

ORIGINAL

Prevalence of stroke in adults over 40 years of age, who consulted a public hospital in Paraguay, from January to June 2024

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Submitted: 18-04-2025 Revised: 23-07-2025 Accepted: 17-10-2025 Published: 18-10-2025

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ABSTRACT

Introduction: stroke is a common cause of disability and death. It occurs when blood flow to the brain is interrupted due to a damaged blood vessel, leading to oxygen and nutrient deficiency, causing paralysis and permanent damage, especially in people with other pathologies.

Objectives: to determine the prevalence of stroke in the population over 40 years of age, from January to June, in a public hospital in Paraguay.

Method: an observational, descriptive, retrospective, and cross-sectional study was conducted, the sample consisted of 45 patients.

Results: regarding the temporal distribution, the month with the most cases was April, with 14 patients (31,1 %). Regarding sex, males predominated with 26 cases (57,8 %). Regarding age, the most frequent age group was 62–72 years (35,6 %). The most common district of residence was Villa

Elisa, with 27 patients (60 %). The predominant symptoms were dyspnea, dizziness, dysphagia, and hypertension. Regarding diagnosis, 12 patients had ischemic stroke (26,7 %), 7 were diagnosed with hemorrhagic stroke (15,6 %), and in 8 cases the etiology was undetermined (17,8 %). In 16 patients (35,5 %), stroke occurred as a secondary episode to associated diseases.

Conclusion: the findings show that stroke mainly affects elderly men residing in Villa Elisa, with a predominance of ischemic stroke and a high frequency of associated comorbidities. Therefore, it is essential to strengthen prevention strategies and timely diagnosis in the at-risk population.

Keywords: Stroke; Prevalence; Epidemiology; Risk Factors.

INTRODUCTION

Globally, stroke is one of the diseases with the greatest economic and social impact on communities, as it is associated with high rates of disability and mortality, mainly in older adults.⁽¹⁾

The global incidence of this pathology continues to increase and is considered difficult to control due to factors related to poor diet, consumption of products with preservatives and additives, use of hormones, stress, and a sedentary lifestyle without regular physical activity.⁽²⁾

In the national context, stroke also has a significant impact on communities, given the high cost of medical treatment, the purchase of drugs, rehabilitation through physical therapy, and the promotion of healthy habits, which ultimately results in disability or death.⁽³⁾ Approximately 200

out of every 100 000 inhabitants suffer a stroke, reflecting a high burden of disease in the population.⁽³⁾ This pathology is a significant cause of functional disability in affected patients.⁽⁴⁾

A stroke is defined as damage to the blood vessels that supply the brain, and occurs when one of these vessels becomes blocked by a clot—either an embolism or a thrombus—or ruptures, causing bleeding. In both cases, the consequence is a lack of blood supply to the brain cells, which causes them to die to a greater or lesser extent due to the absence of oxygen and nutrients. This condition is also known as stroke, apoplexy, cerebral infarction, or brain attack.⁽⁵⁾

Strokes comprise a set of neuroanatomical and clinical alterations resulting from a critical decrease in blood flow in a specific vascular territory, which can manifest as an

ischemic stroke or, in the case of a ruptured cerebral vessel, as a hemorrhagic stroke.⁽⁶⁾

Ischemic stroke is caused by the progressive obstruction of a cerebral artery, leading to tissue necrosis due to lack of blood supply. It may initially manifest as paresthesia, aphasia, or visual disturbances and, in acute phases, as hemiplegia, facial paralysis, and other neurological signs such as Babinski or Hoffman; in some cases, headache indicates the location of the lesion.⁽⁷⁾ Comorbidities such as hypertension, diabetes mellitus, or smoking are risk factors that, if controlled, reduce the incidence of the disease, while their deregulation increases the likelihood of onset.⁽⁸⁾

Early treatment of ischemic stroke includes intravenous thrombolysis, clot aspiration, and angioplasty; in hemorrhagic cases, the approach focuses on controlling the bleeding, minimizing damage, and promoting rehabilitation through physical therapy or pharmacotherapy.⁽⁹⁾ This study sought to analyze the prevalence of stroke in adults over 40 years of age, contributing to hospital management and the prevention of irreversible sequelae, highlighting the need for health programs focused on rehabilitation and close monitoring of patients.

METHOD

The study design was observational, descriptive, retrospective, and cross-sectional. The aim was to determine the prevalence of ischemic and hemorrhagic stroke in the population over 40 years of age in a public hospital in Paraguay during the period from January to June 2024.

The target population was patients of both sexes over the age of 40 who were treated in the emergency department of a public hospital in Paraguay after suffering a stroke.

The sampling method was non-probabilistic convenience sampling.

For data collection, a permission note was sent to the hospital, and data were collected using a form developed by the researchers. Notes were taken on the variables found, and descriptive statistical tables were prepared.

In terms of ethical considerations, the principles of Helsinki, justice, benevolence, autonomy, and respect for patient data were complied with.

The data was collected for research purposes to prevent complications caused by the disease.

RESULTS

In relation to sociodemographic variables, the most affected age group was 62-72 years: 35 % (16 patients), followed by 12 patients (27 %) aged 73-83 years. Males predominated in the study with 26 patients (58 %). The month with the highest number of cases was April, with 14 patients (31 %).

In terms of patient origin, 27 patients came from the city of Villa Elisa and 17 patients (38 %) came from rural areas.

According to the table, the most frequent symptoms were dyspnea: 6,7 % (3 patients) and dizziness: 4,4 % (2 patients).

The majority (77,8 %) of patients had no recorded data on specific symptoms; other symptoms (dysphagia, fever, abdominal pain, convulsions, hypertension) occurred in only 1 patient each (2,2 %). The type of stroke diagnosed was: the most frequent in 20 patients: ischemic stroke in 44,4 %, followed by 9 patients with hemorrhagic stroke: 20 %, stroke without defined etiology in 8 patients (17,8 %), and no data on stroke type: 17,8 % (8 patients).

Table 1. Sociodemographic variables and comorbidities of patients diagnosed with stroke treated at the public hospital in Paraguay

	Absolute frequency	Relative frequency (%)
Age		
40-50 years	1	2
51-61	8	18
62-72	16	35
73-83	12	27
84-94	8	18
n	45	100
Gender		
Female	19	42,2
Male	26	57,8
n	45	100
Month of consultation		
January	6	13,3
February	6	13,3
March	6	13,3
April	14	31,1
May	8	17,8
June	5	11,1
Origin		
Villa Elisa	27	60
Asunción	1	2
Rural	17	38
n	45	100

The most prevalent comorbidities were: in 21 patients, high blood pressure (44,6 %), in 21 patients, diabetes mellitus (23,4 %), and others such as urinary tract infection (8,5 %), chronic renal failure (4,2 %), and convulsive syndrome and acute renal failure (4,2 %).

The most commonly used treatment was thrombolysis, applied in 33,3 % of cases (15 patients), followed by anticoagulants: 22,2 % (10 patients), antiplatelet agents: 17,8 % (8 patients) and, to a lesser extent, blood pressure control: 13,3 % (6 patients), rehabilitation therapy: 8,9 % (4 patients) and thrombectomy: 4,4 % (2 patients) were recorded as part of the treatment.

Table 2. Symptoms, diagnosis, and comorbidities presented by patients diagnosed with stroke treated at the Public Hospital of Paraguay

	Absolute frequency	Relative frequency (%)
Symptoms		
Dyspnea	3	6,7
Dizziness	2	4,4
Hypertension	3	2,2
Abdominal pain	1	2,2
Fever	1	2,2
Seizures	1	2,2
No data	34	76
n	45	100
Diagnosis		
Ischemic stroke	20	44
Hemorrhagic stroke	9	20
Stroke without etiology	8	18
No data	8	18
n	45	100
Comorbidities		
Infected diabetic foot	1	2,1 %
Heart failure	1	2,1
Hypokalemia	1	2,1
Acute renal failure	1	2,1
Urinary tract infection	4	8,5
Hypertension	21	44,6
Diabetes mellitus	11	23,4
Chronic renal failure	2	4,2
Seizure syndrome	2	4,2
Others	3	2,1
n	45	100

Table 3. Treatment used by patients diagnosed with stroke treated at the public hospital in Paraguay

Treatment	Absolute frequency	Relative frequency (%)
Thrombolysis	15	33,3
Anticoagulants	10	22,2
Antiplatelet agents	8	17,8
Blood pressure control	6	13,3
Rehabilitation therapy	4	8,9
Thrombectomy	2	4,4
n	45	100

DISCUSSION

Strokes are common in the adult population and are related to lifestyle, lack of physical exercise, and poor diet. In the study, the most affected age group was 62-72 years old: 35 % (16 patients). Currently, there are many cases in the young population aged 18 to 55, related to the poor habits

of modern life.⁽⁹⁾

Males predominate with 27 patients, 60 % compared to other studies, older adults are prevalent, with a link to arteriosclerosis, cerebral angiopathy, and small vessel disease.⁽¹⁰⁾

Regional studies consistently suggest a higher prevalence of stroke in men than in women, with two women for every three men.⁽¹¹⁾

The month with the highest number of cases was April, with 14 patients (31 %). Other studies emphasize that high summer temperatures increase the incidence of vascular events in older adults, which is related to comorbidities such as heart failure, diabetes mellitus, and transient ischemic attack.⁽¹²⁾ Twenty-seven patients (60 %) came from urban areas and a smaller proportion (17 patients) from rural areas. It is important for family members to intervene quickly and promptly when a patient has suffered a stroke, taking them to the nearest hospital and facilitating immediate care.⁽¹³⁾

According to the table, the most frequent symptoms were dyspnea: 6,7 % (3 patients) and dizziness: 4,4 % (2 patients). The symptoms of a stroke depend on the area of the brain affected, but in general they tend to appear suddenly because the brain stops receiving enough oxygen and nutrients in the affected area. This causes neurons to die or stop functioning within minutes,⁽¹⁴⁾ and it is important to note that the most common consequences after a stroke are emotional, motor, and cognitive impairments.⁽¹⁵⁾

The majority (77,8 %) of patients had no recorded data on specific symptoms; other symptoms (dysphagia, fever, abdominal pain, convulsions, hypertension) were present in only 1 patient each (2,2 %), in relation to the diagnosed stroke: the most frequent in 20 patients was ischemic stroke (44 %), resulting in substantial clinical deterioration of the patients, decreased work capacity, socioeconomic burden on families, and associated residual disability.⁽¹⁶⁾ In the population, 9 patients were found to have hemorrhagic stroke, which is due to the rupture of a blood vessel inside the skull, with bleeding into the subarachnoid space or cerebral parenchyma, being an intracerebral hemorrhage.⁽¹⁷⁾

In addition, eight patients (17,8 %) were identified with no defined etiology and no data on the type of stroke. Cases of stroke increase with age, the presence of neurogenic dysphagia, stroke severity, and impaired level of consciousness, with comorbidities and nutritional status at the time of stroke also having an influence.⁽¹⁸⁾

The most prevalent comorbidities were: in 21 patients, high blood pressure (44,6 %), in 21 patients, diabetes mellitus (23,4 %), and others such as urinary tract infection (8,5 %), chronic renal failure (4,2 %), and convulsive syndrome and acute renal failure (4,2 %).

Hypertension is one of the factors most closely related to stroke. It is important to diagnose it from the onset of the first symptom, and many studies suggest reducing the time to less than 45 minutes from the onset of symptoms.⁽¹⁹⁾ One of the leading causes of disability in the adult population is stroke, which affects quality of life. Its signs range from loss of sensation and strength to speech difficulties and eye disorders, and symptoms vary from headaches and dizziness to seizures.⁽²⁰⁾

Dyslipidemia, high blood pressure, tobacco use, and diabetes are related to the disease.⁽²¹⁾

The most commonly used treatment was thrombolysis, applied in 33,3 % of cases (15 patients), followed by anticoagulants: 22,2 % (10 patients).

Thrombolysis is a procedure that seeks to restore normal blood flow to tissues by dissolving a clot or thrombus within a blood vessel. It is performed to reduce disability and improve quality of life.⁽²²⁾

Eight patients (18 %) used antiplatelet agents. Anticoagulants or antiplatelet agents are used after a stroke to prevent new clots from forming or the thrombus from increasing in size, and the drugs of choice are warfarin and warfarin.⁽²³⁾

To a lesser extent, the following were recorded as part of the treatment: blood pressure control: 13,3 % (6 patients), rehabilitation therapy: 8,9 % (4 patients). The dependence of stroke patients could be lifelong according to the patient's functional scale. There are scales such as Katz's, which measures the patient's physical ability to go to the bathroom and urinary continence; Barthel's scale, which validates basic activities performed by the patient, such as eating and personal hygiene.⁽²²⁾ The Lawton scale measures daily abilities, use of the telephone, regular exercise, healthy eating, and blood pressure control.⁽²³⁾

The scale can be difficult for older adults to use due to their lack of adaptation to new technologies, outpatient rehabilitation of the patient, increasing the possibility of patient independence.⁽²⁴⁾

In addition, two patients underwent thrombectomy: a therapeutic technique used for the mechanical removal of a thrombus in the vascular system. It is an essential tool in the treatment of acute ischemic events,⁽²⁵⁾ especially in ischemic stroke involving large vessels, where it has been shown to improve survival and functional recovery.⁽²⁶⁾

The treatment of stroke patients should involve a multidisciplinary team (neurologists, physical therapists, occupational therapists, speech therapists, nutritionists, nurses, psychologists) to address motor, cognitive, language, visual, balance, and other sequelae.⁽²⁶⁾

Rehabilitation should be adapted to the degree of dependence, and patients with greater complexity may require hospitalization in specialized centers.⁽²⁷⁾

In the post-acute and chronic period, progressive strengthening, recovery of functions, cognitive stimulation, and readaptation to activities of daily living are essential to improve quality of life.⁽²⁸⁾

In addition, medical personnel are advised not to lower blood pressure aggressively unless it is very high or there are

special circumstances (myocardial infarction, hypertensive encephalopathy).⁽²⁹⁾

Monitoring for dysphagia and evaluation by speech therapy in the first 24–72 hours to prevent aspiration; enteral nutrition if necessary.⁽³⁰⁾

CONCLUSION

The research carried out successfully determined the prevalence of stroke in adults over 40 years of age in a public hospital in Paraguay, identifying sociodemographic characteristics such as sex, origin, and age, and describing the symptoms of the patients, the diagnosis, and the comorbidities found in the aforementioned period. In addition, the treatment received by the patients in the studied population was described.

The limitations encountered were the very short study period, the risk factors found in the records, the lack of information in the population about risk factors, and the lack of treatment in some cases.

Recommendations made for future research include the creation of support programs for the population and for family members who accompany patients who are sometimes disabled.

FUNDING

The project was self-funded by the authors according to the research needs.

CONFLICTS OF INTEREST

None.

AUTHORSHIP CONTRIBUTION

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