Nursing diagnoses in patients with cerebral vascular accident: an integrative review

Diagnósticos de enfermagem em pacientes com acidente vascular cerebral: revisão integrativa
Diagnósticos de enfermería en pacientes con accidente cerebrovascular: revisión integradora


I Universidade Federal do Ceará, Postgraduate Program in Nursing. Fortaleza, Ceará, Brazil.
II Universidade Federal do Ceará, Postgraduate Program in Clinical Health Care. Fortaleza, Ceará, Brazil.
III Universidade de Fortaleza, Graduate Program in Nursing. Fortaleza, Ceará, Brazil.
IV Universidade Federal do Ceará, Health Sciences Center, Nursing Department. Fortaleza, Ceará, Brazil.

How to cite this article:

Submission: 06-11-2015 Approved: 03-23-2016

ABSTRACT
Objective: to verify the nursing diagnoses in patients affected by CVAs. Method: this is an integrative review of the literature. The search was conducted on LILACS, Scielo, Medline, CINAHL, and Scopus databases between February and March 2015, using the following keywords: “Enfermagem”, “Acidente Vascular Cerebral”, “Diagnóstico de Enfermagem”; and “Nursing”, “Stroke”, and “Nursing Diagnosis”. Results: we found 9 articles published between 2009 and 2015; most of them were Brazilian, cross-sectional, and exploratory, with a level of evidence of 6. The evidence from the publications was classified as: “Evaluation and validation of specific nursing diagnoses for subjects affected by CVAs” and “Application of the nursing process on subjects affected by CVAs”. Conclusion: we noticed the publications focused on nursing diagnoses related to motor disorders, such as risk of falls and impaired physical mobility. Domains regarding safety/protection (domain 11) and sleep/resting (domain 4) were present in most evaluated publications.

Descriptors: cerebrovascular accident; Nursing Diagnosis; Nursing; Nursing Care; Review.

RESUMO

Descritores: Acidente Vascular Cerebral; Acidentes Cerebrovasculares; Diagnóstico de Enfermagem; Enfermagem; Cuidados de Enfermagem; Revisão.

RESUMEN
Objetivo: verificar diagnósticos de enfermería de los pacientes con ACV. Método: se trata de una revisión integradora de literatura. Se llevó a cabo una búsqueda entre febrero y marzo de 2015, en las bases de datos como LILACS, SciELO, Medline, CINAHL y Scopus, al utilizar las siguientes palabras clave: “Enfermería”, “Accidente cerebrovascular” y “Diagnóstico de
INTRODUCTION

A cerebrovascular accident (CVA) is characterized by poor or fully interrupted blood flow to the brain. Its cause may be thrombotic (ischemic type) or generated by the rupture of a brain blood vessel, which leads to blood spillage to the brain parenchyma (hemorrhagic type). Both types lead to brain disorders, but their lesion mechanisms are different. The former leads to reduced blood perfusion to the brain, whereas in the latter a brain lesion originates from direct contact between blood structures and brain cells. The most frequent type of CVA is the ischemic one (80%), as compared to the hemorrhagic one (15%)\(^\text{11}\).

CVA is the second main cause of death worldwide, predominantly affecting middle-aged and older people. Over the last decades, CVA has been one of the most frequent causes of hospitalizations and mortality in Brazil, resulting in some kind of impairment (partial or complete) in most patients. In 2009, 160,621 hospital admittances due to cerebrovascular diseases were recorded, with a mortality rate of 51.8 per each group of 100,000 inhabitants\(^\text{2-3}\).

Health care professionals who treat these patients (including nurses) are required to be qualified in order to offer specialized and continuous care from the moment a patient enters a hospital to the time they are admitted, whether it is in inpatient wards, CVA wards, or intensive care units. Anyway, the successive investigation of health care needs from this demographic is considerably important, especially due to the clinical and epidemiological relevance of this disease.

Aiming to meet these needs, nursing research focusing on CVA-related illnesses has been standing out among the topics it investigates, with the target of improving the care provided to these patients. In this sense, providing full care requires theoretical and practical support as well as therapeutic procedures, besides the procedures aimed at meeting patients’ and their families’ health care needs\(^\text{4}\).

The diagnostic step of the nursing process is highlighted to identify the main characteristics of an efficient, individualized action plan and create it, thus contributing to the evidence-based nursing practice. Besides that, the lack of studies on nursing diagnoses (ND) of patients with CVA is highlighted\(^\text{5}\).

Conversely, due to the large volume of scientific information generated in the health care field, there is a need for summaries that make it easier to access it, which may allow for conclusions based on resources from multiple sources, to provide scientific support for the decisions of both health care professionals and managers\(^\text{6}\).

Considering the importance of using NDs in the practice of nurses and the need for specialized, quality care for patients with CVA, the following guiding question arose: what has been produced in the national and international literature regarding nursing diagnoses of patients affected by CVA?

Thus, considering the aspects above, this study aimed to verify the nursing diagnoses of patients affected by CVAs. Conducting a search for available evidence is stressed as an effort for the improvement and theoretical support of nursing practice. This study is expected to contribute to improving the care provided to patients with CVA, especially due to the lack of studies related to ND and the disease, by gathering, summarizing, and critically analyzing the studies already produced, in a way to subsidized focused and specialized care.

METHOD

This study is an integrative review of the literature, which aims to gather and summarize results from investigations on a certain topic or issue, in a systematic and organized way, to provide further knowledge on the investigated topic\(^\text{17,21-24}\).

To conduct this integrative review, a research question was initially identified, coupled with the selection of keywords. Following that, the criteria for inclusion and exclusion of articles were established. Based on these, the following steps were taken during the conduction of this study: the sample was selected through searches on the databases; then, the information extracted from the selected articles was summarized; the studies were evaluated; their results were interpreted and discussed; and the last step consisted of presenting the review and summarizing the knowledge\(^\text{7}\).

The following databases were used to select the articles: LILACS (Latin American and Caribbean Literature on Health Sciences), SciELO (Scientific Electronic Library Online), Medline, CINAHL (Cumulative Index to Nursing and Allied Health Literature), and Scopus.

On-line searches were conducted in the months of February and March 2015. The inclusion criteria that were defined for this review were the following: being a complete research article published over the previous 10 years; having been published in...
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Portuguese, English, or Spanish; being fully available electronically; and mentioning the use of nursing diagnoses regarding patients affected by CVA in the clinical practice of nurses. The studies that did not meet the requirements mentioned were excluded from this review. The following keywords were used: “Enfermagem”, “Acidente Vascular Cerebral”, “Diagnóstico de Enfermagem”; and “Nursing”, “Stroke”, and “Nursing Diagnosis”. The keywords were crossed under a single combination through the use of boolean operator AND.

An instrument adapted to the topic of this study was used to display the characteristics of the studies, such as identification (article tile, authors, location, language, and year of publication); level of evidence and type of study; objective; methodology, results; conclusions; and databases.

The evidence found in the publications was classified as: “Evaluation and validation of specific nursing diagnoses for subjects affected by CVAs” and “Application of the nursing process on subjects affected by CVAs”.

The articles were classified according to their levels of evidence, as follows: 1) when the evidence originated from systematic reviews or meta-analyses of all relevant randomized controlled clinical trials, or from clinical guidelines based on systematic reviews of randomized controlled clinical trials; 2) in case the evidence originated from at least one well-designed randomized controlled clinical trial; 3) when the evidence was obtained from well-designed, non-randomized controlled clinical trials; 4) evidence from well-designed cohort and case-control studies; 5) evidence from systematic reviews of descriptive and qualitative studies; 6) evidence from a single descriptive or qualitative study; and 7) evidence based on opinions from authorities and/or reports from expert committees.

The results found were described as frequencies and shown as charts and tables according to the relevant literature, enabling readers to evaluate to which extent this integrative review can be applied to reach the goal of this method.

RESULTS

The articles found in the database searches were submitted to exploratory, selective, and analytical reading, through which the inclusion criteria were applied. The final sample of this integrative review comprised 9 articles (Table 1).

Box 1 shows a summary of characteristics, levels of evidence, objectives, results, and conclusions of articles found.

From the nine articles selected, seven were published on Brazilian periodicals. These were found on the LILACS database. Two out of the nine articles were published abroad – one in Spain and another one in Sweden – and selected from the Scopus database. It was peculiar to find a high number of publications in Brazil. More specifically, the whole of the Brazilian research was conducted in Fortaleza, Ceará, Brazil, which shows how focused this state is on this topic.

The studies were published between 2009 and 2015, mostly in 2010. Regarding their methodologies, seven of them were cross-sectional and exploratory, one was a cohort study, and one was a case study. Such prevalence of exploratory studies is in agreement with the objectives of studies found. Concerning their levels of evidence, eight studies were found to have a score of 6, and only one study was observed to have a level of evidence of 4.

We noticed, from Box 1, a higher number of studies that aimed to identify the presence of certain nursing diagnoses of subjects with CVA, such as: impaired verbal communication, risk of falling, impaired physical mobility, and NDs of “activity/exercise class”. The remaining articles intended to validate risk of aspiration nursing diagnosis clinically, to use the nursing process to assist a subject with post-CVA functional and psychosocial problems, and to evaluate whether the nursing care plan affects patient results through the use of nursing-sensitive outcome indicators.

The main evidence from the studies related to nursing diagnoses will be described below according to their classifications.
**Box 1 - Summary of articles included in the integrative review, 2015**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Article / year /location / method / database / level of evidence</th>
<th>Objective</th>
<th>Results and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation and validation of specific nursing diagnoses for subjects affected by CVAs</td>
<td>Article 1(10) / 2013 / Brazil, Fortaleza / Exploratory study / LILACS / Level 6</td>
<td>To investigate the prevalence of NDs of impaired verbal communication of patients with CVA</td>
<td>Impaired verbal communication was found in 37.5% of the subjects, and that required more attention and qualification of nurses providing specific care.</td>
</tr>
<tr>
<td></td>
<td>Article 2(11) / 2013 / Brazil, Fortaleza / Prospective cohort study / LILACS / Level 4</td>
<td>To validate the ND of “risk of aspiration” in patients with CVA</td>
<td>Most frequent risk factors for pulmonary aspiration: dysphagia and impaired body mobility. The prevalence of “risk of aspiration” ND was 58.3%. The study contributed to improving the taxonomy of NANDA-I.</td>
</tr>
<tr>
<td></td>
<td>Article 3(12) / 2012 / Brazil, Fortaleza / Exploratory and descriptive study / LILACS / Level 6</td>
<td>To verify the presence of “Risk of falls” for elderly patients with CVA</td>
<td>Risk of falls was identified for all elderly patients. Identified risk factors: Impaired balance (100%), Age above 65 years (83.7%), and Proprioceptive deficit (83.7%).</td>
</tr>
<tr>
<td></td>
<td>Article 4(13) / 2012 / Brazil, Fortaleza / Exploratory study / LILACS / Level 6</td>
<td>To identify the NDs of “NANDA activity/exercise” class in patients with CVA</td>
<td>Seven NDs were found to have frequencies above 50%: risk of falling; impaired physical mobility; impaired walking; sedentary lifestyle; risk of immobility syndrome; risk of activity intolerance, and impaired transfer ability.</td>
</tr>
<tr>
<td></td>
<td>Article 5(14) / 2010 / Brazil, Fortaleza / Exploratory study / LILACS / Level 6</td>
<td>To verify the presence of “Risk of falls” ND in elderly patients with CVA</td>
<td>This ND was found for all subjects. Main risk factors: Reduced lower limb strength, impaired physical mobility, gait impairment, and impaired balance.</td>
</tr>
<tr>
<td></td>
<td>Article 6(5) / 2010 / Brazil, Fortaleza / Exploratory study / LILACS / Level 6</td>
<td>To investigate impaired physical mobility ND in patients with CVA</td>
<td>This diagnosis was found in 90% of the subjects, with an average of 5.8 defining characteristics. Difficulty in turning was the most prevalent characteristic.</td>
</tr>
<tr>
<td></td>
<td>Article 7(15) / 2010 / Brazil, Fortaleza / Cross-sectional study / LILACS / Level 6</td>
<td>To analyze the association between the presence of caregivers of patients with CVA and the NDs of “NANDA activity/exercise” class.</td>
<td>The presence of caregivers was statistically associated with NDs sedentary lifestyle, risk of immobility syndrome, and impaired transfer ability.</td>
</tr>
<tr>
<td>Application of the nursing process on subjects affected by CVAs</td>
<td>Article 8(16) / 2015 / Spain, Tenerife / Case study / Scopus / Level 6</td>
<td>To use the nursing process to assist a man with post-CVA functional and psychosocial problems.</td>
<td>NDs found: ineffective health maintenance; poor nutrition (overeating); adult person’s inability to improve; situational low self-esteem; impaired social interaction.</td>
</tr>
<tr>
<td></td>
<td>Article 9(17) / 2009 / Sweden / Retrospective study / Scopus / Level 6</td>
<td>To evaluate the nursing care plan through the use of nursing-sensitive outcome indicators.</td>
<td>The patients from one of the comparison groups were more satisfied with their individual treatments and had shorter stays. Thus, the nursing care plan could satisfy patients.</td>
</tr>
</tbody>
</table>

**Note:** NANDA: Nursing American North Diagnosis Association; SAE: Nursing Care Systematization; ND: Nursing diagnosis.

**Evaluation and validation of specific nursing diagnoses for subjects affected by CVAs**

Seven published articles were included in this category. One of the articles[10] of the review found that 37.5% of its study subjects had the nursing diagnosis of impaired verbal communication, which was shown to be an important sequela that deserves more attention and qualification from nurses who are responsible for providing specific care to people with this alteration.

Risk of falling diagnosis was mentioned by two publications[12,14]. Both found that this ND was observed in all subjects. Among the risk factors found, some of them stand out: impaired balance, age above 65 years, proprioceptive deficit, reduced lower limb strength, impaired physical mobility, and gait abnormalities. Through that, we concluded that risk of falling must be considered as one of the aspects of nursing care, as well as the implementation and evaluation of interventions regarding fall prevention.
Another investigated ND related to risk of falling was diagnosis “impaired physical mobility”, which was present in 90% of the study subjects in this review\(^{15}\). The need to consider this diagnosis in post-CVA intervention planning was highlighted.

Still regarding this, two articles\(^{13,15}\) mentioned the ND of “activity/exercise class”. One of them\(^{13}\) found that, in average, subjects were found to have 6.7 nursing diagnoses of this class, the most prevalent ones being: risk of falling; impaired physical mobility; impaired walking; sedentary lifestyle; risk of immobility syndrome; risk of activity intolerance, and impaired transfer ability.

The other study\(^{15}\) that included this ND class found that the presence of caregivers was statistically associated with nursing diagnoses sedentary lifestyle, risk of immobility syndrome, and impaired transfer ability.

Regarding the publication\(^{11}\) that sought to validate risk of aspiration identified that risk of aspiration “dysphagia” and “impaired body mobility” are good predictors of “risk of aspiration” nursing diagnosis”, which contributes to improve the Taxonomy of NANDA-I and the language in the systematization of nursing care.

**DISCUSSION**

The nursing process has represented the main methodological model for the nursing practice. It can also be seen as technological instrument used to favor care, organize the conditions required to perform such care, and to document the professional practice\(^{18}\). Based on the studies found in this review, such statement could be confirmed, as both studies that applied the nursing process were observed to be successful in its application and found the difference in the care that is provided based on such use.

Identifying nursing diagnoses is one of the steps in the nursing process, and an essential step for planning care. Thus, as observed in this review, the nursing diagnoses “risk of falling” and “impaired physical mobility” stood out among the most prevalent ones in post-CVA patients. Studying nursing diagnoses, more specifically diagnoses such as “risk of falling” and “impaired physical mobility”, in CVA survivors is important and contributes to the evidence-based nursing practice\(^{10}\).

The high incidence of these nursing diagnoses is justified by the fact CVAs are an upper motor neuron disease that may result in loss of voluntary movement control. As the upper motor neurons decussate (cross the midline), a voluntary motor control disorder in one of the sides of the body may reflect an upper motor neuron lesion in the opposite side of the brain, thus causing disorders such as hemiparesis and hemiplegia\(^{19}\).

Corroborating this result, an investigation conducted to check for the presence of nursing diagnoses in 75 older patients treated by the Family Health Care Program identified that some older people assisted by the program had cerebrovascular accidents. Upon evaluating the presence of nursing diagnoses in these patients with CVA, an average of 7.43 nursing diagnoses was obtained, among which impaired physical mobility diagnosis was the most frequent one (92.2%)\(^{20}\), which confirms the presence of motor sequelae generated by this condition.

According to the results found in this review, the diagnoses that were identified to pertain to domains 11 (Safety/Protection) and 4 (Activity/Rest) were the most frequent. The prevalence of these domains is related to the fact that patients with CVA suffer from

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**Table 2** - Distribution of nursing diagnoses mentioned/verified on the publications in the integrative review, Fortaleza, Ceará, Brazil, 2015

<table>
<thead>
<tr>
<th>Nursing diagnosis</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domain 1 - Health Promotion</td>
<td>Sedentary lifestyle</td>
</tr>
<tr>
<td>Domain 2 - Nutrition</td>
<td>Unbalanced nutrition: overeating</td>
</tr>
<tr>
<td>Domain 4 - Activity-Rest</td>
<td>Impaired physical mobility</td>
</tr>
<tr>
<td></td>
<td>Risk of immobility syndrome</td>
</tr>
<tr>
<td></td>
<td>Impaired transfer ability</td>
</tr>
<tr>
<td></td>
<td>Impaired walking</td>
</tr>
<tr>
<td></td>
<td>Risk of activity intolerance</td>
</tr>
<tr>
<td>Domain 5 - Perception/Cognition</td>
<td>Impaired verbal communication</td>
</tr>
<tr>
<td>Domain 6 - Self-perception</td>
<td>Situational low self-esteem</td>
</tr>
<tr>
<td>Domain 7 - Role-relationship</td>
<td>Impaired social interaction</td>
</tr>
<tr>
<td>Domain 11 - Safety/Protection</td>
<td>Risk of aspiration</td>
</tr>
<tr>
<td></td>
<td>Risk of falling</td>
</tr>
</tbody>
</table>
impaired mobility among their disabilities. From a functional perspective, it is seen as a subject's inability to move freely. Although physical limitation can be manifested suddenly or slowly according to its extent and duration, it may be a factor that contributes to a range of health problems, which range from self-care deficit to impaired social interaction.

Other nursing diagnoses found in the evidence from this review – such as impaired walking, sedentary lifestyle, risk of immobility syndrome, risk of activity intolerance, and impaired transfer ability – are also caused by motor disorders, which shows to which extent these disorders extensively affect the lives of post-CVA subjects.

CVA has a great potential to cause disabilities, which can jeopardize the quality of life of patients, their families, and, in a broader analysis, the country. To intervene in this reality, the conduct of proactive initiatives that actually reduce the number of CVA cases and provide better quality of life for the population is required.

Another relevant ND mentioned in a study in this review that interferes in the quality of life of subjects affected by CVAs was “impaired verbal communication”. Impaired verbal communication may originate from lesions in the brain area responsible for interpreting signs and symbols or due to a loss of normal movement in the speech motor system.

This result corroborates the specific literature, which mentions speech-related problems happening in 20% to 40% of patients with CVA. The characteristic defining it, the one most frequently mentioned in the studies, is “has trouble verbalizing”. This is a generic characteristic that covers the majority of verbal communication alterations, which justifies its high prevalence.

Since 1983, NANDA's Taxonomy has included “impaired verbal communication” nursing diagnosis, which is inserted in domain 5, and is defined as impaired ability or inability to receive, process, transmit, and use a system of symbols. Communication problems, mainly verbal, require special attention from nursing, with care actions that take into account a patient's difficulty or impossibility to manifest their needs.

“Risk of aspiration” nursing diagnosis, which is inserted in domain 11, is also a target of studies, and some of these show that, regarding respiratory aspiration, its incidence in patients with CVA is around 50%, and approximately half of these patients suffer from silent aspiration. This diagnosis is defined as a risk of inhalation of gastrointestinal secretions, oropharyngeal secretions, solids, or fluids in tracheobronchial pathways.

Some risk factors for respiratory aspiration are: dysphagia, altered consciousness level, impaired or absent cough reflex, other neurological disorders, presbyphagia, use of gastrointestinal tubes, gastroesophageal reflux, diminished body mobility, diminished or absent gag reflex, invasive procedures such as upper gastrointestinal endoscopy and videofluoroscopy, use of endotracheal tubes/tracheostomy, and low headboard. Being aware of these factors is fundamental for nurses, as the key element in treating patients with CVA in acute and subacute phases is based on preventing complications, reducing hospital stays, mortality, and hospital costs.

Some nursing diagnoses of psychosocial nature were also mentioned by one study in the review: situational low self-esteem (domain 6) and impaired social interaction (domain 7).

Psychiatric complications have been identified as determining factors in post-CVA rehabilitation, depression being the most frequent psychiatric complication associated with a worse prognosis. Despite its etiology and risk factors not being totally clear, they are recognized as predictive factors for CVA seriousness, patients' disability levels, and cognitive deficit. Post-CVA depression, in a retrospective longitudinal study conducted in Portugal, was found to be 44.6%.

Contributions from the study

In this context, considering the identification of a larger number of nursing diagnoses found in the previously mentioned domains, higher attention is required for activities regarding safety/protection and sleep/rest, as well as searching for nursing interventions focusing on controlling satisfactory results that guide evidence-based care practice, which enables promoting wellness and quality of life of patients with CVA.

The results obtained in this study predominantly focus on the diagnoses that are used in clinical practice in patients with CVA, and they are added to the knowledge from recent publications in regards to the nursing process. Thus, this investigation is expected to assist nursing by increasingly appropriating the phenomena in its practice, such as diagnosing and prescribing actions through the use of the specific language that is described by the existing classification systems.

CONCLUSION

Based on this review, it was possible to find that most studies found on nursing diagnoses of post-CVA subjects come from Brazil, more specifically from its Northeast region. They have low evidence levels, cross-sectional methodologies, and aim to identify the presence of certain NDs in these patients.

Besides that, the publications were noticed to focus on nursing diagnoses related to motor disorders, such as risk of falls and impaired physical mobility. However, we also found diagnoses related to communication, risk of aspiration, and psychosocial diagnoses. In regards to the domains, those related to safety/protection (domain 11) and sleep/resting (domain 4) were present in most evaluated publications.

Through this study, it became evident how important it is to prevent the risk factors for CVAs, besides the need for quick, efficient treatment that matches the needs of patients, especially through individualized, systematized, and quality nursing care, to minimize CVA sequelae and ensure higher quality of life for the population group that is affected by it.

Through this study, nurses are expected to conduct more studies on nursing diagnoses of post-CVA patients, considering the lack of national – and mainly international – research on this topic, as well as methodological designs with higher levels of evidence, thus contributing to a consolidated evidence-based practice.
REFERENCES


