material and Methods: This was an ecological and quantitative study. Data was collected from the DataSUS website, through Tabnet - Health Information of the Unified Health System, from January to May 2023, including numbers of hospitalizations in the ABC region of São Paulo due to cerebrovascular diseases. Results and Discussion: During the period analyzed, there were 1,374 emergency admissions for cerebrovascular diseases in the ABC region of São Paulo, of which 52.47% were men and 47.52% women. Intracranial hemorrhage was the only one identified in the 1-14 age group, accounting for 13.2% of total hospitalizations, 7% more prevalent in men. There was a growing prevalence of intracranial hemorrhage in the 50-79 age group, which accounted for 66.48% of cases and 35 deaths. With regard to epidemiological aspects, we observed the coexistence of risk factors for the stroke subtypes, which is consistent with the data in the literature. Complications also followed the classically described pattern and, despite the unfavorable factors already described, the mortality rate found in this series was comparable to the lowest reported in recent world literature. Final considerations: It seems that the profile presented here reflects difficulties common to non-tertiary public services and is representative of the main problems whose solution can contribute, alongside investment in adequate control of risk factors and prophylaxis of new events in susceptible patients, to mitigating the impact of CVD on individuals and society.

Keywords: cerebrovascular diseases; emergency hospital care; stroke.

INTRODUCTION

Cerebrovascular diseases (CVD) refer to all those conditions in which the circulation of blood flow is momentarily or permanently hindered in a specific area of our brain (SAITO et.al, 2022).

According to Rodrigues et.al (2023), cerebral vascular diseases represent an important chapter in neurology, as they are the biggest cause of death in Brazil and one of the three main causes of mortality in most industrialized countries, alongside ischemic heart disease and cancer.

In adults, cerebrovascular diseases cause far more physical disability than any other pathology (MATA, 2023).

According to Duarte et.al (2023), the mortality rate from cerebrovascular diseases is high, and survivors can suffer from strokes. This has a huge impact on society as a whole, both in terms of the loss of the economically active population and the cost of treatment for society.

Among cerebrovascular diseases, Cerebral Vascular Accident (CVA) stands out. It is a very prevalent disease, due to the multiplicity of risk factors, such as a sedentary lifestyle, diabetes, use of oral contraceptives, excessive alcohol consumption, smoking, changes in cholesterol, gender, history of hypertension and other previous cardiovascular diseases (DE ARAÚJO et.al, 2020).

The term stroke is used to designate the neurological deficit (transient or definitive) in a brain area secondary to vascular injury, and represents a group of diseases with similar clinical manifestations, but which have different etiologies: Hemorrhagic stroke (HAV) comprises subarachnoid hemorrhage (SAH), generally resulting from the rupture of congenital saccular aneurysms located in the arteries of the polygon of Willis, and intraparenchymal hemorrhage (IPH), the basic causal mechanism of which is hyaline degeneration of cerebral intraparenchymal arteries, the main associated disease being systemic arterial hypertension (SAH); Ischemic stroke describes the neurological deficit resulting from insufficient cerebral blood supply, which can be temporary (transient ischemic episode, TIA) or permanent, with SAH, heart disease and diabetes mellitus (DM) as the main risk factors (SAITO et. al, 2022; BITEN et. al, 2022; BITEN et. al, 2022). al, 2022; BITENCOURT et. al, 2021).

Kannel (2021) mentions that other etiologies may be associated with stroke, such as coagulopathies, tumors, inflammatory and infectious arteritis. This set of diseases represents a major burden in socio-economic terms, due to the high incidence and prevalence of sequelae.

The importance of CVD for the health system in Brazil can be estimated by the fact that it accounts for 8.2% of hospitalizations and 19% of the hospital costs of the National Institute of Medical Assistance of Social Security (INAMPS) (DE ARAÚJO et.al, 2020).

The incidence of the first episode of stroke, adjusted for age, is between 81 and 150 cases/100,000 inhabitants/year. An epidemiological study of the Brazilian population revealed a slightly higher rate: 156 cases/100,000 inhabitants/year. Advanced age is the most important risk factor in cerebrovascular diseases: around 75% of patients with acute stroke are over 65 years old, and its incidence practically doubles every decade from the age of 55 (DOS SANTOS et. al, 2023).

There is a slight predominance of males when considering patients under the age of 75, and blacks have almost double the incidence and prevalence when compared to Caucasians. Asian and black patients have high rates of intracranial atherosclerosis (MAHANTA, 2018).

According to Silva (2013), around 90% of risk factors can be avoided through medical treatment of the conditions mentioned or by adopting healthy habits, such as a balanced diet and regular physical activity.

With hospital beds becoming increasingly scarce in different regions of Brazil, people may hesitate to seek medical attention for other conditions. But if you notice any manifestation of the stroke, such as paralysis in the arm, leg or face, as well as speech difficulties or mental confusion, it is essential to seek emergency care immediately, as the time it takes to get help is crucial to avoid more serious sequelae that can impact on the quality of life of the patient and their family (SARMENTO et. al, 2017).

Contrary to this recommendation, which is also valid for any manifestation of a cardiac emergency, such as a heart attack, statistics show that today only 22% of patients arrive in hospital within 3 hours (BILLER, 2004).

OBJECTIVE

The study aimed to carry out a descriptive analysis of the prevalence of hospitalizations for cerebrovascular diseases in the ABC region of São Paulo at the beginning of 2023.

MATERIAL AND METHODS

This is an ecological and quantitative study. Data was collected from the DataSUS website, through Tabnet - Health Information of the Unified Health System, from January to May 2023, including numbers of hospitalizations in the ABC region of São Paulo for cerebrovascular diseases.

RESULTS

During the period analyzed, there were 1,374 emergency admissions for cerebrovascular diseases in the ABC region of São Paulo, of which 52.47% were men and 47.52% women.

Intracranial hemorrhage was the only one identified in the 1-14 age group, accounting for 13.2% of total hospitalizations, 7% more prevalent in men.

The total number of cases of emergency care for cerebrovascular diseases by gender can be seen in FIGURE 1.

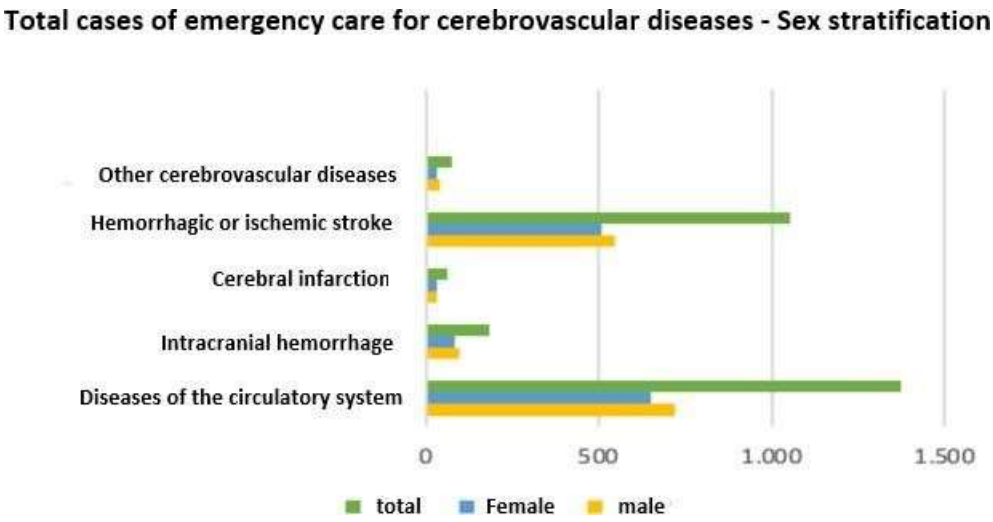

Figure 1. Total number of cases of emergency care for cerebrovascular diseases, stratified by sex. Source: Authors.

The most prevalent disease was unspecified stroke (hemorrhagic or ischemic) with 76.7% of total hospitalizations, affecting 95.6% more of the 40-80 age group and leading to 94 deaths.

There is a growing prevalence of Intracranial Hemorrhage in the 50-79 age group, which accounts for 66.48% of cases and 35 deaths.

The total number of cases of emergency care for cerebrovascular diseases by age group can be seen in FIGURE 2.

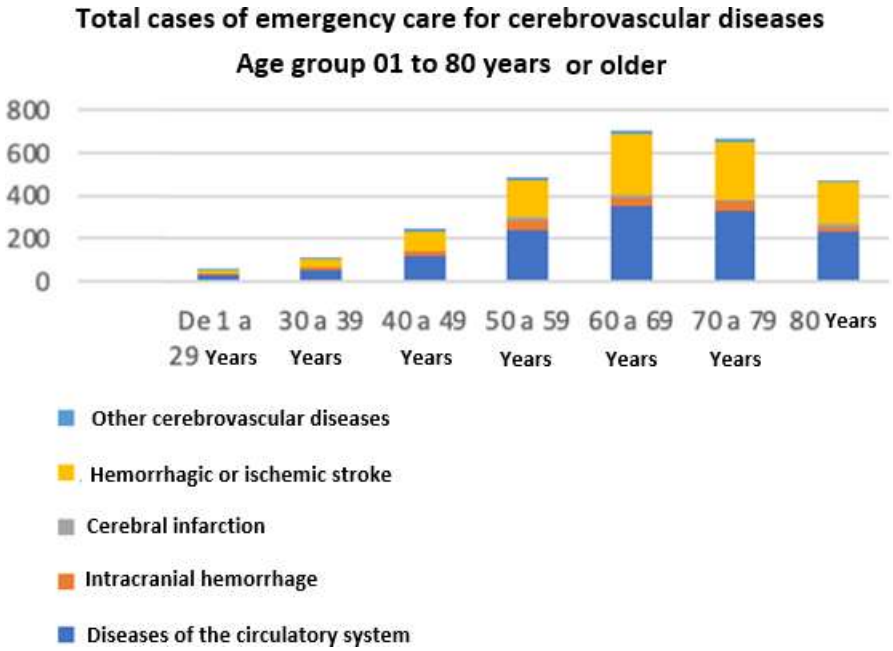

Figure 2. Total number of cases of emergency care for cerebrovascular diseases by age group. Source: Authors.

Other unspecified cerebrovascular diseases accounted for 5.3%, while cerebral infarction accounted for 4.6%, being the least prevalent comorbidity and cause of death in those aged 60-80 and over.

These data represent 7.73% of all deaths from cerebrovascular diseases in the period and region studied

In view of the data obtained, it can be concluded that cerebrovascular diseases are more prevalent in males and in the 40-80 age group or older in the Greater ABC region of São Paulo, with a higher prevalence of stroke and a lower prevalence of cerebral infarction.

Therefore, there is a need to expand early screening and implement effective preventive methods with high adherence.

DISCUSSION

The majority of stroke patients in Brazil are treated in secondary hospitals. Hospitals of this size often do not have an adequate infrastructure for the complete care of this type of patient (SAITO et.al, 2022).

In recent decades, an enormous amount of resources has been invested in research around the world in an attempt to reduce the morbidity and mortality of strokes. Various therapeutic modalities have been advocated, all aimed at minimizing the degree of neuronal damage that occurs after arterial occlusion or bleeding (CANTONE et. al, 2021). Ceylan et.al (2014) points out that the development of interventions aimed at optimizing blood flow (pharmacological and surgical), on neuronal metabolism (neuroprotective drugs, use of anesthetic agents), aggressive control of intracranial hypertension, improvement of neurosurgical techniques, allowing greater safety in their

indication and execution.

However, we live in a reality where most stroke patients receive their first care in centers where there are no neurology specialists or services. This care will largely be provided by general practitioners (MAHANTA, 2018).

According to Saito et al (2022), heart disease is the second most important risk factor for stroke, especially for atherothrombotic and embolic conditions.

Treating these patients without the intervention of a specialist represents an additional difficulty for the clinical team, and motivates a large number of transfers to tertiary services in order to obtain the neurologist's opinion on whether or not to adopt anticoagulation (KANNEL, 2021).

As with diabetes, almost 1/3 of patients do not have an ECG during their first visit. This does not allow for a more detailed analysis of the correlation between evidence of ischemic coronary disease and stroke (DUARTE et. al, 2023).

According to Duarte et.al (2023), diabetes mellitus is recognized as an independent risk factor for CVD because it accelerates the process of atherosclerosis and its relationship occurs more frequently among individuals with CVA when compared to the group with CVA.

Given the importance of controlling risk factors for the prophylaxis of new events and of metabolic control for a better evolution of the condition, this aspect of care cannot be neglected (DUARTE et. al, 2023).

The rate of worsening in stroke patients in the first seven days after stroke varies from around 30% in the literature. Of these, 70% worsen due to neurological causes (cerebral edema, progression of the infarcted area, hemorrhagic transformation, vasospasm, seizures, acute hydrocephalus and rebleeding) and 30% due to systemic causes (SAITO et. al, 2022; BITENCOURT et. al, 2021).

According to Kannel (2021), respiratory disorders are a frequent cause of stroke complications, second only to cardiac disorders among the non-neurological causes of worsening after a stroke. Bronchopneumonia, lobar pneumonia, pulmonary embolism and accumulation of tracheo-bronchial secretion are the most frequent events, all of which can lead to respiratory failure. Restriction to bed, little movement, limited expansion of the rib cage, dysphagia, use of a nasogastric tube and mechanical ventilation are the factors responsible for the high incidence of respiratory infections in these patients. The hypoxia and hypercapnia resulting from this state, as well as the toxic-infectious component of the process, aggravate brain damage.

Data from the Sarmento et.al (2017) study (Randomized Trial of Tirilazad in Acute Stroke) showed a 5% incidence of lung infections in a series of 279 patients with ischemic cerebrovascular conditions. The relative proportion of home-acquired and hospital-acquired infections is similar, both for the total number of patients and for the subgroups.

According to Duarte et.al (2023), the mortality rate for strokes varies in recent literature between 14 and 26 %. These figures reflect a widespread trend in our country's emergency services, which is to release patients early, even in the face of a pathology with the potential for complications, due to overcrowding and inadequate demand and availability of beds, chronic problems in our public hospitals.

FINAL CONSIDERATIONS

Adequate care for stroke patients is still a challenge, given the high potential for morbidity and mortality associated with this diagnosis. Optimal care for this patient is expensive, as it requires high-cost subsidiary tests to confirm the diagnosis, etiology and therapeutic planning (skull CT, cerebral arteriography, brain MRI), may require ICU admission or neurosurgical intervention and requires a rehabilitation team from the earliest stages.

The main problems detected in relation to this care in our study were: the need to remove the patient to a tertiary service for neurological assessment in around half of the cases, increasing the risks and cost of treatment; insufficient beds for hospitalization; the incidence of lung infections far exceeded what is currently described as acceptable in more advanced centers, which can largely be attributed to poor accommodation conditions and the unavailability of prophylactic physiotherapy treatment.

With regard to epidemiological aspects, we observed the coexistence of risk factors for the stroke subtypes, which is consistent with the data in the literature. Complications also followed the classically described pattern and, despite the unfavorable factors already described, the mortality rate found in this series was comparable to the lowest reported in recent world literature.

Thus, it seems to us that the profile presented here reflects difficulties common to non-tertiary public services, and is representative of the main problems whose solution can contribute, alongside investment in adequate control of risk factors and prophylaxis of new events in susceptible patients, to mitigating the impact of CVD on individuals and society.

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