

Cognitive impairment and presence of pain in elderly people affected by stroke

RESUMO | Objetivo: Avaliar a cognição e presença de dor em idosos após AVE que residem no interior de Coari, Amazonas. Método: Trata-se de um estudo transversal e observacional realizado com 50 idosos pós-AVE no município de Coari, Amazonas. A coleta de dados foi realizada no período de outubro e dezembro de 2019 até janeiro de 2020. Resultados: No MEEM, 78,0% (39) apresentam grave déficit cognitivo demonstrando estarem abaixo da nota de corte para analfabetos (≥ 20). Sobre o teste de fluência verbal, a maioria dos idosos apresentaram dificuldades de linguagem e memória e não conseguiram no tempo estipulado falar e/ou lembrar de nomes de frutas e animais. 72% (36) dos idosos relataram sentir dor, maioria apresentou dor de intensidade moderada a forte 68,0% (34). Os locais mais referidos de dor foram os membros inferiores 26,0% (13). Conclusão: Após o AVE os idosos deste estudo apresentaram consideráveis alterações cognitivas e piora da dor.

Descritores: Idoso; Acidente Vascular Encefálico; Cognição; Dor

ABSTRACT | Objective: To evaluate cognition and presence of pain in elderly people after CVA living in the countryside of Coari, Amazonas. Method: This is a cross-sectional and observational study conducted with 50 post-CVA elderly in the municipality of Coari, Amazonas. Data collection was performed in the period from October and December 2019 to January 2020. Results: In the MMSE, 78.0% (39) present severe cognitive deficit demonstrating to be below the cutoff score for illiterate (≥ 20). On the verbal fluency test, most of the elderly presented language and memory difficulties and were unable in the stipulated time to speak and/or remember names of fruits and animals. 72% (36) of the elderly reported feeling pain, majority presented pain of moderate to strong intensity 68.0% (34). The most referred sites of pain were the lower limbs 26.0% (13). Conclusion: After the CVA, the elderly in this study presented considerable cognitive changes and worsening of pain.

Keywords: Aged; Stroke; Cognition; Pain.

RESUMEN | Objetivo: Evaluar la cognición y la presencia de dolor en ancianos después del ACV que viven en el campo de Coari, Amazonas. Método: Se trata de un estudio transversal y observacional realizado con 50 ancianos post-CVA en el municipio de Coari, Amazonas. La recogida de datos se realizó en el periodo comprendido entre octubre y diciembre de 2019 y enero de 2020. Resultados: En el MMSE, el 78,0% (39) presentan un déficit cognitivo severo demostrando estar por debajo de la puntuación de corte para analfabetos (≥ 20). En la prueba de fluidez verbal, la mayoría de los niños presentaban dificultades de lenguaje y memoria y no conseguían, en el tiempo estipulado, decir y/o memorizar nombres de frutas y animales. El 72% (36) de los ancianos dijeron sentir dolor, la mayoría presentó dolor de intensidad moderada a fuerte 68,0% (34). Los lugares de dolor más referidos fueron las extremidades inferiores 26,0% (13). Conclusión: Tras el ACV, los ancianos de este estudio presentaron considerables cambios cognitivos y empeoramiento del dolor.

Palabras claves: Envejecimiento; Accidente cerebrovascular; Cognición; Dolor

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INTRODUCTION

Aging is a reality of the Brazilian population and by the year 2025 it will occupy the sixth place composed of a population aged 60 years and over. ¹ Aging is characterized as a natural and irreversible event capable of modifying the physical, physiological and psychosocial aspects of the individual. Concomitant to the process of senescence, chronic non-communicable diseases (NCDs) arise, which are responsible for the appearance of disabilities in the elderly, due to their progressive characteristic, of functional and cognitive impair-

ment.²

Among the NCDs that most cause limiting conditions to the health of the elderly, the cerebrovascular accident (CVA) stands out. The CVA is defined as a highly disabling disease, due to its pathophysiological process that includes permanent or transient damage in a certain brain region, characterized by the interruption of blood irrigation.³ It causes neurological changes, especially motor disorders, such as loss of movement and neurocognitive complications depending on the region of the brain affected.⁴

In addition to functional capacity dysfunctions, the CVA causes cognitive impairment in the elderly, such as memory loss, language alteration and communication difficulties.⁵ Cognitive impairment intrinsically influences the quality of life of the elderly, the emergence of loss of autonomy and consequent dependence, since the elderly may be unable to perform their self-care and make decisions for themselves.⁶⁻⁷

The CVA is responsible for causing multiple changes in the health of the elderly, in addition to deficits in functionality and cognition, pain is associated with the main consequences of CVA and may be related to central and/or peripheral processes.⁸

Neuropathic and nociceptive factors are mechanisms linked to the emergence of post-CVA pain types, especially shoulder pain, headache, and pain caused by spasticity and muscle contractures.⁹ Painful symptoms can range from mild, moderate, and severe depending on their location and secondary factors.¹⁰ It is worth mentioning that post-CVA pain contributes to limitations of body movement, decreased quality of life of the elderly and the appearance of depressive symptoms.⁹ Given the above, the professional nurse has an essential role in the provision of care to the elderly with cognitive decline and pain, so these professionals are qualified to promote actions that aim to meet the needs of elderly people with CVA.¹¹ Based on this, the study has the following

guiding question: What are the levels of cognitive impairment and presence of pain in elderly people affected by stroke in the interior of Amazonas?

Cognition and the presence of pain were evaluated in a group of elderly people after stroke residing in the interior of Amazonas.

METHOD

This is a cross-sectional and observational study carried out in the municipality of Coari in the interior of Amazonas. The study population consisted of elderly people of both sexes affected by cerebrovascular accident (CVA) and registered in Basic Health Units in the city of Coari, Amazonas.

The study sample was composed of 50 post-CVA elderly people. The inclusion criteria defined were: elderly aged 60 years or older of both genders who were affected by CVA; last stroke episode greater than 60 days; ability to maintain communication or to have a caregiver to assist with responses. Elderly people who have communication difficulties, elderly people who have another pathology with a neurological characteristic and elderly people who have refused to participate in the research were excluded from the study.

Data collection was carried out between October and December 2019 until January 2020. For data collection, a semi-structured interview script was used for sociodemographic and clinical data. Cognitive assessment was done through the Mini Mental State Examination¹², the Verbal Fluency Test¹³ and the Trail Making Test (TT).¹⁴

To assess the presence of pain in the participants, the Numerical Pain Scale was used¹⁵ and the Face Scale.¹⁶

The elderly were identified through the support of nurses from the Basic Health Units, who provided the participants' addresses. The collection took place at the elderly person's own home and during the interview the reason for the research

was clarified and the signature of the free and informed consent form of the elderly who agreed to participate was obtained.

The data obtained were tabulated in a Microsoft Excel spreadsheet (version 2016) and submitted to statistical analysis using the SPSS version 20.0 program.

This study is part of a larger project entitled "Cognitive and functional effects of a dual-task program with elderly people assisted at home in the city of Coari-AM. Regarding ethical aspects, the study was approved by the Ethics and Research Committee (CEP) of the Federal University of Amazonas CAAE: 08021219.1.0000.5020.

RESULTS

The study included 50 elderly people diagnosed with stroke evaluated in their homes, most of the elderly were male 72.0%⁽³⁶⁾, aged between 70-79 years 36.0%⁽¹⁸⁾. Regarding education, most were illiterate 50.0%⁽²⁵⁾. The vast majority of the elderly lived with their spouse (46.0%⁽²³⁾). As for occupation, 82.0%⁽⁴¹⁾ were retired. When asked about the recurrence of stroke, 66.0%⁽³³⁾ of the elderly had one episode of CVA and 34.0%⁽¹⁷⁾ had ≥ 2 episodes of CVA, Table 1.

The most common risk factor for stroke recurrence in the elderly was systemic arterial hypertension (SAH) present in 80.0%⁽⁴⁰⁾ of the elderly, followed by obesity 52.0% (26) and diabetes 32.0%⁽¹⁶⁾.

Regarding the cognitive assessment battery performed, the main findings were:

In the MMSE, 78.0%⁽³⁹⁾ have severe cognitive deficit, demonstrating that they are below the cutoff for illiterates (≥ 20). Stratification by schooling showed that only 22.0%⁽¹¹⁾ of the elderly had more than 1 year of schooling. The cut-off score that best discriminated cognitive disorders among the illiterate was 18/19 and the elderly with a previous school history had the best cut-off score of 25/26.

In the verbal fluency test, 46.0%⁽²³⁾ of the elderly had a score below 9, which is the expected score for illiterates. Only 26.0%

⁽¹³⁾ of the elderly had more than 8 years of schooling. Most elderly people had language and memory difficulties and were unable to speak and/or remember names of fruits and animals within the stipulated time.

None of the elderly were able to perform the 100% Trail Test ⁽⁵⁰⁾. The main difficulties observed during the attempt to carry out the trail test were: lack of motor coordination, upper limb paresis, decreased visual acuity, in addition to illiterate elderly people with few years of schooling who had difficulties in the test interconnections.

Regarding the pain variable, 72% ⁽³⁶⁾ of the elderly reported feeling pain, most of them had moderate to severe pain, 68.0% ⁽³⁴⁾. The most referred sites of pain were the lower limbs 26.0% ⁽¹³⁾, followed by pain in the spine (lumbar, cervical and dorsal) with 22.0% ⁽¹¹⁾ Table 2.

Regarding the Pain Face Scale, the biggest choice was for face number 5, which depicts "Maximum Pain 28.0% ⁽¹⁴⁾. Faces between 2 and 4 were indicated by 44.0% ⁽²²⁾ of the elderly. Regarding the duration of pain, 58.0% ⁽²⁹⁾ of the elderly reported feeling pain for more than 6 months, characterized as chronic pain. Figure 1.

Although these elderly people have pain, 56.0% ⁽²⁸⁾ of them do not use medication to treat their pain.

DISCUSSION

Most of the elderly in the study are male, which is similar to the results found in national studies. ¹⁷⁻¹⁸

Elderly, married, retired and low-educated subjects are also observed in another national study. ³ Elderly people with a low level of education obtained a low cut-off score in the cognitive assessment and those with a higher level of education showed an above-average cut-off score, taking into account the education variable. ¹⁹

Elderly people affected by stroke may be more weakened in their cognitive func-

Table 1 – Sociodemographic data of the elderly after stroke in the city of Coari, Amazonas, Brazil, 2022.

Sociodemographic Characteristics	N	%
Gender		
Female	14	28,0
Male	36	72,0
Age Group (years)		
60 to 69	17	34,0
70 to 79	18	36,0
80 to 89	15	30,0
Education		
Illiterate	25	50,0
Current Occupation		
Retired	41	82,0
Monthly income		
1 minimum wage	44	88,0
CVA episodes		
1 Episode	33	66,0
≥ 2 Episodes	17	34,0

Fonte: Próprio autor, 2022.

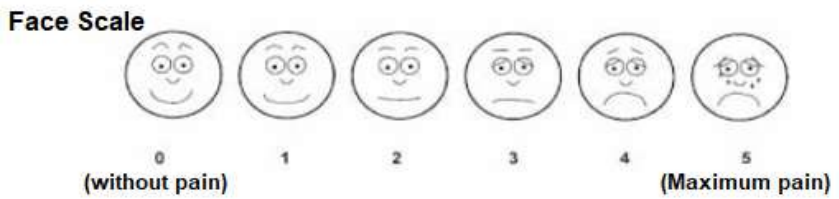
Table 2- Distribution of data regarding the location and intensity of pain, according to the Numerical Pain Scale. Coari, Amazonas, Brazil, 2022.

Presence of pain after CVA	N	%
Place of Pain		
Leg	8	16,0
Lumbar spine	7	14,0
Knee	5	10,0
Shoulder	4	8,0
Arm	4	8,0
Cervical spine	2	4,0
Backbone	2	4,0
Foot	2	4,0
Head	1	2,0
Hip	1	2,0
Pain Intensity		
10 unbearable intensity	4	8,0
7-9 strong intensity	15	30,0
4-6 moderated intensity	15	30,0
1-3 weak intensity	2	4,0

Source: The author, 2022.

tions, mainly to perform activities that required reasoning, quick thinking, immediate responses or to access long and short-term memory.²⁰ An international study reveals that individuals with cognitive impairment are more likely to develop inability to perform simple activities or use language skills, attention, concentration and agility in cognitive function.²¹ Elderly survivors of CVA have a much higher chance of severe cognitive impairment compared to other individuals. Added to this, the presence of executive and visuospatial dysfunctions is highlighted, with disorders that often become irreversible, reaching the independence and autonomy of the elderly.²² Elderly people after CVA have cognitive deficits related to language, memory, have difficulties in concentration, in remembering past situations or lessons learned, in addition to the commitment to perform simple tasks that involve mental functions.²³ The difficulty found in the verbal fluency test can be explained by the partial or total cognitive loss in elderly people with stroke, since they have impairment in the neural networks responsible for the elucidation of words.²⁴ The study findings²⁵ corroborate how the results of this research, during the use of the trail test in patients with stroke sequelae, most of the interviewees showed a low performance in the test resolution. Cognitive changes in the elderly after stroke contribute to the emergence of functional, social and mental limitations, given that the elderly begin to experience a new reality imposed by the disease. The injuries after the CVA impose the need for adaptation of the elderly and the family dynamics. In this study, there was a high prevalence of pain in the elderly. Pain after CVA has a high incidence and is a complex situation.²⁶ The importance of understanding, identifying, evaluating and treating pain in post-stroke patients stems from the principle that pain symptoms in this population are characterized by a chro-

Figure 1- Pain Face Scale. Coari, Amazonas, Brazil, 2022.



Source: General Directorate of Health, 2011.

nic nature and can lead to fatigue and depression.²⁷ The data from this study corroborate the study 26 of which 50 individuals evaluated, 64.0%⁽³²⁾ reported post-stroke pain, this study proved that the elderly presented, according to the numerical visual pain scale, minimum intensity of 5 and maximum of 10. Pain negatively influences the rehabilitation program, delaying the recovery process and increasing its cost.²⁸ The results of the study of 29 showed that headache was present in most elderly CVA victims, which differs from the results of this research in which the most reported pain by respondents was pain in the lower limbs. The study 10, on the other hand, showed a prevalence of pain in the lower limbs in 39% of the individuals. The study carried out by 9 revealed that most post-CVA subjects developed chronic pain symptoms and the causes were pain attributed to spasticity and central pain. Chronic pain is referred to as a recurrent complication of ischemic CVA.⁹ Chronic pain syndromes may result from central and peripheral mechanisms being mediated by nociceptive and neuropathic processes.⁹ This study points out that pain is directly related to the worsening and decline of cognition in post-CVA elderly people and points out that the treatment of painful conditions implies an improvement in the well-being and cognitive status of the elderly.⁸ Elderly people with pain present a greater cognitive and functional decline.

⁹ The severity of pain correlates with the severity of cognitive impairment and depression.¹⁰ Although the relationship between pain and these variables is complex, studies in the literature not related to CVA suggest that pain treatment is associated with improved cognition and quality of life.⁸ Nursing care seeks to identify functional and cognitive disabilities associated with CVA, in order to plan and implement nursing behaviors that help the elderly in the recovery and rehabilitation process, mainly related to cognitive changes.³⁰ Specialist Nurses in Rehabilitation Nursing (EEER) are responsible for evaluating and rehabilitating the neurocognitive function of the elderly after CVA, through planned and systematized interventions. The nursing process takes place through a previous survey of the level of cognitive impairment in the elderly, conducted by specific and validated scales and instruments. The implementations are also carried out through the nursing diagnoses that guide the nurse's performance in the face of the health conditions identified in the elderly with sequelae.³¹ Furthermore, the assistance provided by nurses should also be aimed at identifying the presence of pain in the elderly affected by CVA. Therefore, nurses must actively listen, questioning the elderly about the presence, location and intensity of pain, in order to diagnose and plan therapeutic measures to alleviate the pain. Within nursing care, pharmacological interventions stand out, such as the administration of analgesics and non-pharmacological ones, such as the use of

compresses, relaxing massages, and other strategies that provide comfort and well-being to the elderly.¹¹

LIMITATIONS OF THE STUDY

Among the limitations of this study is the scarcity of national and international literature on articles that address cognitive and pain aspects in elderly patients with stroke, limiting the comparison of results. The sample size makes it difficult to generalize the results, due to the COVID-19 pandemic that devastated the world and the interior of Amazonas.

CONCLUSION

It is concluded that after the CVA, the elderly in this study presented considerable cognitive alterations and worsened pain. Most elderly people do not use medication to treat pain, so pain symptoms tend to increase over time. In addition, several

aspects related to cognitive functions are impaired in these elderly people.

Pain and cognition directly affect the functional capacity of these elderly people, who were mostly bedridden with severe mobility and functionality deficits, directly altering their autonomy, with an outcome in feelings of discouragement and impotence. The lack of pain medication available in the public network and the low income of the elderly are important aggravating factors to be observed. The difficulty in accessing health services, in addition to the lack of a consolidated support network for seeking health services, contribute to the permanence and worsening of pain.

Prevention measures regarding the risk factors for CVA can be performed and carried out by the professional nurse who works directly with these elderly people in the community, their families and the community. It is essential that these professionals are trained to detect individu-

als who are vulnerable to predisposing conditions for the occurrence of stroke. Through previous data referring to the health-disease process of these individuals and the evaluation of clinical manifestations, the nurse has a fundamental role in the following behaviors to assist this elderly person. Furthermore, nurses have a prominent role in health education, since they are able to teach self-care in order to guide the individual affected by the CVA, as well as, guide their families and caregivers, thus promoting information necessary for the new specific care routine for each elderly person according to their respective clinical conditions.

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