ORIGINAL ARTICLE

Profile of patients with sequelae of stroke in a rehabilitation center

Perfil de pacientes com sequelas de acidente vascular cerebral internados em um centro de reabilitação

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ABSTRACT

Stroke is a public health problem due to its negative impact on the affected individuals, causes a high number of deaths and hospitalizations worldwide. Stroke causes functional disabilities, and acute phase rehabilitation is critical to reduce secondary complications and promote independence. The Functional Independence Measure (FIM) is a broad instrument to measure functional capacity during this rehabilitation phase. **Objective:** The study aims to evaluate the sociodemographic, clinical and functional profile of stroke patients hospitalized at a rehabilitation center in the city of Goiânia-GO. **Method:** The study was cross-sectional, the medical charts of hospitalized patients were analyzed from July 2016 to July 2018, the sociodemographic profile and FIM were collected on the first day of hospitalization. **Results:** 138 medical charts were analyzed, males were majority, median age was 61 years, 70,3% had ischemic stroke, 89,9% presented hemiplegia, in 46,4% the left side was more affected, 84,1% of them used wheelchairs. 54,4% were married, 36,2% had low schooling and 61,1% were hypertensive. **Conclusion:** The profile of hospitalized stroke patients was characterized by males, low shooling, low income, advanced age, high functional disability, gait changes, spasticity, hemiplegia, dysphagia. Knowing the profile of individuals with stroke will help to understand their causes and guide prevention policies, allowing better quality of life, quick recovery and reintegration into daily fife activities and professional life.

Keywords: Stroke, Physical Therapy Modalities, Rehabilitation Centers

RESUMO

O acidente vascular cerebral (AVC) causa um impacto negativo nos indivíduos afetados e ocasiona alto número de mortes e internações no mundo. O AVC causa incapacidades funcionais, e a reabilitação na fase aguda ajuda a reduzir instalação de complicações secundárias e favorecer a independência. A medida de independência funcional (MIF) é um instrumento amplo para mensurar a capacidade funcional nesta fase de reabilitação. Objetivo: Avaliar o perfil sociodemográfico, clínico e funcional de indivíduos com AVC internados em um centro de reabilitação em Goiânia-GO. **Método:** O estudo foi transversal, analisou o prontuário de pacientes internados de julho de 2016 a julho de 2018, foi coletado o perfil sociodemográfico e a MIF no primeiro dia de internação. **Resultados:** Foram analisadas 138 fichas, houve predominância do sexo masculino, mediana de idade de 61 anos, 70,3% tiveram AVC isquêmico, 89,9% apresentaram hemiplegia, 46,4% o lado esquerdo foi mais acometido, 84,1% utilizavam cadeiras de rodas. 51,4% eram casados, 36,2% tinham baixa escolaridade e 60,1% eram hipertensos e 55 de mediana da MIF destacando maior independência funcional nos cuidados pessoais, controle, esfincteriano e conhecimento social. **Conclusão:** O perfil dos pacientes com AVC internados foi caracterizado por indivíduos do sexo masculino, baixa escolaridade e renda, idade avançada, altos índices de incapacidade funcional, alterações na marcha, espasticidade, hemiplegia e disfagia. Conhecer o perfil dos indivíduos com AVC ajudará a compreender suas causas e guiar políticas de prevenção, permitindo melhor qualidade de vida, rápida recuperação e reinserção às atividades de vida diária e à vida profissional.

Palavras-chave: Acidente Vascular Cerebral, Modalidades de Fisioterapia, Centros de Reabilitação

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INTRODUCTION

Non-transmissible chronic diseases (NTCD), such as Cerebral Vascular Accident (CVA or stroke), are causes of numerous deaths, they diminish quality of life of those who survive, and generate negative economy outcome for those who undergo such diseases, for their families and society in general.[1]

According to the World Health Organization (WHO), the CVA, or stroke, is the sudden loss of neurological function, with major complications of brain activity for more than 24 hours, due to the interruption of blood flow into the brain, whose result is a focal or a global neurological deficit.[2,3]

Stroke is rated as a public health problem that causes great number of hospitalizations and that affects thousands of people worldwide. Currently, stroke is considered the fourth cause of death in Brazil, placed after heart diseases, cancer, and chronic respiratory diseases, and globally it is the second cause of death. This is also the third main disease that generates disabilities, what lead studies to evidence the importance of prevention, given its high mortality rate.[4-6]

Many risk factors for stroke are not modifiable, such as age, ethnic, sex, and genetics. However, other risk factors may be identifiable and treated, or at least modified, such as systemic arterial hypertension (SAH), Diabetes Mellitus, cardiac diseases, obesity, sedentarism, tabagism, and alcoholism.[7]

Patients with stroke sequelae may have neurological disorders such as cognitive and mental deficit, proprioception impairment, motor and sensitive loss, gait and balance deficits, aphasia, and loss of muscle strength.[8]

Given its capacity to cause critical functional disabilities, it is essential to initiate physical rehabilitation during the acute phase of stroke for diminishing the appearance of secondary complications, for increasing the patients' independence and self-esteem as well as for enhancing motor, functional and autonomy recovery. In this context, the Functional Independence Measure (FIM) is probably the most comprehensive scale to assess functional capacity along a rehabilitation program.[9-11]

In the specialized literature, there are several groups who studied the profile of patients with stroke.[4,7,12,13] However, this literature is still limited regarding the profile of stroke in-patients who undertake rehabilitation programs at hospital facilities and regarding the reasons such population is the most affected by this pathology.

OBJECTIVE

The objective of this study is to evaluate sociodemographic, clinical and functional profile of patients with sequelae of stroke, hospitalized at a physical rehabilitation facility in Goiania, Brazil.

METHOD

This is a quantitative retrospective cross-sectional study, that assessed medical reports of inpatients with stroke sequelae who were hospitalized for physical rehabilitation at the rehabilitation and readaptation center in the state of Goiânia, Brazil.

The eligibility criteria for including the medical records were presence of clinical diagnosis of stroke, hospital admittance between July 2016 and July 2018, and presence of FIM data before the initiation of rehabilitation program of patients who were treated at the sector 3. Medical records that reported more than one stroke event, presence of other neurological disorder or previous incapacitating disease were excluded.

The rehabilitation facility is assisted by a multiprofessional team that assists the inpatients in their hospital stay, which lasts about 30 days. Among the services, there is the physiotherapy, which provides 2 daily sessions of 30 minutes each, five times a week. They are conducted at the Institution gymnasium and each intervention is developed individually.

The FIM and a clinical and social demographical profile form were applied for collecting data from each medical record. The clinical and social demographical profile form comprised the patients' personal information and is detailed at the Chart 1.

Chart 1. Classification of the qualitative variables

Variables	Categories (qualitative variables)
Sex	Female/ Male
Marital Status	Single /Married / Divorced / Stable union / others
Educational background	Complete elementary school / Incomplete elementary school / Complete high-school / Incomplete high-school / Complete graduation / Incomplete graduation / Post-graduation / Illiterate / Non-informed
Income	Minimum wage
Age	Years
Time since stroke onset	Days
Initial FIM	Score
Stroke type	Ischemic / Hemorrhagic
Functional diagnosis	Hemiplegia /Tetraplegia
Plegic side	Right / Left
Tonus type	Flaccid /Spastic / Normal / Not reported
Aphasia, dysphasia, dysarthria, fecal incontinence, urinary incontinence, gait, wheel chair, systemic arterial hypertension	Yes / No

The FIM is an evaluation tool for assessing incapacity of patients with restricted functionality. The items of FIM are self-care, transferences, communication, social cognition, sphincter control, mobility, memory, social interaction, and problem solving.

This evaluation rates quantitatively the dependence of a patient for accomplishing a determined set of activities of daily life, either motor or cognitive. Each activity, or item, receives a partial score from 1 (total dependence) through 7 (total independence), and the total score, which is the sum of each partial score, ranges from 18 to 126. Higher scores mean greater functional Independence.[14-16]

To fulfill the objective of this study, the hospital provided the list of all patients hospitalized for physical rehabilitation from July 2016 to July 2018. Then, their electronical medical records were screened for eligibility, a task conducted from October 2018 to February 2019.

The data was collected and organized electronically in Excel sheets and eventually transferred to the Statistical Package for the Social Sciences (SPSS, v20.0) for statistical analysis. The normality was verified by the Kolmogorov-Smirnov test.

The data was described by median and quartiles (25% and 75%), given their non-normal distribution characteristic. Categorical data was described as frequencies.

The authors requested not to apply the Informed Consent Form, given they accessed secondary data (medical records), and the impossibility to bring the patients to the facility once they had been discharged after completing the treatment. The request was granted by the Ethics Review Board

This research met the requests by the Brazilian Regulatory Institutions for clinical trial, and received ethical approval by Pontifical Catholic University of Goiás (Brazil), registration CAAE: 99070718.5.0000.0037.

RESULTS

The searches found 189 medical records in the period, of which 11 were excluded due to other neurological diseases, 32 due to multiple stroke events, two had missing data, and six had discrepant data and incomplete FIM data.

Therefore, 138 medical records of patients with stroke were included. Most of the patients were male (58.7%), married subjects (51.4%), with incomplete elementary school and an average income of three minimum wages monthly (63%) (Table 1).

Table 1. Social demographic characteristics of patients

Variables		N	%
Sex			
	Female	57	41.3
	Male	81	58.7
Marital Status			
	Single	25	18.1
	Married	71	51.4
	Divorced	16	11.6
	Stable union	10	7.2
	Widow	16	11.6
Education			
	Incomplete elementary school	50	36.2
	Complete elementary school	9	6.5
	Incomplete High-school	4	2.9
	Complete High-school	18	13
	Incomplete graduation	6	4.3
	Complete graduation	20	14.5
	Post graduation	1	0.7
	Illiterate	13	9.4
	Not informed	17	12.3
Income			
	One minimum wage	45	32.6
	Two or three minimum wages	42	30.4
	Above four minimum wages	23	16.7
	Not reported	28	20.3

The median age was 61 years, the time since stroke onset was 65 days, and the total baseline FIM score was 55. Among the FIM items, self-care, sphincter control, and social cognition had the best medians (Table 2).

Tabela 2. Age, clinical and functional data

Variables	N	Median	25% - 75%
Age (years)	138	61	49,75 - 69,00
Time since stroke onset (days)	137	65	43 – 153
Total baseline FIM	138	55	35 – 71
Self-care	138	15	9,75 – 21
Sphincter control	138	10	04 – 12
Mobility / transfer	138	6,5	3 – 9
Locomotion	138	2	2 – 4
Communication	138	9	6 – 12
Social cognition	138	11	7 – 14

The most prevalent stroke type was ischemic (70.3%). Hemiplegia was present in most of the patients (89.9%), the left side was the most predominant plegic side (46.4%), the spastic tonus was the most common among the patients (44,2%). Most records did not report aphasia (53%), nor dysarthria (65.9%), nor fecal incontinence (75.4%), nor urinary incontinence (58%). Most records reported dysphasia (51.4%), systemic arterial hypertension (60.1%), gait incapacity (55.8%), and use of wheelchair (84.1%) (Table 3).

Table 3. Functional characteristics

Variables		N	%
Stroke type			
	Ischemic	97	70.3
	Hemorrhagic	40	29.7
Functional diagnosis			
	Hemiplegia	124	89.9
	Tetraplegia	14	10.1
Plegic side			
	Right	60	43.5
	Left	64	46.4
Tonus type			
	Flaccid	3	2.2
	Spastic	61	44.2
	Normal	50	36.2
	Not reported	24	17.4
Presence of aphasia			
	Yes	58	42
	No	80	53
Dysarthria			
	Yes	47	34.1
	No	91	65.9
Dysphasia			
	Yes	71	51.4
	No	67	48.6
Fecal Incontinence			
	Yes	34	24.6
	No	104	75.4
Urinary Incontinence			
	Yes	58	42
	No	79	58
Gait			
	Yes	35	25.4
	No	77	55.8
	Not reported	26	18.8
Wheelchair			
	Yes	116	84.1
	No	22	15.9
Systemic arterial hypertension			
	Yes	83	60.1
	No	14	10.1
	Not reported	39	28.3

DISCUSSION

From July 2016 to July 2018, most patients hospitalized for physical rehabilitation were male, married, of low income, elderly, with gait incapacities, hemiplegia, spasticity, and dysphasia. The growing number of stroke cases are associated to an increase of cardiovascular diseases. Systemic hypertension and Diabetes Mellitus are also reported as important risk factors, as well as the elderlies, i.e. individuals above 60 years of age. The median age of 61 years found among the patients reported in this study agrees with other studies that evidence similar age groups, or even older subjects that were diagnosed with stroke.[17-19]

The patients found in the medical records are male, as found in other studies,[1,12,20] and it is justified because systemic hypertension, which is highly predominant among male subjects, is the most relevant risk factor for stroke.[21,22]

Most individuals had low income and low educational level. These characteristics may lead to scarce access to information regarding risk factors for chronical diseases, and consequently low prevention attitudes. These aspects cause greater incidence in these subjects, what is confirmed by other publications.[20,23]

Another issue regarded to systemic hypertension is the most common occurrence of ischemic type, found in 61.1% of the records. The ischemic stroke is the reduction of cerebral blood flow due to an arterial obstruction, what is often associated with individuals with systemic hypertension, therefore this pathology is the most common predictive to ischemic stroke.[24]

According to our findings, 46.4% patients had left hemiplegia, i.e. they had brain injury in the contralateral side (right side). This result is different from what is found in the literature, given the occurrence of

stroke in the left side may be associated with the anatomy of carotid vessels. The right carotid vessel rises from the brachiocephalic artery, whereas the left originates directly from aortic arch, therefore in a straight path. The energy for systolic emptying may be greater in the left carotid vessel, what may cause higher shear stress.[25]

Aphasia, as found in the records, may be due to the stroke in the left side of the brain,[26] what justifies that most of the patients did not present this dysfunction.

The FIM data collected in this study regards to the beginning of the hospitalization, therefore in the initial stages of functional recovery. For this reason, most patients had locomotion sequelae, 55.8% had gait incapacity, and 84.1% used wheelchair.

It may be explained once stroke patients have trunk control deficits, muscle tonus changes characterized by flaccid muscles. The progression towards spastic tonus usually occurs later, when compared to what was found in most medical records included in this study.[24,27]

Speech disorders due to central or peripheral nervous system diseases is a common sequelae of non-progressive brain injury. Some studies report a correlation between stroke and dysarthria, what disagrees with the present study, as most of the patients were not diagnosed with this disorder. This may be due to incorrect and/or incomplete data collection.[28,29]

Urinary incontinence (UI) is usually reported by patients with neurological diseases, specially in patients with stroke, given injuries may affect brain structures that control urinary function, what justifies this high incidence.[30,31]

Another study, that also assessed hospitalized stroke patients during neurological rehabilitation, reported a high incidence of UI in this population.[31] In the present study, 42% of the patients had this disability, not necessarily the majority, however a significant proportion.

Patients with stroke may have fecal incontinence, given there may be injuries in brain structures associated with intestinal function, such as peristalsis and feces elimination.[32] However, similar to our findings, the literature that reports this event in this population is scarce.

The multiprofessional team for physical rehabilitation of patients with stroke aims at recovering the autonomy for daily life activities and improving quality of life, given these patients have a significant reduction in their functional capacity.[8,33] In our study, the median baseline FIM score was 55, meaning greater dependence of these individuals, what agrees with several studies which reported similar results.[8,33,34]

The FIM score we found suggests greater functional independence regarding self-care, sphincter control, mobility, communication, and social cognition. Other studies found similar scores, however they evaluated the FIM before and after an intervention.[35,36]

CONCLUSION

The inpatients who were hospitalized for physical rehabilitation were mostly male, with low educational level, with low income, from older age groups. They also had higher incidence of functional incapacity, gait disability, spasticity, hemiplegia, and dysphasia.

It is important to identify the profile of individuals mostly diagnosed with stroke, as to better comprehend the causes and better indicate public policies for prevention.

Know the main sequalae is substantial to guide the treatment, providing stroke patients with better quality of life and faster recovery and reinsertion in activities of professional and daily life.

As systemic hypertension is a risk factor for stroke, and can be treated or modified, we emphasize it is important to treat this disease. It is recommended that educational practices are introduced so that the main recommendations for lifestyle changes are delivered, especially to those with low income and low educational level. These practices may prevent hypertension and consequently stroke.

Even though there is high incidence of stroke with high morbidity tendency, there is still scarce facilities that allow the hospitalization for intensive rehabilitation care in Brazil. Therefore we consider it would be meaningful to establish such facilities, given they allow the patients to have greater chances to recover their activities of daily life and to have better quality of life, what aids the reduction in mortality after stroke.

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