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CLINICAL NURSING CARE FOR PATIENTS WITH STROKE UNDER THROMBOLYTIC THERAPY

CUIDADOS CLÍNICOS DE ENFERMAGEM PARA PACIENTES COM ACIDENTE VASCULAR CEREBRAL EM USO DE TROMBOLÍTICOS

CUIDADOS CLÍNICOS DE ENFERMERÍA EN PACIENTES CON ACCIDENTE CEREBROVASCULAR CON USO DE TROMBOLÍTICOS

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ABSTRACT

Objective: to describe the clinical nursing care provided to patients with ischemic stroke in thrombolytic therapy. **Method:** this was a descriptive and documental study, with a quantitative approach, in which the data from 32 patient medical records, treated in the General Hospital of Fortaleza/CE/Brazil, were collected using a particular form. The data were organized in Excel, analyzed through descriptive statistics, results were presented in figures and tables, and interpreted based on the literature. The research project was approved by the Research Ethics Committee, case n° 10244361-0. **Results:** 34% of the patients received external transfer; 25%, internal; 15%, at discharge; and 6%, at death. The length of hospital stays were: 26% between 5 and 9 days and 24% between 10 and 14 days. **Conclusion:** the clinical care involves the Systematization of the Nursing Care; time from onset of symptoms, and diagnosis at the unit. The provided clinical care is indispensable to favorable outcomes without sequelae. **Descriptors:** Nursing Care; Stroke; Thrombolytics.

RESUMO

Objetivo: descrever os cuidados clínicos de enfermagem prestados aos pacientes com acidente vascular cerebral isquêmico em terapia trombolítica. **Método:** estudo descritivo e documental, com abordagem quantitativa, no qual se coletaram com formulário dados de 32 prontuários de pacientes atendidos no Hospital Geral de Fortaleza/CE/Brasil. Os dados foram organizados em um banco de dados no Excel, analisados por meio da estatística descritiva, e os resultados foram apresentados em figuras e tabelas e interpretados a partir da literatura. O projeto de pesquisa foi aprovado pelo Comitê de Ética em Pesquisa, processo n° 10244361-0. **Resultados:** 34% recebeu transferência externa; 25%, internas; 15%, a alta; e 6%, ao óbito. O tempo de permanência na unidade: 26% permaneceu entre 5 e 9 dias, e 24%, entre 10 e 14 dias. **Conclusão:** os cuidados clínicos envolvem a Sistematização da Assistência de Enfermagem; o tempo de surgimento dos sintomas, o de diagnóstico na unidade e os cuidados clínicos prestados são imprescindíveis para o desfecho favorável e sem sequelas. **Descritores:** Cuidados de Enfermagem; Acidente Vascular Cerebral; Trombolíticos.

RESUMEN

Objetivo: describir los cuidados clínicos de enfermería proporcionados a pacientes con accidente cerebrovascular isquémico en terapia trombolítica. **Metodología:** estudio descriptivo y documental, con enfoque cuantitativo, en el cual fueron colectados los datos de 32 archivos de pacientes atendidos en el Hospital Geral de Fortaleza/CE/Brasil. Los datos fueron ordenados en una base de datos en Excel, analizados a través de estadística descriptiva; los resultados fueron presentados en tablas y figuras e interpretados desde la literatura. El proyecto de investigación fue aprobado por el Comité de Ética en Investigación, proceso n° 10244361-0. **Resultados:** 34% fueron derivados externamente; 25%, internamente; 15%, dados de alta; y 6%, a óbito. El tiempo de permanencia en la unidad: 26% permaneció entre 5 y 9 días, y 24%, entre 10 y 14 días. **Conclusión:** los cuidados clínicos involucran la Sistematización de la asisatencia en enfermería (SAE); el tiempo de la aparición de los síntomas, el de diagnóstico en la unidad y los cuidados clínicos proporcionados son indispensables para el desenlace favorable y sin secuelas. **Descriptores:** Cuidados de Enfermería; Accidente Cerebrovascular; Trombolíticos.

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INTRODUCTION

Cerebral vascular accidents (CVA) present advanced epidemiological profiles in Brazil, and demonstrate how significant the increase in deaths from cerebrovascular and cardiovascular diseases is and the growing number of people with chronic illness and disabilities, what has generated a new perspective in the routine of the population.¹

In 2007, cerebrovascular diseases were the first cause of death (30.0%), followed by ischemic heart disease, among all specific causes of death by diseases of the circulatory system (31.4%). Hypertensive disease was an important cause of death and accounted for 12.8% of all deaths caused by diseases of the circulatory system.²

CVA, referred to as the silent disease or disease of the century, is the disease with the highest incidence and greatest morbidity within the group of vascular diseases.¹ The term CVA is used to capture the neurological deficits (transient or permanent) in a brain area that is secondary to the vascular injury. The hemorrhagic CVA (hCVA) includes subarachnoid hemorrhage (HSA), generally resulting from ruptured congenital saccular aneurysms located in arteries in the Willis circle. The ischemic CVA (iCVA) describes the neurological deficit resulting from insufficient cerebral blood supply; it can be temporary, a transient ischemic episode (TIE), or permanent.³

The iCVA is highly prevalent (84% of the cases) and its main risk factors are: hypertension (SAH), diabetes mellitus (DM), dyslipidemia, atrial fibrillation, hypercholesterolemia (high cholesterol), smoking, genetic factors, CVD, and women who are smokers and over 35 years old, using birth control.⁴⁻⁵⁻⁶ These factors are associated with the etiology of defining characteristics for the acquisition of this illness. We observed that these factors contribute to cause neurological changes that lead into the development of neurological deficit.⁵ Therefore, it is asked: what is the clinical nursing care provided to CVA patients receiving thrombolytic treatment?

Considering the increased number of inpatients admissions due to iCVA, the interest in conducting a study in a CVA unit to demonstrate the clinical care developed by the nursing staff, aiming at a short-term rehabilitation was inquired. The knowledge produced by the study would benefit society, and provide qualified assistance to the hypertensive population aiming to improve quality of life and rehabilitation. Thereafter,

this population will be able to develop strategies that aim at maintaining a habit of healthy living.

It is expected that this study will also improve the practice of nursing professionals promoting beneficial implementations for the maintenance of health aiming at the assistance and recovery of the studied clientele. Thus, the nursing care checks for CVA signs and symptoms such as aphasia, dysarthria, headache, dizziness, altered level of consciousness, paresis, and palsy⁷ and follows through the diagnosis and nursing implementations that seek the preservation and recovery of the affected vital functions. Therefore, the aim of this study is:

To describe the clinical nursing care provided to patients with ischemic stroke who are receiving thrombolytic therapy.

METHOD

This is a descriptive and documental study that presented information, data, inventories of constituent or contiguous elements of the phenomenon in question, of the exploratory type, and seeking more information about a particular subject; it is a correlational study through the investigation of the effect of one factor on other factors.⁸ The approach was quantitative by statistically treating the data presented in figures and tables.

The study was performed between January and June of 2011, in the General Hospital of Fortaleza-CE (HGF), from the Unified Health System (SUS) network. The HGF tends to patients from the capital city and from rural areas in an exclusive Neurology unit (with 18 beds for non-emergency patients and 2 beds for emergency patients) that receives patients with hemorrhagic CVA and ischemic CVA; the latter case including patients in use of thrombolytic therapy.

The study was carried out with data obtained from the medical records of 32 patients who were seen between March and December of 2010 and between January and March of 2011. The inclusion criterion was having undergone thrombolysis.

Patients subjected to that therapy, with the tissue plasminogen activator factor (rt-PA), must have met the following conditions: age over 18 years; clinical diagnosis of ischemic stroke; and onset of symptoms in less than 4 hours and 30 minutes. If symptoms were noticed upon waking, the onset of symptoms is be consider as the last time awake and asymptomatic; absence of changes in the input cerebral tomography (TC) affecting over 1/3 of the middle cerebral

artery territory (MCA) or bleeding; ischemic CVA in any encephalic territory; scale of the National Institutes of Health (NIH) over 4, except for aphasia; assessments on a case-by-case basis.

Exclusion criteria for the use of rt-PA:

Complete clinical improvement; known history of intracranial hemorrhage, cerebral vascular malformation (CVM); sustained SBP > 185 mmHg or sustained DBP > 110 mmH; gastrointestinal or genitourinary tract bleeding in the past 21 days; esophageal varices; extended TTPa or prolonged TP (> 15s); use of oral coagulants with INR > 1.7; platelet count < 100,000; serum glucose < 50 mg/dl or > 400 mg/dl; head trauma or ischemic CVA within the past 3 months; acute myocardial infarction within the last 3 months; major surgery within the last 14 days; compressionless arterial and venous puncture in the last 7 days; cranium TC with early signs of involvement of more than 1/3 of the ACM territory in the initial CT scan; convulsion preceding CVA onset; and evidence of active pericarditis, endocarditis, septic embolus, recent abortion, pregnancy, and puerperium.

Our study sought to characterize some aspects related to gender, use of thrombolytic therapy, length of stay in the CVA Unit, initial diagnosis, and transfer from unit.

Data were collected using a form with the following variables: gender, age, initial diagnosis, use of thrombolysis, length of stay in the CVA unit, patients' destination, and systematization of the nursing care.

The data were organized in Excel and analyzed through descriptive statistics. The results were presented in figures and tables and interpreted according to the reviewed literature.

The study was performed in compliance with the guidelines and standards of the National Health Council; resolution No. 196.⁹ The research project was approved by the Ethics Committee of the Ceará State University, case n° 10244361-0/CEP-UECE.

All participants were informed about the objectives of the study and confidentiality agreements. All participants voluntarily signed an informed consent.

RESULTS

According to Table 1, the female gender was the most affected by CVA, representing 17 (53.2%) of the studied population. Knowing that the physiological process of aging promotes the emergence of diseases, it was evident that the elderly, aged between 63 and 83 years, are more likely to develop CVA. Three patients were excluded from this analysis because the age information was missing.

Table 1. Identification of patients from the CVA unit at the General Hospital of Fortaleza, tended between March and December of 2010. Fortaleza-CE, 2011.

Variables	n	%
Gender		
Male	15	46.8
Female	17	53.2
Age		
0-21 years	1	3.4
21-41 years	4	13.8
42-62 years	11	40.0
63-83 years	13	44.8
Total	29	100

According to Figure 1, the percentage of inpatient hospitalizations remained as 32 (100%) when correlating CVA diagnosis and use of thrombolytic therapy, in which all patients or family members were asked about

the use of thrombolysis; a signed informed consent to the use of thrombolytics in acute ischemic cerebrovascular disease was obtained upon consent.

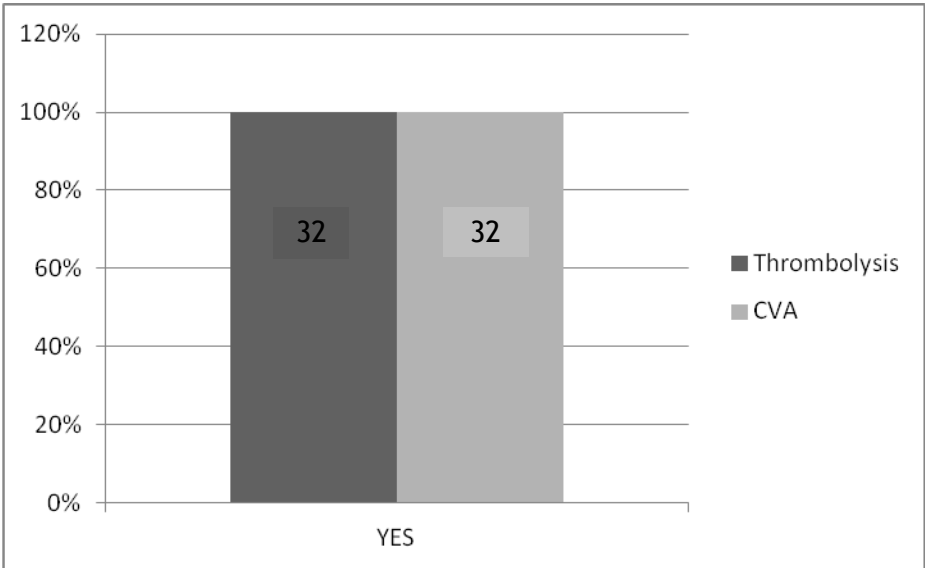


Figure 1. Association between initial diagnosis and use of thrombolytic therapy, in the General Hospital of Fortaleza, in patients tended between March and December of 2010. Fortaleza-CE, 2011.

According to Table 2, the permanence of patients in the CVA unit was from 6 to 10 days, representing a percentage of 12 (46.2%). The average hospital stay was approximately of 8 days, featuring a qualified nursing care for the patients, because the

clinical condition of iCVA is very complex, which implies prolonged hospitalization, above the estimated average time. Six patients were excluded from this analysis because this information was not available.

Table 2. Proportion of permanence of patients in the CVA unit at the General Hospital of Fortaleza, tended between March and December of 2010. Fortaleza-CE, 2011

DAYS	n	%	ME and ±DP
01 - 05 days	7	27	8 days and ± 3 days
06 - 10 days	12	46.2	
11 - 15 days	6	23	
16 - 20 days	1	3.8	
Total	26	100	

Patients affected by CVA are referred to the HGWA after stabilization and to rehabilitate and recover before returning home, as seen in Figure 2. Seven patients were excluded from this analysis because no information was available. The need of

continued assistance by trained professionals represent help in the rehabilitation of these patients. The transferring of patients to the hospital relates to acute clinical improvement.

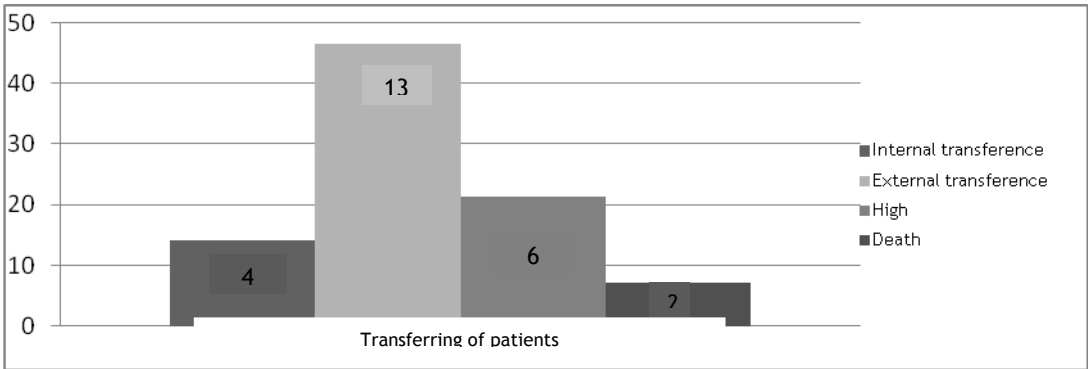


Figure 2. Destination of the CVA unit patients in the General Hospital of Fortaleza, tended between March and December of 2010. Fortaleza-CE, 2011.

The integrated care and agility of a specialized service lead nursing professionals to challenges in acting at the right time screening iCVA patients. As a result of this, we demonstrate in Figure 3 the Systematization of Nursing Care (SAE),¹⁰ to identify nursing diagnoses, according to the Nursing Diagnoses of the North American Nursing Diagnosis Association (NANDA):¹¹ Definitions and Classification and

establishment of results according to the Classification of Nursing results: Nursing Outcomes Classification (NOC),¹² to define nursing interventions according to the Classification of Nursing interventions: and Nursing Interventions Classification (NIC),¹³ aiming at short-term rehabilitation.

Nursing diagnosis: risk of ineffective cerebral tissue perfusion
Nursing results: promotion of proper cerebral tissue perfusion and limitation of complications for patients at risk of inadequate cerebral perfusion.
Nursing interventions: monitor the time of prothrombin (PT), thromboplastin (TTP), mean arterial pressure (map), central venous pressure (PVC) and intracranial pressure (ICP).
Main activities: Administer oxygen, if prescribed; Keep the head elevated; Monitor vital signs; Administer and dose vasoactive drugs, according to medical prescription, to maintain hemodynamic parameters.
Nursing diagnosis: impaired verbal communication
Nursing results: assistance in coping and learning alternative methods to improve interpersonal communication.
Nursing interventions: perform dialogues using simple words and short sentences.
Main activities: Listen carefully; Avoid yelling; use small voices at the end of sentences; Use manual gestures, drawings; Reinforce the need to follow up with audiologist after hospital discharge.
Nursing diagnosis: risk for impaired skin integrity
Nursing results: decrease the acquisition and transmission of infectious agents
Nursing interventions: wash hands before and after each patient's care activity and wear gloves before procedures.
Main activities: Observe the skin as for temperature, color, texture, edema, skin ulcerations, and extremities; Ensure aseptic handling of all intravenous lines; Clean the patient's skin with antibacterial, where appropriate; Renew the peripheral venous catheter, equipment, and the three-way faucet, every 72 hours.
Nursing diagnosis: risk of unstable blood glucose levels
Nursing results: promote improvement in glycemic levels.
Nursing interventions: hourly control of glucose levels.
Main activities: Guide the patient on adherence to medications, if necessary; Observe the physical and mental state of the patient; Perform timely glucose testing.
Nursing diagnosis: ineffective breathing pattern
Nursing results: promote respiratory improvement and monitoring.
Nursing interventions in the case of oxygen therapy: adjust the equipment and administer the liters of oxygen prescribed by the doctor using a heated and moistened system. In the case of mechanical ventilation: monitor the efficacy of the mechanical ventilation on the physiological condition, reduction in the expired volume, and increase in inspiratory pressure.
Main activities: Pulmonary auscultation; Adjusting and monitoring the flow of liters of oxygen; Clearing of airways; Monitor the ventilator's parameters; Endotracheal aspiration; nursing records.

Figura 3. Sistematização da Assistência de Enfermagem, segundo NANDA, NOC e NIC, prestada aos pacientes da Unidade de AVC do Hospital Geral de Fortaleza, atendido de março a dezembro de 2010. Fortaleza-CE.

DISCUSSION

According to the data, hypertension is highlighted among others as the main predictive risk factor for CVA. Its occurrence is estimated at around 70% of all cerebrovascular cases. In addition, heart disease can be highlighted as the second strongest risk factor for CVA, especially in atherothrombotic and embolic cases.^{2,6}

A study conducted in the State of Ceará registers 25 thousand new cases of CVA per year, which corresponds to a new case every 23 minutes. This disease leaves approximately 6,600 people totally incapacitated and is the cause of death at every 2 hours. It mainly afflicts people over 50 years of age; 30% of patients are over the age of 70 years.¹⁴

Considering the increase in life expectancy of the population, the survival of iCVA patients, and the improvement in care

provided to these patients in the sectors of high and medium complexity, the prevalence of this disease in the elderly was expected because age is the main non-modifiable risk factor.^{1,5}

According to the literature, the length of stay is directly related to the number of complications, severity of neurological impairment, age, and the organization of care, therefore, the nursing process is fundamental for short-term rehabilitation.¹⁵

Patients affected by CVA are referred to the HGWA, to stabilize and receive care in the rehabilitation center if needed, and to recover before returning home, as seen in Figure 2. The transfer of patients to the hospital occurs when the clinical condition is stable.

Initially, the care is based in the presence and appearance of the characteristic signs and symptoms mentioned before, and the

time of onset, which is a relevant fact in preventing sequels. This identification is feasible within 3 hours from the onset of symptoms, when it is necessary to conduct tests from the diagnostic protocol in up to a maximum of 40 minutes, to confirm the CVA diagnosis and start the standardized assistance protocol that involves thrombolytic therapy, further tests to identify the affected degree and area, and the achievement of nursing care.^{4,16}

Once the CVA diagnosis is established, the reperfusion with thrombolytic can recover the cerebral tissue with minimal risk of bleeding. In the later phase, > 3 hours, the proportion of necrotic cerebral tissue is already increased and tissue reperfusion no longer show evident benefits, except in intra-arterial thrombolysis.^{4,17}

We observe that, in patients who received assistance in a time equal to or greater than 4 hours and 30 minutes, after the onset of signs and symptoms, the use of thrombolytic therapy is ineffective because the chances of sequels from a cerebral stroke increase after that time; the action of anticoagulants is decreased and no longer enough to re-establish the cerebral blood flow and dissolve blood clots.^{4,16}

It is important to seek assistance in a specialized hospital for the evaluation of a neurologist and, after diagnosis, initiate intravenous treatment (EV) using anticoagulants such as the rt-PA to dissolve clots and restore blood flow in the brain to reduce long-term sequelae after a stroke.¹⁶ In turn, protocols that drive the treatment and assistance to CVA patients are established, however, they must be developed by a multidisciplinary team to provide patient's rehabilitation.

Another important aspect related to nursing care is the ability to recognize the clinical condition of the patient through signs and symptoms that include: headaches, which are usually the first apparent symptom; dizziness and mental confusion; weakness or paralysis of one side of the body; sudden onset of weakness or numbness on one side of the limbs (arms and legs) or on the face.⁷

The grouping of signs and symptoms aims to assist the nursing team in the clinical assessment to establish diagnoses and intervene with appropriate protocols of thrombolytic therapy. Knowledge of neurological signs and symptoms is of fundamental importance for the elaboration of systematization in nursing care and a critical judgment from the nurse.¹⁰ An emergency viable alternative for the

neurological patient becomes possible through this assessed diagnostic and respective interventions aiming to achieve better results.

The nursing and other teams must constantly accompany and assist patients under thrombolytic therapy, following the protocols established by the Ministry of Health.¹⁶ Clinical nursing care involve obtaining the anamnesis and completing the Los Angeles Prehospital Stroke Screen (LAPSS) scale, which involves identifying data, vital signs data (SSVV), neurological signs and symptoms data, HAS control, DM, and physical examination among others.^{13,16}

Some observations are needed during the nursing care to patients under thrombolytic therapy such as start the administration of AAS - 100 to 300 mg/day (after 24 hours); immediately notify the ICU on arrival at the emergency room and after thrombolysis for patient transfer with high priority; with strict monitoring. The care, after the use of thrombolytics, involve not using antiplatelets and heparin in the next 24 hours post-thrombolytic; monitoring of neurology (applying the NIH and Glasgow scales), cardiology, pressure, glycemic index, and urinary functions, and not using vesical probe and central venous catheterization or venipuncture in the first 24 hours.¹⁶

The patient with CVA sequelae is totally or partially dependent on the professional team because of disabilities.^{11,18} The conduct of the nursing team provides comfort to the CVA patient with sequelae. About 30% to 40% of survivors, in the first year after CVA, are prevented from returning to work and require family efforts and some kind of aid to their basic human needs.^{12,19}

Therefore, it is important that the nursing care be performed properly for the comfort of patients for the minimization of possible sequels. It is the responsibility of the nurse to provide information, support, and guidance to the family and other people involved in the process about the provision of clinical care to patients suffering from complications related to iCVA.²⁰

Nurses, as components of a health team, must be present and active at every stage of care for patients affected by iCVA, from the planning to the implementation and evaluation, contributing to improve quality of life in this population.

CONCLUSION

The difficulties encountered during this study were related to data collection

involving the following issues: incomplete or missing medical records leading to absence of essential information for the study; and sample size, which was insufficient to support the practice of nursing assistance.

The study showed that the elderly are more susceptible to iCVA. However, one young patient case corroborated as new data in the statistics of patients tended during the collection period.

The nursing care provided was fundamental to reduce hospitalization time; 19 patients remained hospitalized for ten days.

The observed outcomes were: 7.1% died, 21.4% were discharged from the hospital, and 14.2% were transferred to another unit within the hospital. We consider the cerebrovascular disease a major cause of morbidity and mortality during the hospitalization of CVA patients. Hence, clinical nursing care has must become continuous in special therapies that involve the DCV, coping, and team resolution.

According to the Ministry of Health, time is of the essence in the appropriate care for CVA patients, however, it still constitutes to be a challenge for nursing professionals due to the extent and depth of knowledge required. Integrated care and agility in a specialized CVA treatment require training of specialized teams to avoid irreversible sequelae or even death.

The monitoring of a patient with neurological alterations is a major challenge for the entire team, however, it is through this process that trusted data is necessary and obtained for the application of safe interventions that are essential for recovery without risks of worsen clinical conditions.

Hence, studies on this topic with sufficient sample size to support the operationalization of the nursing process for the rehabilitation of iCVA patients in short-term and with effectiveness are recommended.

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