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COMPARATIVE ANALYSIS BETWEEN EMERGENCY ASSISTANCE FOR CEREBRAL VASCULAR ACCIDENT IN REFERENCE SERVICES IN THE MICROREGION OF PAJEÚ AND NATIONAL GUIDELINES

Lílian Karine Machado de Souza
Universidade de Pernambuco – Serra Talhada Campus
Serra Talhada - Pernambuco
http://lattes.cnpq.br/9281368082498884

Joab Lins Serafim
Universidade de Pernambuco – Serra Talhada Campus
Serra Talhada - Pernambuco
http://lattes.cnpq.br/7389509544766128

Ariel Lucas Medeiros da Silva
Universidade de Pernambuco – Serra Talhada Campus
Serra Talhada - Pernambuco
http://lattes.cnpq.br/3048305266716612

Laiza Paula Candido de Melo
Universidade de Pernambuco – Serra Talhada Campus
Serra Talhada - Pernambuco
http://lattes.cnpq.br/4102990724835666

Deborah Rayssa Siqueira Silva
Universidade de Pernambuco – Serra Talhada Campus
Serra Talhada - Pernambuco
http://lattes.cnpq.br/2122488813521267

Amanda Karla Alves Gomes e Silva
Universidade de Pernambuco – Serra Talhada Campus
Serra Talhada - Pernambuco
http://lattes.cnpq.br/8452357963562744

Jose Jefferson da Silva Cavalcanti Lins
Universidade de Pernambuco – Serra Talhada Campus
Serra Talhada - Pernambuco
http://lattes.cnpq.br/1844189163885501

Ana Luiza Sampaio Lopes
Universidade de Pernambuco – Serra Talhada Campus
Serra Talhada - Pernambuco
http://lattes.cnpq.br/7563539603182804

Rita di Cassia Oliveira Angelo
Universidade de Pernambuco – Serra Talhada Campus
Serra Talhada - Pernambuco
http://lattes.cnpq.br/8652310495284223

Americo Danuzio Pereira de Oliveira
Universidade de Pernambuco – Serra Talhada Campus
Serra Talhada - Pernambuco
http://lattes.cnpq.br/1925633115467016

Abstract: Stroke is an emergency associated with morbidity and mortality, being the second leading cause of death and disability in adults worldwide. The Ministry of Health recommends using the guidelines of the Brazilian Society of Cerebrovascular Diseases (SBDCV) as a protocol for emergency care in Brazilian health services. However, it is known that there is a shortage of resources for stroke care in Brazil, especially in emergencies located outside the capitals. There was a need to analyze health practices related to stroke according to the reality of Serra Talhada/PE. The objective was to describe the emergency assistance provided to stroke cases in the emergency services of the municipality of Serra Talhada/PE and to carry out a comparative analysis in relation to the guidelines. For this purpose, a descriptive, cross-sectional study was carried out, whose population included stroke cases admitted to the services and the sampling was of the consecutive type. The research instruments were the Individual Registration Form and Self-Reported Questionnaire of Health Conditions/Situations, in addition to the Evaluation Form prepared according to the protocol recommended by the SBDCV. The sample consists of 143 participants, 54.5% male and 53.1% mixed race. Most of the sample is composed of elderly people and has hypertension and diabetes mellitus. 74.1% do not follow a diet and 87.4% are sedentary. 30.8% of the sample is a smoker and 16.1% is an alcoholic. 88.8% of the sample had a diagnosis of ischemic stroke. 90.2% had their blood pressure measured. The parameters of capillary blood glucose in 37.8%, oxygen saturation in 47.6%, temperature in 69.9% and electrocardiogram in 38.5% were not evaluated. Blood count was requested for 82.5%. Renal function was not requested for 35%, ionogram for 38.5%, fasting glucose for 66.4% and coagulogram for 93%. With this, it was noticed that the initial care for stroke in

Serra-Talhada services is in disagreement with some parameters suggested by the guidelines.
Keywords: Stroke, Initial care, Clinical management, Guidelines.

INTRODUCTION

Stroke is an emergency associated with morbidity and mortality, being the leading cause of death and disability in adults worldwide (RIBEIRO *et al. al.,* 2016). Given away your impact, he was created at the Brazilian Network in Heads up at emergencies and emergencies, for the ordinance 1,600/GM, in 07 in July in 2011, determining the implantation in lines in caution for stroke, which have clinical protocols.

In this sense, the Ministry of Health recommends the use of the guidelines of the Brazilian Society of Cerebrovascular Diseases (SBDCV) (OLIVEIRA-FILHO *et al.*, 2012) as a protocol for emergency care for stroke in Brazilian health services.

Adequate and rapid care for the acute phase of stroke is a determining factor in the prognosis of patients. Strict control of clinical parameters has a direct impact on the clinical outcome of cases. In addition, managing the findings clinicians, laboratory and radiological at the attendance to stroke acute contributes for the minimization the occurrence of complications (BOULANGER *et al.*, 2018).

However, despite constant evolutions in stroke management through the use of protocols, middle and low-income countries still have little access to its potential. In addition, there is a shortage of resources for stroke care throughout Brazil, which is even more notable in emergencies located in municipalities far from capital cities (GAGLIARDI *et al.*, 2018).

Considering that the health services included in the present study are not located in large Brazilian centers, there was a need to analyze stroke-related health practices according to the local reality and Dice about O attendance clinical at region.

METHODOLOGY

This is a cross-sectional descriptive study, developed by the Group of Interdisciplinary Studies and Research in Neurosciences (GEPIN) and approved by the Research Ethics Committee under opinion No. 4,128,595. The study was carried out in two public hospitals linked to the health care network in the municipality of Serra Talhada-PE.

Convenience sampling was used and the data collection period was from April 2021 to August 2022. Patients admitted to the service with a proven diagnosis of stroke, regardless of sex and age, were included; and excluded those whose diagnosis was not confirmed clinically and by complementary exams, who did not participate in all stages of the research and those who had incomplete filling of the research instruments. After admission to the aforementioned urgency/emergency services, the patients were examined by the neurologist and his team.

The research instruments used were the Individual Registry Form of the Unified Health System (SUS) to obtain sociodemographic data, in addition to an Evaluation Sheet prepared according to the emergency care protocol for acute stroke recommended by the SBDCV (OLIVEIRA-FILHO *et al.*, 2012), containing data on comorbidities prior to stroke, measurement of clinical parameters, requested tests and medications prescribed.

The processing of descriptive analyzes was performed using the statistical program SPSS version 16.0 (SPSS Inc., Chicago, IL, USA, Release 16.0.2, 2008). In order to describe the results obtained, an exploratory analysis of the data was performed, and the absolute frequencies (n) and percentages (%) of the categorical variables were calculated.

RESULTS AND DISCUSSION

The sample consisted of 143 patients with a greater age distribution between 61-80 years (n=72; 50.4%), male predominance (n=78; 54.5%), black (n=111; 77, 6%), elementary level of education (n=65; 45.5%) and retirees/ pensioners (n=102; 71.3%) (Table 1).

The sample profile outlined in this study is similar to that described in recent studies (KIM *et al.*, 2020; MALEK *et al.*, 2020; ROCHA *et al.*, 2022), which showed advanced age and male gender as risk factors not modifiable and universal, due to female estrogen protection and the development of increased cerebrovascular risk with age progression, in addition to socioeconomic determinants (BENJAMIN *et al.*, 2019).

As for the ethnic aspects of the sample, this result stems from the fact that Afro-descendants are more affected by stroke, due to a greater predisposition to arterial hypertension, one of the main risk factors for vascular accidents (BENJAMIN *et al.*, 2019; MARIANELLI *et al..*, 2020).

The main comorbidities directly related to cerebrovascular events are arterial hypertension, hypercholesterolemia, atrial fibrillation, diabetes mellitus and obesity. In addition, inadequate lifestyle habits, such as smoking, alcohol consumption, sedentary lifestyle and inadequate diet (not following a specific diet for the underlying pathologies), also act as risk factors. In addition, the previous occurrence of stroke is a predisposing risk factor for a new event (POWERS *et al.,* 2019).

Regarding comorbidities, it was found that 82.5% (n=118) of patients had a diagnosis of arterial hypertension, which was the main associated disease found in the present study, followed by diabetes mellitus (39.9%; n=57), hypercholesterolemia (31.5%; n=45) and previous stroke episode (29.4%; n=42). Barella 's studies *et al.* (2019) and Eira *et al.* (2018) demonstrated that such comorbidities increase cerebrovascular fragility by increasing blood pressure and increasing atherosclerotic formation.

Notwithstanding this comorbid condition, 74.1% (n=106) revealed that they did not follow a diet to control underlying pathologies; 87.4% (n=125) do not practice physical exercises regularly per week, being considered sedentary; and 33.6% (n=48) are obese. Still in relation to life habits, 30.8% (n=44) smoke and 16.1% (n=23) consume alcoholic beverages regularly. Atrial fibrillation occurred in 4.2% (n=6) of patients and other arrhythmias were present in 4.2% (n=6).

Clinical guidelines (OLIVEIRA-FILHO *et al.*, 2012; POWERS *et al.,* 2019) establish that, in the initial diagnosis of stroke, it is essential to perform an imaging examination of the skull, as clinical management differs between types of stroke.. Among the patients evaluated in the present study, only 1.4% (n= 2) did not have a request for a cranial tomography (CT). The other patients had the request at the time of the initial clinical evaluation in the emergency room or during the secondary evaluation performed by the neurological clinic. In 9.8% (n= 14) of the cases, the CT showed an area of hyperdensity, representative of hemorrhagic stroke. Most participants (n=74; 51.7%) had an area of hypodensity and 37.1% (n=53) had no acute vascular alteration identified by the exam. According to these criteria, 88.8% (n=127) of the sample received a diagnosis of ischemic stroke.

Besides, during the initial management of stroke, according to clinical guidelines (OLIVEIRA-FILHO *et al.*, 2012; POWERS *et al.,* 2019), the general parameters of blood pressure (BP), capillary blood glucose, oxygen saturation ($O_{2)}$ and body temperature. An electrocardiogram must also be performed in every patient with clinical suspicion of stroke. Despite this, in the present study, in 9.8% (n= 14) of the patients there was

Variables	n (%)
Sex	
Female	65 (45.5)
Male	78 (54.5)
age group	
21-30	2 (1.4)
31-40	3 (2.1)
41-50	11 (7.7)
51-60	20 (14.0)
61-70	36 (25.2)
71-80	36 (25.2)
81-90	25 (17.5)
91-100	9 (6.3)
> 100	1 (0.7)
Self-declared race/color	
White	30 (21,0)
Black	35 (24.5)
Brown	76 (53.1)
Yellow	1 (0.7)
Indigenous	1 (0.7)

Table 1 – Distribution of frequencies regarding the sociodemographic characteristics of the patients evaluated (n=143).

Source: Author data (2022).

no BP measurement; 37.8% (n=54) had no measurement of capillary blood glucose; in 47.6% (n=68) $O_{2\ saturation}$ was not verified and 69.9% (n=100) did not have their body temperature measured (Table 2).

The electrocardiogram was no longer requested for 38.5% (n= 55) of the patients. In 38.5% (n=55) there were no significant changes in the ECG and 18.9% (n=32) had clinically significant changes, of which 13.3% (n=19) had different types of arrhythmias.

It is also important to consider that patients may present, as a cause or consequence of the neurological event, dysfunction of multiple organs, justifying, therefore, the need for other tests, such as blood count, ionogram, coagulogram, International Normalized Ratio (INR), hemoglobin glycated, urea, creatinine and cardiac markers (OLIVEIRA-FILHO *et al.,* 2012; POWERS *et al.,* 2019).

In the present study, against the recommendations of the clinical guidelines, the blood count was requested for 82.5% (n= 118) of the patients; however, it was not requested for 11.9% (n=17) and, despite being requested, it was not performed in 5.6% (n=8). Among the tests performed, the main changes observed were the presence of anemia (25.2%; n= 36), leukocytosis (23.1%; n= 33) and thrombocytopenia (4.9%; n= 7). Fasting glucose was not requested for most patients (66.4%; n= 95); among the tests performed, it was altered (between 100 and 125) in 6.3% (n=9) of the patients and in diabetes levels in 18.9% (n=27). Glycated hemoglobin was not requested for any of the participants.

Contrary to what the guidelines suggest, the coagulogram was not requested in 93% (n=133) of the patients and was abnormal (INR > 1) in 5.6% (n=8). The ionogram was not performed in 34.3% (n=49) and contained alterations in 25.9% (n=37). Renal function was not evaluated in 35% (n=50) of the patients, and it was altered in 11.9% (n=17). On the other hand, cardiac markers were requested only for 4.2% (n= 6) of the sample, being elevated in 0.7% (n= 1).

The main treatments recommended for stroke are Alteplase IV and mechanical thrombectomy. Antiplatelet drugs or anticoagulants are also part of the treatment, depending on the type of stroke. Other therapies may be necessary according to the causative factor of the stroke (POWERS *et al.,* 2019). The services in which the research was carried out do not have thrombolysis or mechanical thrombectomy. Regarding the other drugs, Acetylasalicylic Acid (ASA) was administered to 59.4% (n=85), New Oral Anticoagulants (NOACS) to 2.8% (n=4), Clopidogrel to 10.5% (n= 15), therapeutic heparin in 28% (n=40), statin in 62.9% (n=90) and antihypertensives in 65.7% (n=94).

CONCLUSIONS

The epidemiological profile of stroke patients treated at referral hospitals in the Microregion of Pajeú is predominantly male, over 60 years of age and black. Most of the sample is hypertensive, diabetic and sedentary, with unhealthy lifestyle and eating habits. These epidemiological aspects have repercussions on a specific profile for the region, making it understandable for which public must develop primary prevention actions and services in order to reduce the incidence of vascular episodes.

Regarding the initial management of acute stroke, the results presented here show that the initial care for stroke, in the reference services of the Pajeú Microregion, is in disagreement with some parameters suggested by the guidelines established by the Brazilian Society of Cerebrovascular Diseases, such as of several health services far from the big capitals. In addition, the services do not have the main therapeutic modalities for ischemic stroke, nor do they have a Neurosurgery team for

Parameters	n (%)
BP (mmHg)	
≤ 120 x 80	23 (16.1)
121-139 x 81-89	19 (13.3)
140-159 x 90-99	31 (21.7)
160-179 x 100-109	16.8 (24)
180 x 110	32 (22.4)
not measured	14 (9.8)
Blood glucose (mg/dl)	
<99	13 (9.1)
100-200	48 (33.6)
201-300	17 (11.9)
301-400	10 (7.0)
401-500	1 (0.7)
not measured	54 (37.8)
$_2$ saturation (%)	
97-100	37 (25.9)
94-96	24 (16.8)
< 93	14 (9.8)
not measured	68 (47.6)
Temperature (ºC)	
<35	2 (1.4)
35-37.4	40 (28.0)
>37.5	1 (0.7)
not measured	100 (69.9)

Table 2 – Distribution of frequencies according to the parameters evaluated in the initial management of stroke (n=143).

Source: Author data (2022).

interventions in hemorrhagic stroke.

However, far from aiming to criticize the services, the present study aims to signal the current situation and present the data to the management teams, in order to contribute to the improvement of care for cerebrovascular emergencies in the place called ''Sertão do Pajeú".

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