Research Article

Analysis of Records of Patients with Cerebral Stroke Accident and its Correlations with Predisponent Factors

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Abstract
The Vascular cerebral Accident (VCA) is from a dysfunction in the blood vessel in a particular locus of the brain. In the injury, it is popularly known as "stroke" or "thrombosis", which is a silent pathology mediated by actions considered modifiable and non-modifiable, causing reversible and/or permanent injuries respectively. Stroke can be subdivided into: ischemic stroke triggered by a blockage in the cerebral vascularization decreasing or stopping the supply of oxygen in the brain and the hemorrhagic stroke induced by a vascular rupture resulting in extravasation of blood inside the skull, trauma can lead to injury due to blood pressure. The objective of the essay is to evaluate medical records of patients who were hospitalized at a Hospital of Paraíba in the year 2016, aiming to highlight the main causes and consequences through anamnesis of it. The research is a documentary and exploratory study, athwart a pre-elaborated research instrument. The results were introduced through tables, obtained in Statistical Package for Social Sciences (SPSS), Version 22.0, based on the comparison of some variables such as gender, age, history of current pathology and others, correlated to the diagnostic hypothesis of AVC and AVE . In the results and conclusion of this essay it is possible to perceive that the greater the age, the greater the number of cases of Cerebral stroke and Encephalic stroke, decreasing in the extremes of age, being that still high the prevalence of death by this disease , especially by Encephalic stroke. Regarding the previous history, hypertension is one of the main factors associated with the occurrence of Cerebral Stroke and Encephalic Stroke, where in the current history hypertension, smoking and headache are responsible for most cases of stroke and stroke in individuals, and hemiparesis is the skeletal muscle factor that is most associated with pathology.

Keywords: Vascularization. Records. Brain

Introduction

Neurological pathologies are considered public health problems, their high prevalence of motor limitations reflects social isolation on their sufferers. Statistically, cerebrovascular diseases indicate that 87% are affected by CVA (stroke/stroke), among these 70% are patients with sequelae. (GOULART; CARVALHO, 2016; BARROS, 2013).

Highly complex therapeutic advances revive a good prognosis when correlated with indicators of morbidity and mortality. However, people with CVA (cerebrovascular accident), which is divided into ischemic and hemorrhagic, require diverse treatment, as their clinical features have modifiable and non-modifiable origins (CABRAL; CONFORTO, 2015; GOULART et al., 2016; BAPTISTA et al., 2012).

The increasing disordered use of oral anticoagulants for therapeutic purposes and/or hormone replacement leads to an increase in the number of cerebrovascular pathologies, which are antagonists of vitamin K in our body. However, heredity tends to predominate because it presents non-modifiable factors of genetic origin (MASSARO; LIP, 2016; LIMA et al., 2016).

Stroke is linked to heart disease, hyperdyslipidemia , diabetes mellitus , hypertension (systemic arterial hypertension), smoking and contraceptives. The presence of these inducers develops reduced neuroplasticity in their bedridden patients, thus causing difficulty in the patient's physical recovery (GRAY; GARLAND, 2012; FERNANDES, 2015). In view of everything that has been discussed, there is a need for a better understanding of the pathophysiology of stroke mediated by

clinical variation, especially the relevance of cerebrovascular disorders, which are initiated by vascular deficiency and/or obstruction accompanied by low blood supply in the brain perimeter that compromises important functions of the body.

This study aims to analyze medical records of patients suffering from a stroke in a hospital in Paraíba in 2016, so that the results can guide useful indicators for prevention in the public health service.

Materials and Methods

The present study's methodological and retrospective proposal was exploratory research with a quantitative and documentary approach, using as a basis an instrument in the form of a questionnaire that evaluated clinical data from hospital records with a combination of objective and subjective questions. Approved by the ethics and research committee (number 121144), the basis of the study consisted of evaluating the clinical condition and its changes that corroborate the triggering of a stroke, whether ischemic or hemorrhagic. Data collection showed sufficient support for the scientific grant in question. The research was carried out on the premises of a Hospital in Paraíba, with the classification of medical records consistent with the diagnosis in question, starting the quantification with 246 cases registered in 2016, as shown in figure 1.

Figure 1: Retrospective cohort design, analyzing contributing factors for inclusion and exclusion criteria.
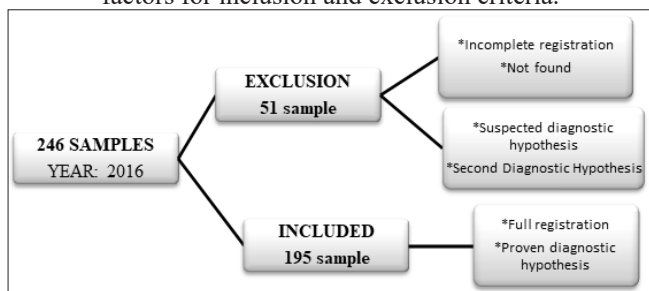
Source: Prepared by the author.

The research analyzed the variables statistically. The data collection instrument used in the research was enumerated for the use of the statistical package StatisticalPackage for the Social Sciences (SPSS), Version 22.0, thus the study allowed the interpretation of variables and their correlation, prioritizing as the main variable the diagnostic hypothesis as CVA, CVA. ChVA and ischemic stroke , correlating variables such as musculoskeletal factor, death, age group and history of past and current pathology. In the study of the correlation between the variables, the $\chi 2$ and Fisher's exact tests were used , adopting a confidence level of 5% ($\alpha \leq 0.05$) to reject the null hypothesis. To validate the association, the simple Linear Regression Model was applied , adopting a Confidence Interval (95%) and a significance level of 5%.

Results and Discussion

The study described samples cataloged in a hospital in Paraíba, showing different ages, unique admission history, characteristic symptoms, and both sexes. Records were investigated using

precise inclusion and exclusion criteria covering a number of 195 port workers, 103 women and 92 men, with an average age of 35.3 + 98.1 years.

Graph 1 highlights the number of cases in female and male findings, with the highest rate being cases of stroke totaling 121 data and the lowest finding is AVCh with 7 samples between both sexes.

Graph 1: User's gender crossed with Diagnostic Hypothesis
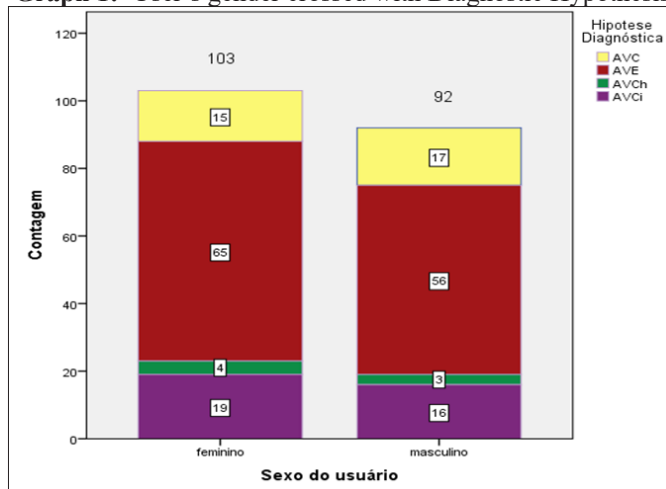
Source: Research data cataloged in hospital medical records.

Graph 2: cross tabulation in graph referring to HD/age with percentage attributed to the findings.
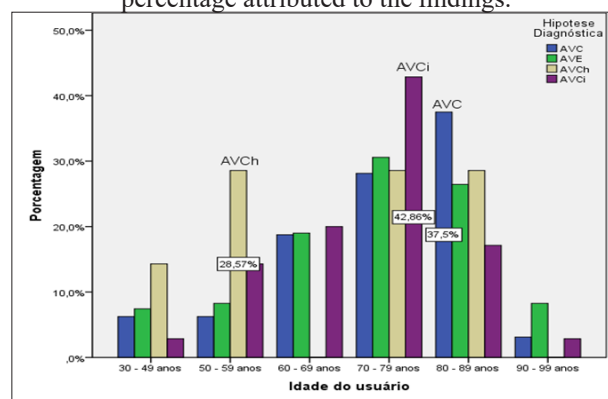
Sources: research data cataloged in hospital medical records.

The percentage diagnosed with stroke (37.5%) occurs in patients aged between 80 - 89 years, the highest rate is for findings at the age of 70 to 79 years indicating ischemic stroke records (42.86%). Between the graph and subsequent table, the average HD/age is estimated at (+ 2.23; + 3.81), with a standard deviation less/equal to 1 (< 0.932; > 1.288) respectively .

Table 1 shows the correlation between the diagnostic hypothesis and the age range of the user analyzed from the medical record, with significant numerical data on stroke findings in the age range of 70 to 79 years, calculating an index of 37 cases, 30 .6% of the sample, confirmed through tomographic examinations.

**Table 1:** User age related to HD (Diagnostic Hypothesis) found in medical records.

HYPOTHESIS DIAGNOSIS		USER AGE					
		30-49 years old	50-59 years old	60-69 years old	70-79 years	80-89 years old	90-99 years
stroke	n	two	two	6	9	12	1
	%	6.3%	6.3%	18.8%	28.1%	37.5%	3.1%
BIRD	n	9	10	20	37	32	10
	%	7.4%	8.3%	19.0%	30.6%	26.4%	8.3%
AVCh	n	1	two	0	two	two	0
	%	14.3%	28.6%	0.0%	28.6%	28.6%	0.0%
stroke	n	1	5	7	15	6	1
	%	2.9%	14.3%	20.0%	42.9%	17.1%	2.9%
TOTAL		13	19	36	63	52	12
		6.7%	9.7%	18.5%	32.3%	26.7%	6.2%

Source: Hospital medical records, for the year 2016.

Taking into account the stroke sampling with the age range between 60 and 89 years, the classification presents 92a with 76% referring to HD in question, contrasting that there were no findings in the variation of AVCh for individuals aged 60-69 and 90-99 years, however the level of contingency by age is in the range of 70-79 years with 63% and 32.3%, with the percentage referring to sex in the same age group indicating 32.31% of cases.

Graph 1 corroborates the parameter shown in the table, with agreement of 32.2% of cases in the age group of 70-79 years, the second highest indicator is 26.67% in the age of 80-89 years and 18.46% between 60-69 years old.

Graph 3: simple indication of stroke in the age range of findings in a statistical sample.
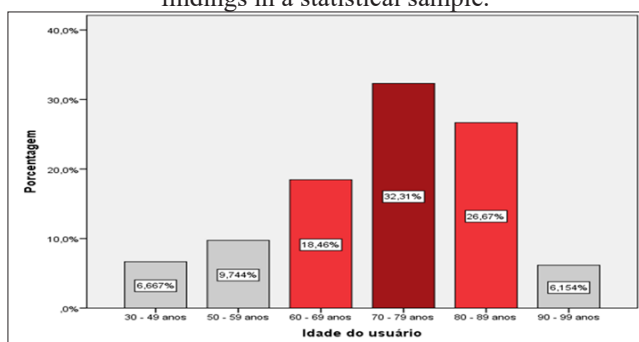
Sources: research data cataloged in hospital medical records.

According to Melo et al (2016), it is known that neural involvement resulting from stroke varies depending on the location of the vascular lesion, perfusion time and the existence of collateral circulation. However, Bruch, Claudino, Ghizoni (2010) emphasize that the first signs of injury are characterized in anamnesis, and may be ischemic and/or hemorrhagic and intermittently linked to blood flow.

Elderly patients are predisposed to developing ischemic stroke compared to hemorrhagic stroke. This trend occurs with the modification of the individual's metabolism and hormonal transformation, which with increasing age increases the risk of complications in the circulatory system (OLAMOYEGUN et al., 2016).

Table 2: index of main cause of death (part I) without connection to antecedent and/or subsequent causes (part II).

DIAGNOSTIC HYPOTHESIS		DEATH	
		YES	NO
stroke	n	7	25
	%	3.6%	12.8%
BIRD	n	20	101
	%	10.3%	51.8%
AVCh	n	0	7
	%	0.0%	3.6%
stroke	n	5	30
	%	2.6%	15.4%
TOTAL		32	163
		16.4%	83.6%

Source: sample taken from hospital death certificates attached to the medical record.

Table 2 highlights the total number of deaths in relation to the diagnosis, showing the highest death rate in patients affected by a stroke (20 cases) confirmed in all documentary findings, consistent with the parameter of 10.3%. However, the total percentage of deaths is 16.4%. However, AVE reveals the highest frequency of findings, cataloging a frequent sum of 121 cases (yes/no) with a margin of 61.7% of all searches. The average per HD/death is estimated at (+ 2.23; + 1.84), with a standard deviation of < 0.371.

Intracerebral hemorrhage is generally caused by rupture of small penetrating arteries secondary to hypertensive changes or other vascular abnormalities. The outcome of hemorrhage is variable, depending on the hematoma, location and extent. Compared to ischemia, hemorrhage leads to greater mortality (PONTES – NETO et al., 2009).

According to Ribeiro et al (2016), currently, vascular accidents are the third cause of death worldwide and the second in Brazil, presenting serious clinical repercussions and a serious public health problem. In 2003, in the Northeast of Brazil, the

mortality rate caused by stroke was estimated at 54.6 per hundred thousand inhabitants. The Health System (SUS) hospital admission rate in 2009 due to stroke was equal to 8.39% of the Brazilian population. However, the rate for the state of Paraíba and its capital was even higher, representing 10.53% and 10.62%, respectively .

In agreement Sá; Serious; Périco (2014) reaffirms that hemorrhagic strokes are aggravated by the rupture of blood vessels, emphasizing that this is the main cause of death in the world.

Table 3: Correlation between diagnostic hypothesis and History of previous pathology (PPH).

HD		HISTORY OF PREVIOUS PATHOLOGY							
		Seq Stroke	Tabagi	alcoholism	Hypert	Diabetes	Alzhei	Aneu	Total
stroke	n	two	1	0	6	6	1	0	32
	%	1.0%	0.5%	0.0%	3.1%	3.1%	0.5%	0.0%	16.4%
BIRD	n	27	3	1	53	1	two	two	121
	%	13.8%	1.5%	0.5%	27.2%	0.5%	1.0%	1.0%	62.1%
AVCh	n	1	1	0	3	0	0	0	7
	%	0.5%	0.5%	0.5%	1.5%	0.0%	0.0%	0.0%	3.6%
stroke	n	6	0	0	16	1	1	0	35
	%	3.1%	0.0%	0.0%	8.2%	0.5%	0.5%	0.0%	17.9%
TOTAL		36	5	1	78	8	4	two	195
		18.5%	2.6%	0.5%	40.0%	4.1%	2.1%	1.0%	100.0%

Source: Hospital medical records, for the year 2016.

The clinical signs evaluated in all medical records indicated systemic arterial hypertension as the main secondary pathology to develop stroke, presenting in the anamnesis hemispheric dysfunction, vascular compression, headache, vasospasms (seizure) and cardiac arrhythmia . SAH (systemic arterial hypertension) also involves the appearance of AVC due to vascular rupture.

The second pathology to have a direct link with stroke is Diabetes mellitus, with glucose as the body's main source of energy. The excess of this free monosaccharide in the blood affects cerebral arteries, deteriorating their inner layer , and can also cause obstruction in the microvascularization , opportunistically causing an ischemic stroke . Just like smokers, the stimulation of nicotine increases blood pressure and results in the accumulation of fat (arteriosclerosis) in the carotid arteries (main arteries that supply the brain).

According to Snarska et al. (2017) hyperglycemia results in an increased risk of hospitalization and death in patients with ischemic and hemorrhagic stroke. Average blood glucose concentration above 115 mg/dl in non-diabetic patients predisposes to stroke risk. However, patients with an increased value greater than 185 mg/dl tend to have a higher prevalence of mortality due to arterial vascular injury.

Table 4 : Correlation between diagnostic hypothesis and History of current pathology (HPA).

DIAGNOSTIC HYPOTHESIS		HISTORY OF CURRENT PATHOLOGY							
		Tabagi	Alcoholism	Diabetes	hypert	Lower Consc.	Cefalei	Convul	Total
stroke	n	two	1	1	12	3	4	4	32
	%	1.0%	0.5%	0.5%	6.2%	1.5%	2.1%	2.1%	16.4%
BIRD	n	11	two	11	43	9	14	8	121
	%	5.6%	1.0%	5.6%	22.1%	4.6%	7.2%	4.1%	62.1%
AVCh	n	0	0	0	two	1	1	1	7
	%	0.0%	0.0%	0.0%	1.0%	0.5%	0.5%	0.5%	3.6%
stroke	n	two	two	two	10	6	1	4	35
	%	1.0%	1.0%	1.0%	5.1%	3.1%	0.5%	2.1%	17.9%
TOTAL		15	5	14	67	19	20	17	195
		7.7%	2.6%	7.2%	34.4%	9.7%	10.3%	8.7%	100.0%

Source: Hospital medical records, for the year 2016.

Factors predisposing to stroke of a modifiable order and in correlation with heredity have a direct link with changes that trigger cerebrovascular disorders, from metabolic dysfunctions, coagulopathies disorders and " opportunistic diseases".

Symptoms associated with HD/HPA, equated to intracranial pressure and/or stimulus emission overload, define a frequency of 20 cases of headache (10.3% of the sample), 17 cases of convulsive crisis on admission based on anamnesis (8.7%), and the lowering of the level of consciousness is a characteristic considered to be the main feature in critically ill patients or those with disturbances in stimulus response, the sample reveals a frequency of 19 cases, compatible with 9.7% of all findings.

Statistical indicators demonstrate the relationship between SAH in PPH/PAH resulting in a sum of 78 samples with 40.0% (SAH/HPP ratio) and 67 samples with 34.4% (SAH/HPA ratio), an average of 4.75 + 4.99 and SD (standard deviation) > 2.541 and > 2.078 respectively. Among the samples there are changes in stroke sequelae (18.5% in HPP), smoking and diabetes mellitus corresponding to 6.7% (HPP). The percentage also changes to 7.7% (Smoking/HPA ratio), 7.2% (DM/HPA ratio). Identification for numerical characteristics configures findings of hypertension above 140x100mmHg, stroke sequelae > 2 years, chronic smokers and type 1 and 2 DM of decompensated origin.

Lima et al (2016) portrays that vascular complications affect hypertensive patients, causing changes in cerebral arteries, significantly compromising the histology of the arterial wall, leaving them predisposed to ruptures.

Corroborating the finding, in a study Jardim et al. (2016) emphasizes that the high number of deaths in cerebrovascular pathologies is directly linked to elevated blood pressure.

Table 5: Correlation between diagnostic hypothesis and musculoskeletal factors.

DIAGNOSTIC HYPOTHESIS		SKELETAL MUSCLE FACTOR		
		Hemiplegia	Hemiparesis	Paresthesia
stroke	n	3	11	two
	%	1.5%	5.6%	1.0%
BIRD	n	30	31	16
	%	15.4%	15.9%	8.2%
AVCh	n	1	4	0
	%	0.5%	2.1%	0.0%
stroke	n	6	13	3
	%	3.1%	6.7%	1.5%

Source: Hospital medical records, for the year 2016

In table 5, the record of musculoskeletal involvement shows that the stroke categorizes 77 samples subdivided into patients who presented deficits such as hemiparesis considered partial paralysis or decreased strength mediated by the brain injury, hemiplegia, meaning that it is total or partial paralysis in a complete hemisphere of the body and paresthesia characterized by an abnormal sensation in the body resulting from a dermal burning with intensified numbness.

The tabulation shows 31 samples, in 15.9% of cases there is a decrease in sensitivity on one side of the body, characteristic of hemiparesis, with a statistical mean of 2.67 + 2.00 and standard deviation of < 1.186.

Currently, neurological pathologies are considered a public health problem with a high prevalence of temporary or permanent disabilities, however in Brazil around 68 thousand people die from strokes, of which 70% are discharged with pathological sequelae and the consequence of these sequelae patients is defined in social isolation (GOULART; CARVALHO, 2016).

The evidence linked to the diagnostic hypothesis of stroke considers hemiparesis as the highest rate of previously irreversible injury, neuromuscular and cognitive damage caused by a brain injury can be unilateral or bilateral. Some individuals may still suffer from homonymous hemianopia, tactile, thermal and postural deficits (RICCI et al., 2015).

Final Considerations

The study identified the main complications of stroke related to different pathologies, as well as the impairment of the body's functions triggered by ischemia and/or hemorrhage. Consolidation was mediated by questioning the result of pathological injury, that is, the ischemic stroke showed that reperfusion has a direct link with neuronal vulnerability. However, the reduced level of consciousness and stroke patients demonstrate that the brain can fatefully initiate cytotoxic edema. In cases of fluid (blood) extravasation, intracranial hypertension causes deviation of structures and compression of vessels which, in the process of evolution, may cause the patient to experience a coma until death.

The study recorded changes in the musculoskeletal strength of individuals admitted with stroke, however the focus on post- stroke muscular sequelae negatively reflects the non-availability of prescriptions. However, only records about rehabilitation follow-up in a hospital environment were found. Knowing that motor and sensory changes can evolve, causing irreversible deficits such as cognitive functions, especially balance.

The study also indicates that the demographic prevalence for the incidence of stroke is linked to population aging, they tend to have sudden hormonal changes and a greater level of sedentary lifestyle, making it difficult for the body to perform important functions such as metabolism, this leads individuals to develop diseases associated with stroke. Non-modifiable factors (genetic) establish a low level in cerebrovascular diseases, however modifiable factors tend to present a compulsive evolution, leading to research that continuous prevention and promotion actions could drastically reduce the incidence of morbidity and mortality in the country.

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